

Image Source: ESRI Basemap (2022) Data source: VIC Data (2022); DELWP (2022)



Image Source: ESRI Basemap (2022) Data source: VIC Data (2022); DELWP (2022); CSIRO (2022)



A summary of the coastal and soil issues desktop assessment outcomes is provided in Table 10.1.

Table 10.1 Summary of Desktop Assessment Outcomes – Coastal Issues and Soils

Summary of Assessment Outcomes

- There is potential for coastal acid sulfate soils to be present within the shoreline of the onshore Study Area and should be considered in regard to the cable landing and route to the onshore substation. The remainder of the onshore Study Area is considered to have a low probability of containing acid sulfate soils.
- Most of the onshore Study Area is used for agricultural and forestry practices which are generally considered to be a low risk of contamination. There is one historic landfill located within the Seaspray township, however no Project infrastructure will be located within proximity to this site.

10.2 Potential Impacts

Following definition of the existing environmental context of the Project Area and surrounding area, potential coastal and soil impacts have been identified with consideration of the Project design, construction, operation, and decommissioning activities in the context of the existing conditions. An overview of these potential impacts is provided in **Table 10.2**.

Table 10.2 Potential Impacts – Coastal Issues and Soils

Impact	Project Component	Phase
Construction activities such as excavation and trenching disturb acid sulfate soils resulting in potential impacts on the surrounding environment, such as leaching of acidic water into soil and groundwater.	Onshore	Construction
Prolonged excavations and stockpiling of acid sulfate soils exposed to rainfall results in acidic surface water runoff released into the surrounding environment.	Onshore	Construction
Inappropriate handling, storage, and disposal of acid sulfate soils results in impacts on human health via direct contract, ingestion, or recreation.	Onshore	Construction
Construction activities such as excavation and trenching disturb contaminated soils and/or sediments which results in the mobilisation of contaminants and adversely impacts on the surrounding environment.	Onshore and Offshore	Construction



11.0 Air Quality and Noise and Vibration

11.1 Existing Conditions

Existing conditions for air quality and noise and vibration are largely defined by the presence of sensitive receptors that have potential to be impacted as well as the background noise levels and air quality conditions to form a baseline on which to assess potential impacts. Background noise levels and air quality conditions have not been determined at this stage however, this section identifies nearby sensitive receptors that have potential to be impacted.

Construction and operation of the Project have potential to result in air quality and noise and vibration impacts on nearby sensitive receptors. Sensitive human receptors typically considered in an air quality and/or noise and vibration impact assessment include locations where people may live, work, or undertake recreational activities and where they may be affected by dust, air pollutants or noise emitted from a particular activity.

Most of the onshore component of the Project is located in a predominantly rural setting with no major sources of pollution. The exception to this is the western end of the transmission route option 2 where it meets the Loy Yang Power Station, which would be considered a major source of pollution within the Study Area. The western end of transmission route option 1a and 1b is also within close proximity to Morwell Opencut mine. The primary source of dust and particulate matter in the Study Area would be wind driven dust, disturbance of material due to farming and plantation activities, and wheel-generated dust from vehicles moving along unsealed roads. Background air quality would need to be investigated as part of the next phase of assessment to determine the existing air quality conditions for the Study Area. The closest EPA ambient air monitoring station that could be used to inform background air quality within the Study Area is located at Traralgon.

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 the transmission route will likely be higher than those receptors near the Loy Yang Power Station (industrial noise contributions will raise the background) and near townships such as Seaspray. Background noise monitoring will be required in Phase 2 within the Study Area.

A summary of the sensitive receptors identified within the onshore Study Area through desktop mapping is provided in **Table 11.1.** The location and number of sensitive receptors would require ground truthing in the next phase of assessment. The sensitive receptors that have potential to be impacted by air quality and noise and vibration are dwellings and campgrounds. A buffer of 350m has also been applied as this is considered a likely range in which air quality impacts from construction of the onshore transmission line may be felt by sensitive receptors. The high number of dwellings within the Study Area is attributed to the Seaspray township. The location of these sensitive receptors is shown in **Figure 11.1**.



