Planning Panels Victoria

Marinus Link Project

EES Inquiry and Advisory Committee Report on effects on the Victorian environment

13 December 2024

VICTORIA State Government

Planning Panels Victoria acknowledges the Wurundjeri Woi Wurrung People as the traditional custodians of the land on which our office is located. We pay our respects to their Elders past and present.

Environment Effects Act 1978 - Inquiry report under section 9(1)

Planning and Environment Act 1987 - Advisory Committee report under section 151(1)

Marinus Link Project

13 December 2024

Sarah Carlisle, Chair

Tim Hellsten, Deputy Chair

Sandra Brizga, Member

Ian Hamm, Member

Colin McIntosh, Member

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Panels
Victoria

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Glossary and abbreviations

Note: All legislation is Victorian unless indicated otherwise.

µPa	micropascal
µT	microtesla
AoD	Area of Disturbance
ASS	acid sulfate soils
Biodiversity 2037	*Protecting Victoria's Environment - Biodiversity 2037*
BLCAC	Bunurong Land Council Aboriginal Corporation
CEMP	Construction Environmental Management Plan
CFA	Country Fire Authority
CNVMP	Construction Noise and Vibration Management Plan
D[number]	tabled document [number]
DEECA	Department of Energy, Environment and Climate Change
draft PSA	draft Amendment GC217 to the Latrobe and South Gippsland Planning Schemes
DTP	Department of Transport and Planning
EE Act	*Environment Effects Act 1978*
EES	Environment Effects Statement
EIS	Environmental Impact Statement
EMF	Environmental Management Framework
EMI	electromagnetic interference
EP Act	*Environment Protection Act 2017*
EPA	Environment Protection Authority Victoria
EPA Publication 1834.1	EPA Publication 1834.1 *Civil construction, building and demolition guide*
EPA Publication 1961	EPA Publication 1961: *Guideline for assessing and minimising air pollution*
EPA Publication 2048	EPA Publication 2048: *Guideline for managing greenhouse gas emissions*

EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
EPR	Environmental Performance Requirement
EVCs	Ecological Vegetation Classes
FFG Act	*Flora and Fauna Guarantee Act 1988*
FTE	Full Time Equivalent
GED	General Environmental Duty
GHG	greenhouse gas
Gippsland Skies	Gippsland Skies Offshore Wind Energy Project
GLWAC	Gunaikurnai Land and Waters Aboriginal Corporation
HDD	horizontal directional drilling
HF cetaceans	high-frequency hearing cetaceans
HVDC	high voltage direct current
HVP	Hancock Victorian Plantations Pty Ltd
IAC	Inquiry and Advisory Committee
Incorporated Document	Marinus Link Project Incorporated Document, 2 February 2024
Koala Strategy	*Victorian Koala Management Strategy*, DEECA, 2023
KP	kilometre point
MAC Act	*Marine and Coastal Act 2018*
MW	megawatt
Native Vegetation Guidelines	*Guidelines for the removal, destruction or lopping of native vegetation*, DELWP, 2017
NEM	National Electricity Market
NMFS 2018 guidelines	*Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing, (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts*, National Marine Fisheries Service, 2018
NMFS 2024 guidelines	*2024 Update to Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 3.0): Underwater and In-Air Criteria for Onset Auditory Injury and Temporary Threshold Shifts,* National Marine Fisheries Service, draft
Noise Protocol	EPA Victoria Publication 1826.4 *Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venue*
OEMP	Operations Environmental Management Plan

PE Act	*Planning and Environment Act 1987*
PMP	Property Management Plan
the Project	Marinus Link
Proponent	Marinus Link Pty Ltd
S[number]	submission [number]
SCO3	Specific Controls Overlay Schedule 3
SF_6	sulphur hexafluoride
$tCO_{2\text{-}e}$	tonnes of carbon dioxide equivalent
West Gippsland CMA	West Gippsland Catchment Management Authority

Overview

Project summary	
The Project	Marinus Link Project
Brief description	An electricity and fibreoptic cable connection between Tasmania and Victoria
Project location	The subsea cable alignment runs from Heybridge in Tasmania under Bass Straight to a shore crossing at Waratah Bay in Victoria. The Victorian land cable alignment runs from Waratah Bay to Hazelwood
The Proponent	Marinus Link Pty Ltd
Draft Planning Scheme Amendment	Draft Amendment GC217 to the Latrobe and South Gippsland Planning Schemes
Exhibition	20 May to 2 July 2024
Submissions	Number of Submissions: 27 Refer to Appendix B

Inquiry and Advisory Committee process	
The IAC	Sarah Carlisle, Chair Tim Hellsten, Deputy Chair Sandra Brizga, Member Ian Hamm, Member Colin McIntosh, Member
Supported by	Amy Selvaraj, Major Projects Manager, Planning Panels Victoria
Directions Hearing	Planning Panels Victoria, 6 August 2024
Panel Hearing	Planning Panels Victoria, over 13 sitting days between 19 September and 10 October 2024
Site inspections	Unaccompanied inspection 10 September 2024 Accompanied inspection 11 September 2024
Parties to the Hearing	Refer to Appendix C
Citation	Marinus Link Project EES [2024] PPV
Date of this report	13 December 2024

Executive summary

The National Electricity Market (NEM) is made up of five physically connected regions on the east coast of Australia – Queensland, New South Wales, Victoria, Tasmania and South Australia. Electricity is generated and used in each region and traded across regions. According to the Australian Energy Market Commission's website, the NEM generates around 200 terawatt hours of electricity annually, supplying around 80 percent of Australia's electricity consumption.

Tasmania is connected to the NEM via BassLink, which extends from Loy Yang in Victoria to George Town in Tasmania. BassLink is 370 kilometres long and includes a 290 kilometre subsea cable. It has a capacity of around 600 megawatts (MW), and is often operating at near capacity.

The Marinus Link Project (the Project) is a proposed 1500 MW electricity and telecommunications interconnector between Tasmania and Victoria. The Proponent (Marinus Link Pty Ltd) is jointly owned by the Commonwealth, Victorian and Tasmanian governments. Marinus Link will provide a second link between Tasmania and Victoria, connecting Tasmanian renewable energy resources (primarily wind and hydro) to other NEM regions. The link will enable the transmission of electricity in both directions between the two states, increasing supply and network stability in both States and in the national grid.

The key elements of the Project include:

- subsea cables around 255 kilometres long under Bass Strait, from Heybridge in Tasmania to Waratah Bay in Victoria
- a Victorian shore crossing at Waratah Bay, around 3 kilometres west of Sandy Point
- a land-sea cable joint where the subsea cables will connect to the land cables
- a fibreoptic cable inspection and communications building (and potential transition station) on Waratah Road just behind Waratah Bay
- around 90 kilometres of trenched underground land cables, running from the land-sea joint at Waratah Bay to a converter station at Hazelwood in a 20 metre wide easement
- a converter station at Hazelwood, adjacent to the existing Hazelwood Terminal Station, where the Project will connect into the Victorian transmission network.

The proposed Victorian works will extend from the three nautical mile limit of Victorian coastal waters to Hazelwood.

The Proponent prepared a combined Environmental Impact Statement (EIS) and Environment Effects Statement (EES) to assess the potential effects of the Project on the Victorian and Commonwealth environments to meet the requirements of the *Environmental Effects Act 1978* (EE Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act). This report refers to refers to the combined EIS and EES as the EES.

Draft Planning Scheme Amendment GC217 to the Latrobe and South Gippsland Planning Schemes (the draft PSA) is an attachment to the EES. The draft PSA proposes to provide planning approval for the Project.

The Minister for Planning appointed the Inquiry and Advisory Committee (IAC) on 17 July 2024 to inquire into and report on the Project and its impacts on the Victorian environment, as well as the draft PSA.

After carefully considering the EES, the submissions and the material put before the IAC, the IAC has concluded the Project's environmental, social and economic impacts on Victoria can be acceptably managed with the implementation of amended Environmental Performance Requirements (EPRs).

The subsea and land cable alignments have been selected having appropriate regard to terrain and geomorphic characteristics and sea floor conditions in Victorian waters. The route selection has appropriately sought to avoid and minimise harm to environmental values along the route. Where impacts could not be avoided or sufficiently minimised through route selection, the land cables will be micro sited to avoid significant values, or construction techniques such as horizontal directional drilling (HDD) will be used to avoid direct impacts.

Avoiding and minimising environmental impacts was not the only consideration influencing the initial design of the Project, but the IAC is satisfied the need to avoid and minimise environmental impacts has been appropriately balanced with other criteria such as cost, land availability, constructability and the like.

The potential impacts of the Project have been significantly reduced through key design decisions. These include undergrounding the land cables and constructing the shore crossing at Waratah Bay using trenchless methods such as HDD. Sensitive waterway crossings will also be constructed using HDD or similar methods. The selection of high voltage direct current cable technology will minimise electromagnetic fields and electromagnetic interference from the cables in both the marine and terrestrial environments.

Some modifications are required to the design or management of the Project to deliver improved environmental outcomes. These can be implemented through changes to the EPRs. The IAC's recommended changes seek to ensure:

- the survey and assessment of native vegetation that could be impacted by the Project is completed before construction starts
- the assessment of suitable habitat for threatened flora and fauna species and koalas is completed before construction starts
- the final design of the Project is informed by these further assessments, and avoids and minimises impacts on native vegetation and threatened species and their habitat, including koalas and the critically endangered Bog Gum
- measures are implemented to limit the spread of Chytrid fungus, which can impact amphibians including the vulnerable Growling Gass Frog
- the undersea cable alignment avoids seagrass in Waratah Bay to the extent practicable
- the marine fauna management plan includes strengthened requirements to protect marine species from underwater noise and vessel collisions
- the marine fauna management plan (and other marine species specific plans) apply both during construction and operations phases
- geomorphological and surface water EPRs are strengthened, including adding requirements to:
  - limit the risk of frac-out (the accidental release of drilling fluids) at the shore crossing
  - ensure proper assessments of waterway values and aquatic habitats are undertaken before trenched waterway crossings are constructed, and that these inform the construction method selected for the crossing

  - ensure the design and construction method for waterway crossings has regard to geomorphological conditions and ensures waterway stability
  - further investigate the geomorphological characteristics of the property at 380 Darlimurla Road
  - test for sodic and dispersive soils
  - consider the Code of Practice for Timber Production in forestry areas
- heat impacts of the land cables (as well as electromagnetic interference) are considered in the design and construction of the Project
- noise impacts on natural outdoor areas are considered and minimised
- low frequency noise is considered in the design and operation of the converter station
- the bushfire EPRs are streamlined and clarified, and the Bushfire Management Plan is developed in consultation with the Country Fire Authority.

Minor changes are also required to the draft PSA to clarify and strengthen offset requirements for native vegetation removal.

Primary finding and recommendations

It is not the IAC's role to recommend whether or not the Project should be approved. The IAC's task is to assess whether the Project's impacts will be acceptable, and whether any changes could be made to the EPRs or the draft PSA to deliver improved environmental outcomes.

The IAC finds:

With the changes to the Environmental Performance Requirements recommended by the Inquiry and Advisory Committee in Appendix E:1, and the changes recommended to the Marinus Link Project Incorporated Document in Appendix E:2, the effects of the Marinus Link Project on the Victorian environment can be managed to an acceptable level.

The IAC recommends:

1. **If the Marinus Link Project proceeds:**
   a) **amend the Environmental Performance Requirements as shown in Appendix E:1**
   b) **further review the Environmental Performance Requirements to ensure they are drafted consistent with the principles outlined in Chapter 8**
   c) **amend the exhibited Incorporated Document proposed to be introduced by draft Amendment GC217 to the Latrobe and South Gippsland Planning Schemes as shown in Appendix E:2.**

PART A: INTRODUCTION AND BACKGROUND

1 The Project

1.1 Overview

Marinus Link (the Project) is a proposed electricity and telecommunications interconnector between Tasmania and Victoria. It will provide a second link between Tasmania and Victoria (the first being BassLink), connecting Tasmanian generated electricity to the National Electricity Market (NEM) via the Victorian transmission network. The link will enable the transmission of electricity in both directions between the two states.

The objective of the Project is to support Australia's transition to renewable energy by providing Victoria and the NEM with greater access to Tasmanian generated renewable energy (primarily intended to be wind and hydro generated).

The Proponent is Marinus Link Pty Ltd, a company owned by the Tasmanian, Victorian and Commonwealth governments.

1.2 Project staging

The Project consists of two stages. Each stage will involve laying two electricity cables with a combined capacity of 750 megawatts (MW) and a fibreoptic cable bundled together. Construction on Stage 1 is expected to commence in 2026, with the Stage 1 cables fully laid and operational by 2030.

The shore crossing and onshore construction works for Stage 2 will be constructed at the same time as the Stage 1 construction works, to minimise disruption from construction, even though the Stage 2 cables will not be laid until later.

Stage 2 was initially proposed to be laid straight after Stage 1, in 2030. The combined Environmental Impact Statement/Environment Effects Statement (EES) for the Project was prepared on this basis.

The Proponent has since revised the staging. The timing of the Stage 2 cables being laid and becoming operational will now depend on market demand.

Most of the Technical Appendices to the EES were updated with Supplementary Reports to reflect the updated timing of Stage 2 (D45).[1] Most of the Project's impacts are not anticipated to change as a result of the delays to Stage 2, because the construction works for Stage 2 will still be carried out at the same time as the Stage 1 construction works. Where changes are anticipated, these are discussed in the relevant chapters of this Report.

1.3 Elements of the Project

The Project includes the following key elements:

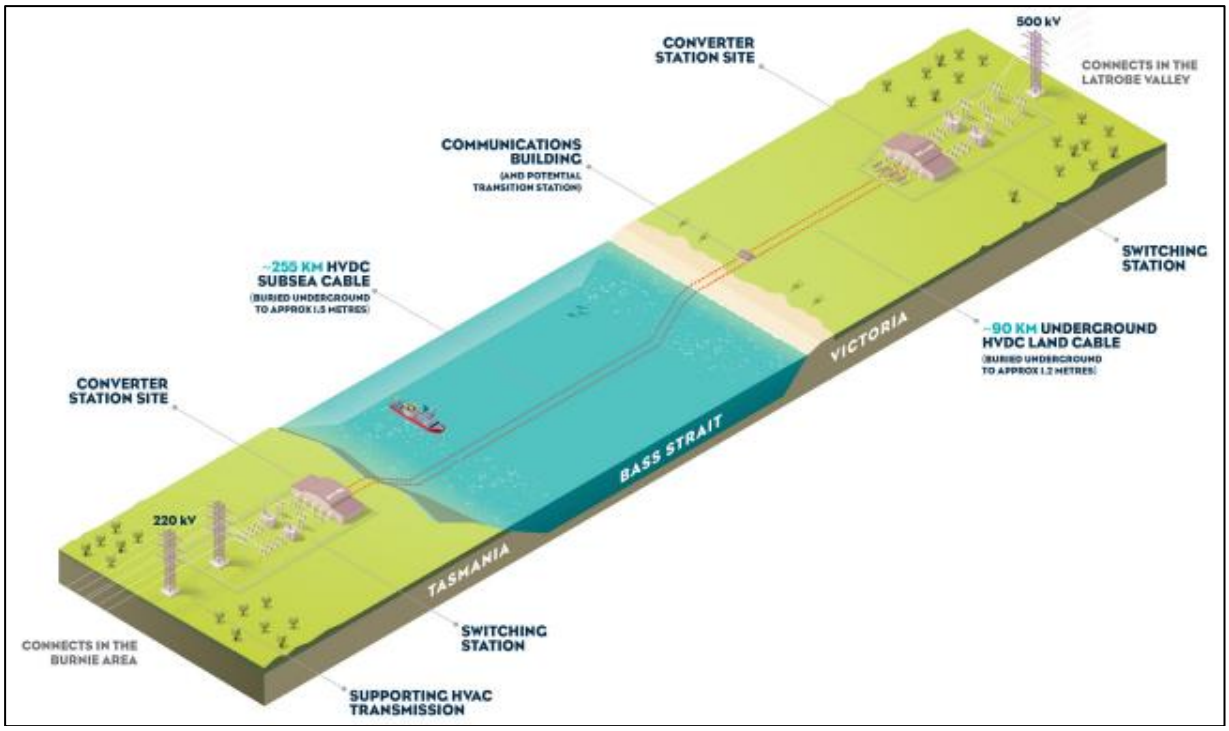
- The subsea cables will traverse around 255 kilometres of Bass Strait, from Heybridge in Tasmania to Waratah Bay in Victoria. The cables will be buried at least one metre below the sea floor.