Table 11.1 Sensitive Receptors within the Study Area

Sensitive receptor	No. within the Study Area	No. within 350 m of transmission route option 1a and 1b	No. within 350 m of transmission route option 2
Residential dwellings	590	62	28
Campgrounds	1	0	0





Drainage line

Image Source: ESRI Basemap (2022) Data source: VIC Data (2022); DELWP (2022)

- - Subsea cabling option 2



A summary of the air quality and noise and vibration desktop assessment outcomes is provided in **Table 11.2.**

Table 11.2 Summary of Desktop Assessment Outcomes – Air Quality and Noise and Vibration

Summary of Assessment Outcomes

- Majority of the onshore Study Area is located in a predominantly rural setting with no major sources of pollution, except at the connection point in the western end of the transmission route option 2 at the Loy Yang Power Station. The western end of transmission route option 1a and 1b is also within close proximity to Morwell Opencut Mine.
- The primary source of dust and particulate matter in the Study Area would likely be wind driven dust, disturbance of material due to farming and plantation activities, and wheel-generated dust from vehicles moving along unsealed roads.
- Majority of transmission route is agricultural land and nature reserves where background noise levels are expected to be low, whilst higher levels will be experienced near townships like Seaspray and industrial areas near the Loy Yang Power Station and Morwell Opencut mine.
- Desktop mapping indicates there are 590 dwellings and 1 campground located within the Study Area. There are 62 residential dwellings within 350 m of transmission route option 1a and 1b, and there are only 28 residential dwellings within 350 m of transmission route option 2.

11.2 Potential Impacts

Following definition of the existing environmental context of the Project Area and surrounding area, potential air quality and noise and vibration impacts have been identified with consideration of the Project design, construction, operation, and decommissioning activities in the context of the existing conditions. An overview of these potential impacts is provided in **Table 11.3**.

Table 11.3 Potential Impacts – Air Quality and Noise and Vibrat

Impact	Project Component	Phase
Generation of air emissions and dust from onshore construction works impacts on nearby sensitive receptors and local air quality.	Onshore	Construction Decommissioning
Exhaust emissions from vehicles, barges, and support vessels during construction impact on local air quality.	Offshore	Construction Decommissioning
Operation and maintenance activities generate air emissions impacting on nearby sensitive receptors and local air quality	Onshore and Offshore	Operation
Noise and/or vibration from construction activities exceeds guideline/threshold levels potentially impacting on sensitive receptors (such as dwellings and public open space areas)	Onshore	Construction Decommissioning
Noise and/or vibration from offshore construction activities exceeds guideline/threshold levels potentially impacting on ambient noise levels.	Offshore	Construction Decommissioning
Noise and/or vibration from maintenance and operation activities associated with the transmission line and onshore substation exceeds guideline/threshold levels potentially impacting on sensitive receptors (such as dwellings and public open space areas)	Onshore	Operation



12.0 Transport

12.1 Existing Conditions

12.1.1 Road Network

The local road network within the Study Area consists of a combination of local and state governmentmanaged (Wellington Shire Council, Latrobe City Council and Department of Transport) public road assets.

The main arterial roads that intersect with the Study Area are South Gippsland Highway, Seaspray Road and Hyland Highway. South Gippsland Highway crosses the transmission line corridor north to south adjacent to the Giffard (Rifle Range) Flora Reserve in the eastern end of the Study Area. Seaspray Road extends north from the Seaspray townships and intersects with the northern boundary of the Study Area. Hyland Highway intersects the Study Area north to south in the western end of the transmission line corridor. The Study Area also intersects with a number of other local roads including Giffard Road which is a sealed road that runs north to south, and Gormandale-Stradbroke Road which runs east to west through the Study Area. Gormandale-Stradbroke Road is predominantly a sealed road, however, a section of it is unsealed where it intersects with the Study Area east of the Willung township. A number of other local roads in the area, particularly through plantations are unsealed roads.