[1] The Supplementary Reports were circulated to parties to the hearing but were not exhibited with the EES.

- The cables will cross the Victorian coast at Waratah Bay, around 3 kilometres west of Sandy Point. The shore crossing will consist of six ducts constructed by horizontal directional drilling (HDD) – one for each cable (three in Stage 1 and three in Stage 2).
- The drill pads for the HDD for the shore crossing will be located adjacent to the coastal reserve behind the dunes at Waratah Bay. The HDD will extend under the dunes and out into Waratah Bay, surfacing where the seabed is at a depth of about 10 metres (expected to be around 800 metres offshore).
- There will be a land-sea cable joint behind the dunes where the subsea cables will connect to the land cables.
- There will be a compound on Waratah Road housing a fibreoptic cable inspection and communications building, and potentially also a transition station (if required – this will depend on the final cable selections for the sea and land cables).
- The land cables will traverse around 90 kilometres from the land-sea joint at Waratah Bay to a converter station at Hazelwood, in two underground trenches 1.5 metres deep and 5 metres apart, in a 20 metre wide easement.
- A converter station will be constructed at Hazelwood, adjacent to the existing Hazelwood Terminal Station, where the Project will connect into the Victorian transmission network.

These key elements are represented graphically in Figure 1.

Figure 1 Project elements



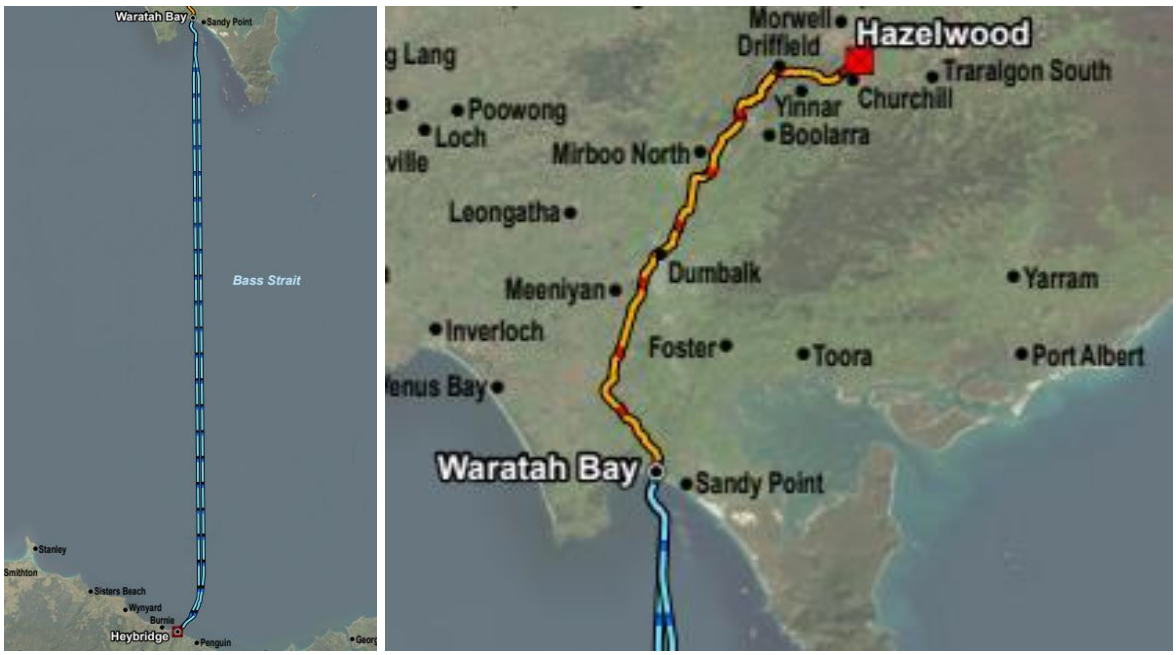
Source: EES Figure 1-26

1.4 The Project area

(i) The cable route alignment

The cable route alignment for both the subsea and land sections is shown in Figure 2.

Figure 2 Cable route alignment



Source: Adapted from EES Figure 1-23

Subsea cable alignment

The route across Bass Strait traverses mainly soft sediments. The route avoids seabed features such as low-profile reefs and seamounts in near shore waters, and sponge beds in deeper waters.

The subsea cables for Stages 1 and 2 will be around 2 kilometres apart except near the shore crossings, where they will come closer together. The Waratah Bay shore crossing is expected to be around 800 metres wide, accommodating the six ducts.

Victorian land cable alignment

The land cable alignment in Victoria runs from the land-sea joint behind Waratah Bay, northwest to the Tarwin River valley and then northeast up the valley towards Mirboo North. The cables cross the Strzelecki Ranges from Driffield to Dumbalk. The cable alignment will then continue eastwards through the Morwell River valley to the Hazelwood converter station site.

The route was determined largely based on terrain and geomorphic characteristics, as well as route selection criteria (including cost, land availability, constructability and incompatible land uses).

First Peoples were consulted early in the route selection process, providing input into opportunities and constraints of the proposed route. No major cultural heritage constraints were identified through this consultation.

Land uses along the land cable alignment are predominantly farmland and timber plantations. Route selection aimed to follow property and road reserve boundary fences where possible to minimise land use disturbance.

Once the preferred land cable alignment was selected (multiple options were evaluated), the Proponent engaged with affected landholders and refined the route having regard to:

- current, proposed and future farming activities and plans
- landholder concerns about impacts on:
  - soil properties and drainage
  - prime pasture paddocks and cropping land
  - plantation coupes and harvesting activities
  - drier land used by stock in winter
  - existing and planned shelter belts
  - farm infrastructure, including access to milking sheds and stock handling facilities
  - springs and stock and irrigation water supplies
  - internal laneways and stockyards
  - proposed house and farm shed sites.

The land cable alignment traverses the Hancock Victorian Plantations Pty Ltd (HVP) Thorpdale plantation near Mirboo North. The plantation covers around 20 per cent of the land cable alignment.

(ii) The survey areas

The EES was generally focussed on assessing impacts within:

- a 200 metre wide marine survey corridor along each of the Stage 1 and 2 alignments
- an 800 metre wide shore crossing area at Waratah Bay
- a 220 metre wide survey corridor along the Victorian land cable alignment.

Each of the technical studies defined a study area, some of which are larger than the survey area.

(iii) The Area of Disturbance

The Area of Disturbance (AoD) is the area where construction activities will take place. The AoD is contained wholly within the survey area. It includes:

- for the cable routes:
  - a 10 metre wide marine construction corridor for each stage
  - a 20 to 36 metre wide land based construction corridor for both stages
- the converter station site at Hazelwood
- the site of the compound on Waratah Road for the fibreoptic cable inspection building (and the transition station if required)
- drill pads for HDD areas
- laydown areas, haul roads and access tracks.

The AoD for the land cables may be narrowed in some areas to avoid constraints or environmental values such as tree protection zones for significant trees.

(iv) The easement

The Proponent will acquire an easement along the land cable alignment to allow for construction, and to provide access for maintenance and operational purposes. The easement will generally be 20 metres wide (narrower where the AoD has been reduced in width).

The EES identifies permitted, conditional and prohibited activities within the easement, in Table 4.1 of Technical Appendix K (reproduced at Figure 6 of this Report). For example, Table 4.1

indicates landholders will be prohibited from constructing a house or other substantial structure on the easement, constructing a dam, or planting deep rooted crops or trees.

The negotiations for the easement and the compensation to landholders for restrictions on the use of their land because of the easement are not matters before the Inquiry and Advisory Committee (IAC). Nevertheless, the IAC needed to understand the types of restrictions that would apply to enable it to properly assess the Project's potential impacts on agricultural and forestry land uses.

1.5 Main construction techniques

Construction techniques are described in detail in EES Chapter 6.

Works on the seabed will include a grapnel run to clear the alignment of debris, followed by cable laying and burial by trenching using a high pressure water jet that liquifies the sediments on the sea bed. The cable will then be laid within about 5 days, and covered using the displaced sediment from the trenching.

Construction for the land cables will mainly use trenched methods, although trenchless construction (primarily HDD) will be used for the shore crossing and some existing infrastructure crossings (such as sealed major roads, rail lines and third party infrastructure). Sections that cross some watercourses and areas of high ecological value may also be constructed using trenchless methods. The AoD assessed in the EES excludes areas proposed to be constructed using HDD on the basis that they will not be disturbed by construction activity.

Trenched construction areas, HDD drill pads and construction laydown areas will be rehabilitated following construction, to allow the relevant land use to be resumed subject to the restrictions under the easement.

1.6 Project operation

Operation and maintenance will commence following commissioning of each stage of the Project. The Project will operate 24 hours a day, 365 days per year over an anticipated minimum 40 year operating life. Operation and maintenance will include:

- daily operation and regular maintenance of the converter station at Hazelwood
- remote monitoring of the fibreoptic cable inspection building and transition station (if required) on Waratah Road
- routine inspections of the land cable joint pits and easement
- periodic inspections of the subsea cable routes
- remote monitoring of shipping activity near the subsea cables
- servicing, testing and repair of the subsea and land cables, converter station and transition station (if required) and ancillary equipment as required
- regular site maintenance of the Waratah Road compound
- maintenance of permanent access tracks.

Any temporary workspaces that may be required to repair the subsea or land cables will be reinstated and rehabilitated following works.

1.7 Decommissioning

Once the Project is no longer required, it will be decommissioned. Above ground works (such as the Hazelwood converter station and the Waratah Road compound) will be removed and the ground reinstated consistent with the surrounding use. The cable may be salvaged, or may remain buried.

2 Impact assessment documentation

2.1 The environmental impact assessment decisions

On 12 December 2021, the Minister for Planning decided under the *Environment Effects Act 1978* (EE Act) that an EES was required, due to the following potential significant effects on the Victorian environment including effects on:

- biodiversity and ecological values within and near the project area including native vegetation and listed threatened communities and species (flora and fauna) under the *Flora and Fauna Guarantee Act 1988* (FFG Act) and *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- Aboriginal cultural heritage values
- landscape values
- freshwater and marine environments and related environmental values
- the local and regional socioeconomic environment including changes to land use.

The Project was determined to be a controlled action under the EPBC Act due to potential significant impacts on matters of national environmental significance, including listed threatened species and communities, listed migratory species and Commonwealth marine areas. As a result, the Proponent was required to prepare an Environmental Impact Statement (EIS) to meet the requirements of the EPBC Act.

The Proponent prepared and exhibited a combined EIS and EES, assessing the Project's impacts on the Victorian and Commonwealth environments. This report refers to the combined EIS and EES as the EES, as the IAC's task is to assess impacts on the Victorian environment only (see Chapter 5.1).

The Project requires assessment under Tasmanian environmental impact assessment legislation. That assessment is subject to a separate assessment process, in which the IAC has no role.

2.2 Scoping Requirements

The Minister for Planning issued Scoping Requirements for the EES in February 2023. The Scoping Requirements set the framework for what the EES must cover, including:

- assessment of the Project's environmental effects against evaluation objectives
- an Environmental Management Framework (EMF).

The evaluation objectives are set out in Table 1.

Table 1 Evaluation objectives

Impact/effect	Evaluation objective
Biodiversity and ecological values	Avoid, and where avoidance is not possible, minimise adverse effects on terrestrial, aquatic and marine biodiversity and ecology, including native vegetation, listed threatened species and ecological communities, other protected species and habitat for these species, and to address offset requirements consistent with state policies.
Marine and catchment values	Avoid, and where avoidance is not possible, minimise adverse effects on terrestrial, aquatic and marine biodiversity and ecology, including native vegetation, listed threatened species and ecological communities, other protected species and habitat for these species, and to address offset

Impact/effect	Evaluation objective
	requirements consistent with state policies.
Cultural heritage	Protect, avoid and where avoidance is not possible, minimise adverse effects on historic heritage values, and tangible and intangible Aboriginal cultural heritage values, in partnership with Traditional Owners.
Agriculture, land use and socioeconomic	Avoid and, where avoidance is not possible, minimise adverse effects on agriculture, forestry and other land uses, social fabric of communities, and local infrastructure, businesses and tourism.
Amenity, health, safety and transport	Avoid and, where avoidance is not possible, minimise adverse effects on community amenity, health and safety, with regard to noise, vibration, air quality including dust, the transport network, greenhouse gas emissions, fire risk and electromagnetic fields.
Landscape and visual	Avoid and, where avoidance is not possible, minimise potential adverse effects on landscape and visual amenity.

2.3 The Environment Effects Statement

The EES covers the proposed works from the three nautical mile limit of Victorian coastal waters to Hazelwood.

The EES main report comprises five volumes:

- Volume 1 – Introduction (10 chapters)
- Volume 2 – Tasmanian Terrestrial Environment (4 chapters)
- Volume 3 – Marine Environment (5 chapters)
- Volume 4 – Victorian Terrestrial Environment (17 chapters)
- Volume 5 – Synthesis of Environmental Effects (2 chapters).

The EES includes a separate summary report, and 23 Technical Appendices dealing with the different environmental effects of the Project (see

Table 2 below). Some studies are for the whole Project, and some are limited to the Victorian or Tasmanian environments. Studies relating to the Tasmanian environment are not relevant to the IAC's task and have not been considered by the IAC.

The EES includes six attachments:

- Attachment 1 (EIS guidelines checklist)
- Attachment 2 (EES scoping requirements checklist)
- Attachment 3 (draft Amendment GC217 to the Latrobe Planning Scheme and South Gippsland Planning Scheme) (the draft PSA)
- Attachment 4 (Consultation Report)
- Attachment 5 (Draft Offset Strategy)
- Attachment 6 (Map book).

Table 2 EES Technical Appendices

Reference	Title	Author
Technical Appendix A	Electromagnetic Fields and Electromagnetic Interference Impact Assessment	Jacobs
Technical Appendix B	Economic Impact Assessment	SGS Economics & Planning
Technical Appendix C	Climate and Climate Change Assessment	Katestone
Technical Appendix D	Greenhouse Gas Assessment	Katestone
Technical Appendix E	Heybridge Converter Station Terrestrial Ecology Baseline and Impact Assessment	Entura
Technical Appendix F	Heybridge Social Impact Assessment	Tetra Tech Coffey
Technical Appendix G	Marine Benthic Habitat Characterisation	Consulting Environmental Engineers
Technical Appendix H	Marine Ecology and Resource Use Impact Assessment	EnviroGulf Consulting
Technical Appendix I	Underwater Cultural Heritage and Archaeology Impact Assessment	Cosmos Archaeology
Technical Appendix J	Aboriginal and Historical Cultural Heritage Technical Study – Victorian Terrestrial Component	Eco Logical Australia
Technical Appendix K	Agriculture and Forestry Technical Report	John Gallienne & Co
Technical Appendix L	Air Quality Assessment – Victorian Component	Tetra Tech Coffey
Technical Appendix M	Victorian Bushfire Impact Assessment	Eco Logical Australia
Technical Appendix N	Contaminated Land and Acid Sulphate Soils Assessment	Tetra Tech Coffey
Technical Appendix O	Terrestrial Geomorphology and Geology Impact Assessment	Environmental GeoSurveys
Technical Appendix P	Groundwater Impact Assessment	Tetra Tech Coffey
Technical Appendix Q	Victorian Surface Water Impact Assessment	Alluvium
Technical Appendix R	Landscape and Visual Impact Assessment	Landform Architects
Technical Appendix S	Land Use and Planning Assessment	Tetra Tech Coffey
Technical Appendix T	Victoria Terrestrial and Coastal Processes Technical Noise and Vibration Report	Marshall Day Acoustics
Technical Appendix U	Victorian Social Impact Assessment	Tetra Tech Coffey
Technical Appendix V	Terrestrial Ecology Impact Assessment	Eco Logical Australia
Technical Appendix W	Traffic and Transport Assessment	Stantec

3 Project documentation

The Project documentation consists of:

- the proposed EMF, which includes Environmental Performance Requirements (EPRs) to manage and mitigate the potential environmental impacts of the Project
- the draft PSA, which would provide planning approval for the Victorian parts of the Project.