An overview of the main arterial roads within the Study Area and the Annual Average Daily Traffic (AADT) for each road is provided in **Table 12.1** and shown on **Figure 12.1**. It is likely these arterial roads would be used during the construction phase of the Project. AADT is the yearly volume of vehicles divided by 365 to determine an average daily traffic volume. The two-way AADT is also shown, which provides a two-way yearly volume for vehicles divided by 365. The traffic volumes provided are estimated volumes, not actual volumes. These arterial roads are managed by Department of Transport.

C Class roads are generally two-lane sealed roads with shoulders. C Class roads provide important links between population centres and between these centres and the primary transport network. A Class roads provide a high standard of driving conditions on a single carriageway and are primary road links connecting Melbourne and other capital cities and major provincial centres. A Class roads serve the same purpose as M Class roads but carry less traffic.

Road Name	Туре	Classification	AADT – All vehicles	AADT Two Way – All vehicles	AADT – Trucks	AADT Two Way – Trucks
Seaspray Road	Arterial	C Class	257	620	30	60
South Gippsland Highway (between Sale-Seaspray Road and High Street)	Arterial Highway	A Class	757	1600	121	260
Hyland Highway (Yarram-Traralgon Road between Grand Ridge Road and Hyland Highway)	Arterial	C Class	1400	2800	165	310

Table 12.1 Arterial Roads within the Study Area



Road Name	Туре	Classification	AADT – All vehicles	AADT Two Way – All vehicles	AADT – Trucks	AADT Two Way – Trucks
Hyland Highway (between Mattingley Hill Road and Unnamed)	Arterial	C Class	2600	5300	129	520
Rosedale-Longford Road	Arterial	C Class	584	1200	116	210
Hazelwood Road (between Sanders Road and Firmins Lane)	Arterial	C Class	2100	4400	148	260
Hazelwood Road (between Tramway Road and Maryvale Road)	Arterial	C Class	1600	3300	93	200
Firmins Lane (between Hazelwood Road and Tranway Road)	Arterial	C Class	2800	5300	360	640
Tramway Road (between Churchill-Traralgon Road and Loy-Yang Morwell Road)	Arterial	C Class	2200	4800	293	600

It is anticipated that the Project would use existing port facilities for the delivery of project components, such as wind turbines and other associated infrastructure. At this stage, the delivery port for materials and turbine components has not been selected, however it is noted Barry Beach Terminal, Port of Hastings and Port of Geelong and other ports are being considered as potential options. Potential roads to be used by over dimensional vehicles delivering project components to Project Area have not been identified at this early stage of the Project. The potential route for the delivery of oversized project components from potential port options would require consideration in the next phase of assessment.

12.1.2 Public Transport

Public Transport Victoria shows the following regional bus routes operating within the onshore Study Area:

- Sale Seaspray via Longford which currently operates two services on Thursdays
- Yarram Traralgon via Gormandale which operates three daily services Monday to Friday, and two daily services on Saturday and Sunday
- Churchill Traralgon Via Federation University which operates one service daily Monday to Friday
- Traralgon Traralgon South which operates five services daily Monday to Friday
- Morwell Churchill which operates 17 services daily Monday to Friday, and 14 services daily on Saturday and Sunday.

The routes of these services are shown on Figure 12.1.





Image Source: ESRI Basemap (2022) Data source: VIC Data (2022); Department of Transport (2022)



A summary of the transport desktop assessment outcomes is provided in Table 12.2.

Table 12.2 Summary of Desktop Assessment Outcomes – Transport

Summary of Assessment Outcomes

- The local road network within the Study Area is a combination of State and locally owned roads, with several local roads unsealed.
- Several arterial roads are located within the Study Area: South Gippsland Highway, Hyland Highway, Seaspray Road, Rosedale-Longford Road, Hazelwood Road, Firmins Lane, and Tramway Road
- Public transport within the Study Area is limited with 5 public bus routes running through the Study Area.

12.2 Potential Impacts

Following definition of the existing environmental context of the Project Area and surrounding area, potential transport impacts have been identified with consideration of the Project design, construction, operation, and decommissioning activities in the context of the existing conditions. An overview of these potential impacts is provided in **Table 12.3**.