3.1 The Environmental Management Framework

The proposed EMF is contained in EES Volume 5 Chapter 2. It sets out a framework for implementing the EPRs and managing the environmental impacts of the Project, including roles, responsibilities and governance arrangements, and monitoring and reporting requirements. The EPRs build on the recommendations in the Technical Appendices.

3.2 The draft Planning Scheme Amendment

The draft PSA proposes to apply a Specific Controls Overlay (SCO3) to allow construction and operation of the Project in the SCO3 mapped areas. These include:

- 'Project Land', which is a corridor of variable width extending along the land cable alignment, as well as construction laydown areas, access tracks and the like
- 'Additional Land', which includes areas that may be required to accommodate minor changes to the cable alignment (micro siting) to avoid constraints or further minimise environmental impacts.

The Project Land generally corresponds to the AoD. The Additional Land is not as extensive as the survey area, and does not extend beyond it.

The draft PSA allows the construction and operation of the Project in accordance with conditions set out in the draft *Marinus Link Project Incorporated Document* dated 2 February 2024 (Incorporated Document). It also makes the Minister for Planning the Responsible Authority for the Project Land and Additional Land, and responsible for approving secondary consents under the conditions of the Incorporated Document.

The Incorporated Document implements and gives statutory force to the EMF including the EPRs. Clause 5.3 of the Incorporated Document requires an EMF to be prepared before development starts. The EMF must:

- include the EPRs
- set out a process for developing a Construction Environmental Management Plan (CEMP), and Operations Environmental Management Plan (OEMP) and other sub-plans and procedures required by the EMF.

3.3 Day 1 and Day 2 versions

The IAC directed the Proponent to circulate 'Day 1' versions of the Project documentation before the commencement of the Hearing, and 'Day 2' versions with its closing submissions. The Proponent circulated:

- D63 – Day 1 Incorporated Document
- D64 – Day 1 EMF (excluding the EPRs)

- D65 – Day 1 EPRs
- D141 – Day 2 Incorporated Document
- D142 – Day 2 EMF (excluding the EPRs)
- D143 – Day 2 EPRs.

The Day 1 EPRs and EMF incorporated changes in response to evidence, legal review and the submissions of the Environment Protection Authority Victoria (EPA) and the Victorian Department of Energy, Environment and Climate Action (DEECA). The EPA was provided with the Day 1 documents for review and response before they were finalised. The EPA's response is contained in D66.

Parties were given the opportunity to provide written comments on the Day 2 versions following the close of the Hearing. Three parties elected to do so:

- HVP (Submitter 27)
- Submitter 11
- Submitter 20.

The IAC's recommended Project documentation in Appendix D uses the Proponent's Day 2 versions as the starting point. The IAC has had regard to all comments on the Day 2 versions in developing its recommended versions, although it notes that some comments did not meet the IAC's Directions and were largely about substantive matters rather than drafting. The IAC has given these comments limited weight.

4 Exhibition

The EES was exhibited from 20 May to 2 July 2024. A total of 27 submissions were received, including:

- submissions from three government agencies:
  - DEECA
  - EPA
  - West Gippsland Catchment Management Authority (West Gippsland CMA)
- a submission from South Gippsland Shire Council (the Project extends through South Gippsland Shire from Waratah Bay to Delburn/Yinnar)
- 8 submissions from environmental action or community groups
- 15 submissions from individual businesses and members of the community.

A full list of submitters is provided in Appendix B.

4.1 Key issues in submissions

The key issues raised in submissions were:

- impacts on terrestrial and marine wildlife
- marine impacts including on fisheries
- impacts on the foreshore and beach at Waratah Bay
- impacts on native vegetation
- impacts on Strzelecki koala populations
- impacts on waterways including creek and river crossings, groundwater and dams
- impacts on farming and forestry
- impacts from electromagnetic fields and electromagnetic interference (EMI)
- economic impacts
- cumulative impacts
- impacts on or interference with other existing or planned projects in the area.

5 The Inquiry and Advisory Committee

5.1 The role of the Inquiry and Advisory Committee

The Minister for Planning appointed the IAC on 17 July 2024 to inquire into and report on the Project, the EES and the draft PSA. The Minister signed Terms of Reference for the IAC on 3 June 2024. The Terms of Reference set out the scope of the IAC's role and how it is to conduct the IAC process. A copy is provided in Appendix A.

Clauses 4 and 5 of the Terms of Reference set out the scope of the IAC's task. Clause 4 requires the IAC to:

a. review and consider the Victorian related aspects of the environmental impact statement (EIS) and environment effects statement (EES) together with the associated technical appendices, other exhibited documents and submissions received in relation to the project;
b. consider and report on the significance and acceptability of likely environmental effects of the project, having regard to relevant policy and legislation and relevant evaluation objectives in the EES scoping requirements;
c. identify any project modifications or additional measures the IAC considers necessary and effective to avoid, mitigate or manage significant environmental effects of the project consistent with relevant policy and legislation; and
d. advise on how these modifications and measures should be implemented through the necessary approvals and consents for the project.

Clause 5 requires the IAC to:

a. review draft Amendment GC217 to the Latrobe and South Gippsland Planning Schemes (PSA), which is proposed to facilitate the project;
b. consider any relevant issues raised in public submissions received in relation to the draft PSA; and
c. recommend any changes to the draft PSA and incorporated document that it considers necessary.

Clause 7 requires the IAC to produce a report of its findings and recommendations to the Minister to inform the Minister's assessment under the EE Act. Clause 42 sets out the matters to be contained in the report, including findings on the predicted impacts on matters of national environmental significance only to the extent that they overlap with Victorian matters.

5.2 Site inspections

The IAC conducted an unaccompanied inspection of the Project area on 11 September 2024 based on an itinerary prepared by the Proponent (D55) in accordance with the IAC's Directions (D13). The IAC undertook an accompanied inspection of the HVP Thorpdale plantation site on 12 September 2024 with representatives of the Proponent and HVP.

5.3 General approach

The IAC is not tasked with recommending whether the Project should be approved. Its task is to consider and report on the Project's potential environmental effects, their significance and acceptability. To that end, this Report provides an analysis of the EES and the draft PSA and an integrated assessment of the environmental, social and economic impacts of the Project, having regard to the evaluation objectives and relevant policy and legislation.

The IAC has considered the exhibited material, all written submissions received in response to the exhibited material, and evidence, submissions and other documents tabled during the IAC Hearing (listed in Appendix D). All material put before the IAC has been considered, although not all of that material is specifically referenced in this Report.

5.4 The Report

This Report has four Parts:

- Part A provides a summary of the Project and background information about the EES and IAC processes
- Part B provides the IAC's review and analysis of the impacts of the Project
- Part C provides the IAC's integrated assessment of the Project
- Part D provides the IAC's advice and recommendations in relation to Project approvals.

The IAC's recommended substantive changes are shown as mark-ups of the EPRs and draft PSA provided in Appendix E.

5.5 Response to Terms of Reference

As noted above, Clause 42 of the Terms of Reference sets out the IAC's reporting requirements. Table 3 provides references to the relevant parts of this Report that meet these requirements.

Table 3 IAC's response to reporting requirements in Clause 42

Clause	Reporting requirement	Reference
42(a)	Analysis and conclusions with respect to the environmental effects of the Project on Victorian matters and their significance and acceptability	Part B
42(b)	Findings on whether acceptable environmental outcomes can be achieved, having regard to legislation, policy, best practice, and the principles and objectives of ecologically sustainable development	Part B and Part C
42(c)	Recommendations and/or specific measures that it considers necessary and appropriate to prevent, mitigate or offset adverse significant environmental effects	Part B and Appendix E
42(d)	Recommendations relating to any feasible modifications to the design or management of the Project that would offer improved environmental outcomes, particularly in relation to reducing or mitigating significant environmental effects	Part B and Appendix E
42(e)	Recommendations for any appropriate conditions that may be lawfully imposed on any approval for the Project	Chapter 22
42(f)	Recommendations about the structure and content of the proposed EMF, including with respect to monitoring of environmental effects and contingency plans	Chapter 21
42(g)	Recommendations with respect to the merits, structure and content of the draft PSA	Chapter 20
42(h)	Findings on the predicted impacts on matters of national environmental significance only to the extent that they overlap with Victorian matters	Chapters 9 and 10

6 Procedural matters

6.1 Confidential submissions and material

Submitter 26 (Eku Energy) and Submitter 27 (HVP) requested their submissions be treated on a confidential basis. HVP advised before the first Directions Hearing that it intended to present further confidential information at the Hearing including evidence regarding its operations and risk management procedures (D18). Submitter 12 opposed HVP's confidentiality request.