Table 12.3 Potential Impacts – Transport

Impact	Project Component	Phase
Construction vehicles result in changes to normal traffic and transport conditions, including increased traffic, increased safety risk and impacts on the operation of public transport.	Onshore	Construction
Construction works result in road closures and changes/disruptions to connectivity of the local road network, such as restricted access.	Onshore	Construction
Over dimensional (OD) vehicles required to transport infrastructure to the Project Area create 'pinch points' requiring road and/or intersection upgrades along the identified OD route.	Onshore	Construction
Local roads require upgrades to accommodate heavy construction and OD vehicles to ensure they are durable and to minimise safety risks.	Onshore	Construction
Operation and maintenance activities result in changes to normal traffic and transport conditions.	Onshore	Operation



13.0 Design Constraints and Recommendations

Based on the outcomes of the impact screening undertaken to identify potential impacts, relevant design constraints and opportunities that have potential to affect the suitability of the Project Area have then been identified. These should be taken into consideration by BFE to avoid or minimise potential impacts. A summary of the identified design constraints and recommendations is provided in **Table 13.1**.

Design Constraints and Recommendations	
Identified Design Constraints	Recommended Actions
Native vegetation, sensitive habitats, threatened species, communities and migratory species (EPBC Act and FFG Act) within the Study Area (terrestrial and marine).	All project infrastructure to avoid intersecting (direct impact) to the Ninety Mile Beach Marine National Park and nearby Gippsland Lakes Ramsar Wetlands. Investigate alignment options for the transmission line that utilises co- location with other infrastructure and existing cleared/disturbed land to avoid/minimise impacts.
	Explore construction methodologies that avoid or minimise direct and indirect impacts on sensitive receiving environment (such as wetlands and habitat of threatened species and communities). This could include use of horizontal directional drilling to avoid open trenching.
Offshore cabling has potential to impact on marine species through generation of EMF. Cabling laid on the seafloor (unburied) has a greater potential to result in EMF impact on marine species.	It is recommended to bury the offshore cabling at a sufficient depth (e.g. 1.0 to 1.5 m) to reduce EMF and subsequent impacts on marine fauna.
Areas of cultural heritage sensitivity within the Project Area contain a higher likelihood of encountering unregistered cultural heritage material or sites which could result in the need to alter the project location of construction methods	Design to avoid areas of cultural heritage sensitivity where possible, particularly within proximity to waterways. Waterways, plus land within 200 m of them, are considered areas of cultural heritage sensitivity.
One Aboriginal ancestral remains (burial) registered place is located at the shoreline crossing for cabling option 1. One Aboriginal ancestral remains (burial) registered place is located south of the shoreline crossing for cabling option 2.	To avoid potential direct impacts on the registered Aboriginal ancestral remains (burial) site located at the shoreline crossing of subsea cabling option 1, selection of option 2 for the subsea cabling would be the recommended option. Alternatively, realignment of option would be recommended.
The SS Glenelg Shipwreck is located within the offshore wind farm component. This shipwreck has an exclusion zone of 500 m.	Avoid locating turbines or undertaking construction works within the SS Glenelg Shipwreck exclusion zone. A permit will be required under the <i>Underwater Cultural Heritage Act 2018</i> should works be undertaken within the exclusion zone.
The four Esso perch wells, the Tasmanian Gas Pipeline, the pipeline from the Esso perch wells to Seaspray and Basslink all have a 500 m exclusion zone.	Avoid locating turbines or undertaking construction works within the 500 m exclusion zones of these assets.

Table 13.1 Project Design Constraints and Recommendations



Design Constraints and Recommendations	
Prospective coastal acid sulfate soils mapped where the subsea cabling meets the shoreline.	If coastal acid sulfate soils are found to be present, it is recommended to construct the underground cabling via horizontal directional drilling, rather than open cut trenching. This would minimise the degree of disturbance and exposure of acid sulfate soils. Particularly, with the Ninety Mile Beach National Marine Park located within close proximity to the shoreline crossing, which has potential to be affected by the leaching of acidic water.
High number of dwellings within the Seaspray township, adjacent to the shoreline crossing of option 1 cabling.	Option 2 of the underground cabling is located at a greater distance from the Seaspray township and sensitive receptors. It is likely option 2 would result in less air quality and noise and vibration impacts on sensitive receptors during construction and would therefore be the recommended option.
Areas of public land identified as being set aside for conservation purposes	Avoid where possible. If not able to be avoided, use of existing linear infrastructure corridors (such as roads, access tracks and easements) should be prioritised.
Land use zones associated with public land.	Consider the objectives for these zones and ensure that the project infrastructure does not materially compromise these objectives.