A second Directions Hearing was held on 19 August 2024 in a closed session attended by the Proponent, HVP, Eku Energy and Submitter 12. The purpose of the Directions Hearing was for the IAC to hear further submissions and receive additional information about the confidentiality requests.

At the second Directions Hearing:

- HVP advised it consented to its submission (S27) being made public, subject to the contact details being redacted
- Eku Energy agreed to submit a revised version of its submission (S26).

Eku Energy's redacted submission was received on the 2 September 2024 and placed on the Engage Victoria website.

HVP did not request to present any confidential material to the IAC at the Hearing. All the material presented by HVP was tabled as a public document.

6.2 Alternative alignment

HVP indicated at the Directions Hearing that it intended to propose an alternative alignment for the section of the land cable route traversing its Thorpdale plantation. The IAC understands the alternative alignment included areas outside the AoD and survey areas. Following further discussions with the Proponent, HVP advised that it no longer intended to pursue the alternative alignment (D52). The alternative was never put before the IAC.

6.3 Limitations

Several submissions raised issues regarding potential environmental effects of the Project within Tasmania, or broader issues around energy policy, energy mix, the impacts of renewable energy projects on rural communities and renewables versus coal. At the Directions Hearing the IAC advised parties that these issues were beyond the remit of the IAC and would not be considered. The IAC had to remind some parties of this at the Hearing. The IAC has not considered these issues in this Report.

6.4 Acknowledgements

The IAC thanks all who participated in the IAC process, through making submissions, presenting evidence and making suggestions for site visit locations. The IAC appreciates the time people put into their submissions, and the way in which parties participated in the Hearing.

The IAC thanks the Proponent for its assistance in setting up a document sharing platform, and providing technical support to the IAC and to the parties during the Hearing. This ensured a smoothly run and efficient IAC process.

The IAC particularly thanks the office of Planning Panels Victoria for its support and assistance throughout the process, with special acknowledgment to Amy Selvaraj, Manager Major Projects.

7 Consultation

7.1 Introduction

Consultation is not a matter the IAC is required to report on under its Terms of Reference. Nevertheless, the IAC received extensive submissions related to consultation and it is appropriate to address those submissions.

7.2 What did the EES say?

The consultation process undertaken to prepare the EES is outlined in EES Volume 1 Chapter 8 and Attachment 4 (Consultation Report) and summarised in the Proponent's Part A submission. Consultation:

- began in July 2018 and has continued throughout preparation and exhibition of the EES
- involved a broad range of stakeholders including local government, government agencies, traditional custodians (including a First Peoples Advisory Group), local educational institutions, local community groups, landholders and the community more broadly
- was conducted in accordance with a consultation plan that was developed with reference to the International Association for Public Participation principles and Commonwealth guidance *Engage Early: Guidance for proponents on best practice Indigenous engagement for environmental assessments under the EPBC Act* (2016)
- included a range of ways for stakeholders to engage, including in person meetings, seminars and drop in sessions both in person and online, on Country meetings with traditional custodians, information published in traditional and social media, and direct engagement with landholders and other key stakeholders
- will continue going forward, including through:
  - developing individual Property Management Plans (PMPs) with directly impacted landholders (required under agriculture and forestry EPR A02)
  - negotiating access and easement rights and compensation with directly impacted landholders.

7.3 Submissions

HVP acknowledged that early consultation with the Proponent had led to "*some welcomed refinements to the proposed route through HVP's land, responsive to HVP's feedback*". However, it submitted that impacts on the HVP land and operations:

> … would have been better understood and hence the impacts more effectively avoided or minimised, had there been better information sharing and site specific data gathered during the preparation of the EES and the technical reports.

It submitted the EES did not provide an adequate or accurate basis from which HVP could meaningfully assess the potential impacts of the Project on its forestry operations, and that impacts could have been better understood if the Proponent had:

- engaged a forestry expert to assess the potential impacts on HVP's land and operations and how these should be minimised

- facilitated access to HVP's land for the Proponent's experts for the purposes of preparing their technical assessments – particularly Mr Gallienne, who prepared Technical Appendix K, the Agriculture and Forestry Technical Report
- facilitated engagement of its experts with HVP representatives, so they could benefit from HVP's knowledge about its land and operations, and the environmental values and constraints on the land.

HVP submitted this would have resulted in more accurate and detailed information that could have informed potential changes to the route alignment, Project design and Project documentation including the EPRs. It submitted:

> It is likely this would have resulted in improved outcomes for both the Proponent and HVP, as is evident from the evidence of Mr Gallienne as to benefits of early engagement and site inspections.

HVP submitted meaningful consultation is a key component of the EES process, and should inform the development of the technical studies and for stakeholder issues and feedback to be captured and used to inform project development and assessment. It submitted:

> It is perplexing and contrary to the intention of the purposes of consultation identified in the Scoping Requirements that Mr Gallienne was denied the opportunity to properly engage with HVP and to inspect the HVP land. It ought to have been abundantly clear that HVP would be affected and that consultation could be highly useful in informing the route alignment and developing targeted mitigations measures to minimise impacts on HVP, bearing in mind the unique nature of its land use and operations. HVP knows it business better than anyone else and is in the best position to provide helpful information and guidance.

HVP submitted the failure to properly engage with HVP is evident from comparing the detailed information in Technical Appendix K relating to agriculture with that related to forestry, which HVP submitted "*provides nothing more than high level material, which Mr Gallienne said came from the HVP website*".

Submitter 12 was critical of the consultation the Proponent had undertaken with her family in relation to the Project's alignment through their property, and its impacts on their property. She pointed to numerous errors in the EES and Technical Appendices, including the characterisation and location of various features. She submitted that there would have been fewer errors in the EES had proper and effective consultation occurred.

In response, the Proponent submitted the IAC Hearing was the culmination of more than six years of consultation and engagement dating back to original route planning in 2018. Having heard the community's feedback, the decision was made to underground the cable early in the design phase which the Proponent described as "*possibly the most significant design choice of the Project*".

The Proponent submitted the fact that two landholders (HVP and Submitter 12) have raised concerns in relation to the consultation does not reflect poorly on the process of consultation. It submitted:

> Rather than serving as an example of a project in respect of which consultation was inadequate, or could have been better, this Project stands as an example of the outcomes which can be achieved where a proponent and members of the community engage in good faith, and respectfully, toward mutually beneficial outcomes.

The Proponent pointed out:

- the land cable alignment is over 90 kilometres long and passes through 159 freehold parcels, yet only two directly impacted landholders opposed the Project (HVP and Submitter 12)

- while not all of the land within the land cable alignment had been directly inspected by the Proponent's experts, there were various reasons why access over private land was not always granted, and it should not be assumed that it was because the landholders opposed the Project
- in such cases, other information has been relied on to ensure sufficient awareness of the environmental conditions of the survey area for the purposes of preparing the EES
- it is "*far from necessary*" for every expert to seek meetings with individual landholders
- it was not Mr Gallienne's role to assess impacts on HVP's operations or business
- staff of the Proponent have met with HVP staff from the outset
- HVP raised confidentiality concerns throughout the consultation process which were respected by the Proponent, including by avoiding investigation where not necessary to inform the EES.

The Proponent submitted that HVP's submission to the IAC sits uncomfortably with:

- the acknowledgement in HVP's original submission (S27) of the Proponent's consultation efforts prior to exhibition
- the absence of criticism from so many directly impacted landholders
- the contrasting tone of the submission from Delburn Wind Farm Pty Ltd (S19), who has approval to construct a wind farm in HVP's Thorpdale plantation, in respect of the quality and detail of ongoing consultation
- the (until recent) opposition to the alignment of land cables through the HVP plantation, and HVP's decision not to pursue an alternative alignment (see Chapter 6.2 for more detail)
- HVP's acknowledgment of its own election to not participate in some consultation events.