14.0 Key Project Risks

The following table identifies any key project risks associated with the Project which may affect the timing, cost, approvals, design, or other elements critical to the project viability and delivery success.

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Project Risk	Recommendation
DCCEEW require up to 2 years of field survey data for several EPBC Act species and communities prior to submission of assessment for their approval.	Recommend an early discussion with DCCEEW on field survey data requirements and if 24 months is a minimum expectation. Ensure project schedule reflects the DCCEEW requirements and if necessary up to 24 months of ecological data collection from field surveys, in addition to assessment and reporting time prior to EPBC Act assessment submission to DCCEEW.
Feasibility licence required under the <i>Offshore Electricity</i> <i>Infrastructure Act 2021</i> to undertake intrusive marine studies. Timing dependent on completion of the formal declaration of Gippsland offshore zone, before preparing and submitting licence application for approval. Project program implications.	Maintain regular engagement with DCCEEW and NOPSEMA to track the status of offshore zone declarations and proposed timing of Feasibility Licences in terms of preparation, assessment by regulators and approval.
Existing petroleum licences within Study Areaand exclusion zones to consider	Consult with existing petroleum licence holders and potentially NOPTA to agree on activities permitted within these zones and any opportunity for sharing or reuse of infrastructure.
Seasonal survey requirements for certain marine species.	Develop a study program of further assessments and commence field studies as early as possible with necessary approvals or licences to be obtained.
Community opposition particularly relating to cumulative impacts of offshore wind development	Conduct a Socio-economic Impact Assessment and comprehensive community stakeholder engagement plan.
Poor community engagement practice results in lack of Project support/acceptance	Implement a community engagement plan that identified key stakeholder groups and engagement strategies at different stages of the Project
Poor engagement with Aboriginal communities and Traditional Owners results in lack of Project support/acceptance	Engage with GLaWAC early to identify concerns and opportunities to develop an Aboriginal Engagement Plan
Duration of Cultural Heritage Management Plan (CHMP) Discovery of unregistered heritage material or sites within the Project Area which could halt / delay the construction program or result in late design changes.	Undertake EE Act and EPBC Act referrals early to determine requirements for cultural heritage assessment and approvals. Commence a CHMP as soon as possible including a complex assessment. Engage with the RAP groups early and ongoing throughout the project. Gather their feedback to inform design and management.
Coincidence with several land use zones and overlays, including public land use zones, introduces permitting complexities that may require extensive consultation with stakeholders including public land managers.	Prepare and consult on a comprehensive planning approvals strategy (underway). Commence consultation with public land managers early to ensure technical, environmental and operational matters inform construction and operation.



Project Risk	Recommendation
Locating Project infrastructure with areas of determined Native Title may result in a requirement to enter an Indigenous Land Use Agreement (ILUA).	Commence discussions with the Native Title holder early on.
The ESO1 identifies the environmental significance of the Ninety Mile Beach and Gippsland Lakes and their environs as some of the most significant environmental, landscape, and recreational areas within the State of Victoria. Satisfying decision makers that the objectives of this overlay can be met/not compromised with the insertion of Project infrastructure may require concerted effort.	Consult with key stakeholders including Council (that administer the planning scheme), DELWP, local communities, local environment groups, local tourism operators and other associated stakeholders, to ensure that landscape and visual values are well understood.
Concerns regarding the visual effect of offshore wind turbines may lead to project opposition and planning objections.	Utilise high quality photomontages and 3D imagery to provide realistic views to the public and stakeholders during public engagement and consultation events.



15.0 Further Assessment Recommendations

The further assessments identified below in **Table 15.1** are recommended to be undertaken in the phase of the Project. These recommendations have been informed by the outcomes of this desktop assessment, State and Commonwealth assessment and approval requirements, and our team's knowledge and experience of similar projects and environments. This will form the basis of the scope of environmental assessment for Phase 2 of the Project.

Further Assessment	Critical or Seasonal Timing
Terrestrial Biodiversity Impact Assessment	Commence following completion on required field surveys
MNES Assessment	Commence following completion of required field surveys
Marine Ecology Impact Assessment	Commence following completion of required field surveys
Commonwealth Waters Impact Assessment	Commence following completion of required field surveys
Social Impact Assessment	None
Economic Impact Assessment	None
Agricultural Impact Assessment	None
Cultural Heritage Management Plan	Approval of CHMP required before granting of Planning approval
Aboriginal Cultural Heritage Impact Assessment	Requires input from the CHMP
Cultural Values Assessment	None
Non-Aboriginal Cultural Heritage Impact Assessment	None
Surface Water Impact Assessment	None
Groundwater Impact Assessment	None
Landscape and Visual Impact Assessment	None
Land Use and Planning Impact Assessment	None
Onshore Contamination and Acid Sulfate Soil Impact Assessment	None
Noise and Vibration Impact Assessment	None
Air Quality Impact Assessment	None
Transport Impact Assessment	None
Electromagnetic Interference Impact Assessment	None
Bushfire Risk Assessment	None
Safety, Hazard, and Risk Assessment	None
Greenhouse Gas and Climate Change Assessment	None
Aviation Impact Assessment	None
Transmission Line Route Options Assessment	None

 Table 15.1
 Further Assessment Recommendations for the Project



16.0 Conclusion

Preliminary desktop assessments have been undertaken for the Project to characterise the existing conditions of the Study Area and identify potential impacts that may occur as a result of the construction, operation, and decommissioning of the Project. Key environmental and planning risks have also been identified which affect the timing, cost, approvals, design, or other elements critical to the Project viability and delivery success.

Potential impacts have been identified for a range of disciplines through desktop assessments including marine, biodiversity, social, hydrology, cultural heritage, land use, landscape and visual, coastal issues and soils, air quality, noise and vibration, and transport.

The outcomes of these assessments have identified the following key design refinement recommendations:

- All project infrastructure to avoid intersecting with the Ninety Mile Beach Marine National Park and nearby Gippsland Lakes Ramsar Wetlands.
- Investigate opportunities for the transmission line to utilise co-location with other infrastructure and existing cleared/disturbed land.
- Explore construction methodologies (such as HDD) that avoid or minimise direct impacts on sensitive receiving environments (such as wetlands and habitat for threatened species and ecological communities).
- Bury subsea cabling at a sufficient depth to reduce electromagnetic fields.
- Option 2 of the subsea cabling shoreline crossing is recommended to avoid potential direct impacts on the registered Aboriginal ancestral remains (burial) site located at the subsea cabling shoreline crossing for option 1.
- Design Project infrastructure to avoid areas of cultural heritage sensitivity where possible, particularly within proximity to waterways.
- Avoid locating turbines or undertaking construction works within the SS Glenelg Shipwreck exclusion zone. A permit would be required under the *Underwater Cultural Heritage Act 2018* should works be undertaken within this exclusion zone.
- Avoid locating turbines or undertaking construction works within the 500 m exclusion zones of the four Esso perch wells, the Tasmanian Gas Pipeline, the pipeline from the Esso perch wells to Seaspray and Basslink that are all located within the offshore Study Area.
- Option 2 of the subsea cabling shoreline crossing is the recommended option as it is located at a greater distance from the Seaspray township and sensitive receptors and would likely result in less amenity impacts during construction.
- Avoid areas of public land where possible, particularly public land set aside for conservation and recreation purposes.



The outcomes of these desktop assessment have also informed a list of further assessments that are recommended to be undertaken as part of the next phase of the Project. These recommendations are also based on relevant State and Federal approval and assessment requirements that the Project is likely to be subjected to.





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