The Proponent submitted consultation for the purposes of preparing an EES does not need to include detailed consultation about business and operational impacts, particularly in circumstances where the alignment is agreed, and business and operational impacts will be subject to detailed assessment as part of the process of acquiring the easement.

7.4 Discussion

(i) The purpose of consultation in an environmental impact assessment process

Consultation for an assessment of the environmental impacts of a project should be broad. It should include all relevant stakeholders including landholders, traditional custodians, government agencies and the impacted community. It should provide an opportunity for stakeholders to:

- understand the project and its likely impacts
- assist in identifying the project's impacts
- provide feedback to enable a proper assessment of the significance and acceptability of the project's impacts
- suggest ways in which significant impacts might be avoided or minimised.

Consultation for the purposes of assessing the environmental impacts of a project is not the same as the consultation required to understand the impacts on an individual landholder or business, and it would be wrong to equate the two.

A project's environmental impacts should be assessed by suitably qualified experts based on specialised knowledge and a range of information. Assessments should be objective, evidence based and based on impacts to the environment more broadly, rather than impacts on a particular landholder.

The fact that the Proponent's experts may not have directly engaged with HVP in preparing their technical assessments does not necessarily undermine the quality or reliability of the assessments. While the IAC acknowledges that landholders can provide important insights into the conditions and environmental values and constraints that might be present on their land, it is neither necessary nor appropriate in preparing an EES to assess impacts on a particular landholder or business, unless those impacts can be demonstrated to have broader environmental or community impacts.

The IAC agrees with the Proponent that in the context of preparing an EES, consultation with landholders does not require securing the landholder's approval or agreement for the project, or for the terms on which its land can be accessed and used for the project.

The IAC further observes that good and effective consultation is not indicated by everyone consulted getting what they want. This would be impossible in most cases, given the need to balance project objectives with the needs and desires of a broad range of stakeholders. Rather, good and effective consultation involves listening to stakeholders and responding to their feedback, including through design adjustments and proposed measures to avoid and mitigate the project's impacts, or communicating why changes cannot be made. This occurred in relation to this Project.

(ii) Guidelines on best practice for consultation processes

The consultation plan was developed having regard to the International Association for Public Participation principles and Commonwealth guidance.

The *National Guidelines – Community engagement and benefits for electricity transmission projects* (Energy and Climate Ministerial Council, July 2024) had not been published when the EES was prepared, and are not directly applicable to the Project. Nevertheless, they provide some guidance as to best practice community consultation for the development and operation of electricity transmission projects.

HVP took the IAC to specific sections of the National Guidelines including those headed:

- Recognise local knowledge
- Ensure the community feels valued, heard and included
- Consider impacts to neighbours
- Engage early and diversely'.

The Guidelines are not specifically directed to the consultation required for environmental impact assessment processes like an EES. They are directed more broadly to building and maintaining a social licence for transmission projects, and ensuring that projects share benefits across affected communities.

In any event, HVP has not demonstrated that the consultation undertaken by the Proponent to date fails to meet the principles set out in the relevant sections of the Guidelines referred to by HVP. In particular, it appears that consultation has:

- engaged affected groups early

- to the extent that the limited number of submissions is any indication, built a degree of trust and solid connections with the community
- explored desired community outcomes
- influenced the design and route alignment of the Project including the decision to underground the cables
- gathered local knowledge to better understand local priorities, potential challenges and opportunities for mutual benefits
- used local knowledge to inform the mitigation strategies outlined in the EPRs
- involved (among others) directly impacted landholders and neighbours who will be less directly impacted by the Project
- involved genuine engagement and listening on the part of the Proponent.

The IAC further notes that social impact expert Nicole Sommerville reviewed the Consultation Report and raised no concerns. She found there was a broad range of opportunities for people to participate in engagement for the Project and provide feedback on their concerns.

(iii) The importance of effective consultation moving forward

Both HVP and the Proponent recognised the importance of effective consultation moving forward. Consultation is required across a wide range of EPRs, to provide for relevant information and views to be taken into account, particularly with the development, implementation and review of PMPs. The IAC is satisfied the EPRs provide for an appropriate level of engagement with stakeholders moving forward, as discussed in more detail in the Part B chapters including Chapters 17.4 (impacts on forestry and agriculture) and 17.6 (social impacts).

7.5 Finding

The IAC finds:

- The consultation undertaken to inform the preparation of the EES and the EPRs has been appropriate, fit for purpose and generally meets relevant policies and guidelines.

8 The role of Environmental Performance Requirements

8.1 Introduction

The role of EPRs is not a matter the IAC is required to report on under Clause 42 of the Terms of Reference. Nevertheless, the IAC received submissions about this from the Proponent and it is appropriate to address those submissions.

8.2 Submissions

The Proponent submitted the EPRs are crucial to implementation, and have been the subject of extensive scrutiny and rigour as the EES was developed, including through the Technical Reference Group. It submitted these processes have been complemented by:

- expert review, including in a constructability workshop
- independent review in the preparation of expert evidence
- broader review conducted under the guidance of the Proponent's legal team.

The Proponent submitted it had been guided by "*sound principles*" outlined by the North East Link IAC in preparing and reviewing the EPRs. It submitted these principles (while not having formal status) are consistent with guidance learnt and applied to other major projects over time.

The Proponent invited the IAC to comment on the role of EPRs and drafting principles to provide guidance for future projects that require an EES.

8.3 Discussion

(i) The role of EPRs

EPRs should provide a framework for measuring and managing a project's environmental impacts consistent with the mitigation hierarchy (avoid, minimise, manage, rehabilitate, offset) which underpins the principles of ecologically sustainable development and Victorian environmental protection laws and regulatory practices.

EPRs are generally developed before the detailed design of a project. Sometimes they are developed for a reference design, which broadly describes a project and its objectives and sets a project boundary within which the project must be delivered, but leaves much of the design detail to be resolved as part of the procurement process.

For this reason, EPRs should be performance based, and provide flexibility as to how relevant performance outcomes are to be achieved to allow for changes and adaptions as the project design is finalised.

EPRs should, where appropriate, provide quantitative measures against which performance can be objectively measured to determine whether acceptable environmental outcomes are being achieved. Examples might include maximum noise levels, air quality standards or water quality targets.

Limits, standards or targets should be based on adopted regulatory requirements, policy or guidance in Victoria. If no applicable Victorian standard or limit applies, standards should be based on those widely accepted within the relevant professional discipline.

EPRs should only be prescriptive as to how a particular performance outcome is achieved where the particular outcome can only be achieved in a certain way. They should otherwise allow flexibility as to how the outcome is achieved, to encourage innovation, allow for efficiencies and facilitate continuous improvement.

Finally and importantly, a key role of EPRs is to inform the next stage of the assessment and approval process, namely the issue of statutory approvals required for the project. EPRs must be written in a way that informs the conditions that should be placed on statutory approvals, without duplicating or creating the potential for conflict with conditions on future statutory approvals. EPRs should avoid prescribing particular performance standards or outcomes that are properly the subject of conditions under future statutory approvals.

(ii) Principles for preparing and drafting EPRs

Building on the principles developed by the North East Link IAC, EPRs should be prepared in accordance with the following principles:

- **Legible** – EPRs should be expressed in clear terms, and organised according to identified impacts. They should be as streamlined as possible and avoid duplication. They should be able to be read as a stand alone document, and avoid referencing external documents (such as technical assessments undertaken for the EES) where possible. They should be presented in alphabetical order.
- **Integrated** – Individual EPRs should cross reference other relevant EPRs to ensure a project's environmental impacts are managed holistically.
- **Performance based** – EPRs should be performance or outcomes based, specifying quantitative standards such as minimum compliance levels or targets and/or maximum limits where appropriate. Standards should be based on adopted Victorian policy or regulatory practice.
- **Best practice and continuous improvement** – EPRs should adopt best practice standards and measures and require continuous improvement, consistent with ecologically sustainable development principles and (where applicable) the General Environmental Duty (GED) under the *Environment Protection Act 2017* (EP Act).
- **Practicable** – EPRs must be achievable and reasonably practicable to implement if they are to be effective in achieving the specified performance outcomes.
- **Flexible and adaptable** – EPRs should allow flexibility in how the required outcome or performance standard can be achieved. They should allow for adaption as the project design develops and is finalised. They should only be prescriptive as to how a particular performance outcome is achieved where the outcome can only be achieved in a certain way.
- **Proportionate** – EPRs should be proportionate to the level of impact needing to be addressed.
- **Mitigation hierarchy** – EPRs should have regard to the mitigation hierarchy (avoid, minimise, manage, rehabilitate, offset).
- **Enforceable** – EPRs must be able to be implemented and enforced through statutory approvals for the project. CEMPs and OEMPs are essential tools for implementing EPRs,

but they require a statutory 'hook' (often the planning approval for the project) to ensure they are enforceable.

- **Consultation and governance** – where EPRs (or an EMF) require CEMPs, OEMPs and other environmental management plans to be prepared, the plans should be prepared in consultation with directly affected stakeholders and approved by appropriate statutory approval authorities, an independent reviewer or an environmental auditor.
- **Transparent** – EPRs should, where appropriate, require consultation or sharing of information about environmental performance with relevant agencies, key stakeholders including affected landholders, the affected community and the broader public.

The IAC has applied these principles when reviewing the Proponent's Day 2 EPRs and developing its recommended EPRs. The Day 2 EPRs are not drafted in accordance with these principles, and should be the subject of a detailed drafting review before the project approvals are granted. See Chapter 21 for a more detailed discussion.

PART B: ENVIRONMENTAL EFFECTS

9 Terrestrial and freshwater ecology

Clause 6 of the Terms of Reference states the IAC is to assess the effects of the Project on the Victorian environment only. It is not the role of the IAC to make findings on impacts on matters of national environmental significance under the EPBC Act. However, the IAC is to consider and report on environmental values that are protected and relevant to both Victoria and the Commonwealth.

Accordingly, this Chapter and Chapter 10 focus on species and communities protected under the Victorian FFG Act (although there is a substantial degree of overlap between the FFG Act and the Commonwealth EPBC Act).

9.1 Introduction

Terrestrial ecology impacts are assessed in:

- EES Volume 4 Chapter 11 (Terrestrial ecology)
- Technical Appendix V (Terrestrial Ecology Impact Assessment)
- EES Attachment 5 (Offset Strategy – Victoria).

Technical Appendix V used a 'significance of impact' approach when assessing impacts to ecological values.

A Supplementary Report to Technical Appendix V was prepared in relation to the revised timing for Stage 2 (D45q).

James Garden of Ecology Systems was principal author of Technical Appendix V and the project manager for the Offset Strategy (EES Attachment 5). He provided evidence for the Proponent on terrestrial ecological effects (D32) and appeared at the Hearing.

Other key documents are:

- D110 – Proponent Response to IAC's questions
- D140c – Appendix to Part C submission – Updated species listings.

9.2 Relevant policy and guidelines

The IAC has had regard to relevant policy and guidelines, including:

- FFG Act
- *Native Vegetation Removal Guidelines,* DELWP, 2017 (Native Vegetation Guidelines)
- *Protecting Victoria's Environment - Biodiversity 2037* (Biodiversity 2037)
- *Planning and Environment Act 1987* (PE Act)
- *Wildlife Act 1975*
- *Catchment and Land Protection Act 1994*
- *Crown Land (Reserves) Act 1978*
- *Marine and Coastal Act 2018* (MAC Act)
- *Victorian Koala Management Strategy*, DEECA, 2023 (Koala Strategy)
- *Water Act 1989*
- *West Gippsland Waterway Strategy 2014-2022*, West Gippsland CMA, 2014
- *Victorian Waterway Management Strategy*, Department of Environment and Primary Industries, 2013

- *Code of Practice for Timber Production*, 2014 (as amended 2022) (D122)
- South Gippsland Planning Scheme.

9.3 Native vegetation impacts

(i) The issues

The issues are whether:

- impacts on vegetation communities, large trees and associated habitats have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved outcomes for native vegetation.

(ii) What did the EES say?

Extent of native vegetation loss

The terrestrial ecology survey area was a corridor around 220 metres wide encompassing the AoD. The survey area was assessed as containing a total of 201.90 hectares of native vegetation, including:

- 102.85 hectares of endangered Ecological Vegetation Classes (EVCs)
- 85.66 hectares of vulnerable EVCs
- 1,084 large trees.

The initial impacts on native vegetation, prior to adopting any mitigation measures, would include 21.25 hectares of native vegetation loss:

- direct loss of 10.56 hectares of native vegetation, including 49 large trees
- consequential loss of a further 10.69 hectares of native vegetation, including 135 large trees.

Technical Appendix V recommended the following EPRs to manage impacts on native vegetation:

- EPR EC01, requiring native vegetation and habitat loss and degradation to be avoided and minimised
- EPR EC02, requiring a biodiversity management plan.

Residual impacts (with implementation of EPRs EC01 and EC02) would include:

- direct loss of 6.20 hectares of native vegetation removed, including 39 large trees
- consequential loss of 0.55 hectares of native vegetation, including 12 large trees.

Technical Appendix V assessed cumulative impacts in relation to Delburn Wind Farm. The cumulative residual loss of native vegetation resulting from both projects would be 19.09 hectares of native vegetation, including 100 large trees.

Efforts to avoid and minimise

Native vegetation was considered as part of the route selection process. Threatened vegetation listed under Commonwealth and Victorian legislation was considered a high constraint whereas native vegetation not listed for protection was considered a low constraint.

The exhibited Project design incorporates measures, such as HDD, to avoid impacts to native vegetation in targeted locations such as the Waratah Bay coastal dunes. Technical Appendix V proposed other measures to avoid and minimise impacts that would be implemented through the

EPRs, including minor realignment of the cables (micro siting) and reducing the width of the AoD (EPR EC01).

Offsets

The EES includes an Offset Strategy in Attachment V for native vegetation removal based on a worst case scenario largely without mitigation measures (except avoidance of loss of a 0.11 hectare patch of FFG Act listed Forest Red Gum Grassy Woodland community on McFarlane Road).[2] Based on the worst case scenario (21.14 hectares of native vegetation removal), offset requirements would be:

- 0.984 general habitat units
- 3.833 species units of habitat for Eastern Spider-orchid
- 14.740 species units of habitat for Strzelecki Gum
- 184 large trees.

The required offsets for general habitat units (with large trees) are readily available. The Offset Strategy proposed:[3]

> Where species specific offsets are required and are not available to purchase, an alternative arrangement will be discussed with DEECA in accordance with the [Native Vegetation] guidelines.

Impacts of the revised timing for Stage 2

The Supplementary Report (D45q) indicated the vegetation removal required for both stages of the Project will be completed in Stage 1. It stated the development and implementation of the biodiversity management plan (EPR EC02) should take into account both stages, or be reviewed (and revised if necessary) prior to Stage 2 to ensure native vegetation is identified and protected prior to commencement of works in both stages.

(iii) Evidence and submissions

Mr Garden adopted the terrestrial ecology assessment in Technical Appendix V as his evidence. He advised the vast majority of native vegetation that would have once covered South Gippsland has been cleared, leaving patches of remnant vegetation.

Mr Garden confirmed native vegetation removed from the trenched areas during construction is considered permanently lost because the easement for the land cable is required to be free of deep rooted plants.

Native vegetation assessment methodology

DEECA's initial submission (S21) included detailed comments on the native vegetation assessment methodology, including that it did not respond to all of the application requirements in the Native Vegetation Guidelines.

Mr Garden responded by advising the terrestrial ecology impact assessment was intended to provide a holistic assessment of the impact of the Project on biodiversity rather than respond specifically to the application requirements in the Native Vegetation Guidelines. That said, he advised the assessment was generally in accordance with the Native Vegetation Guidelines. He did, however, acknowledge that access was not available to the full survey area. Where access

[2] EES Attachment 5

[3] EES Attachment 5, page 10

was unavailable, a conservative approach was taken by assuming all non-validated vegetation was native. Further, the nature and extent of unassessed vegetation will be confirmed prior to construction and used in the final offset calculations.

DEECA, in its Hearing submission (D126), noted Mr Garden's response but submitted it continued to have concerns that:

- The maximum extent of native vegetation including large trees impacted cannot be verified and the total offset requirements are therefore unknown.
- The native vegetation mapping does not include mapped wetlands in DEECA's 'Current Wetlands' map.

DEECA submitted these matters could be satisfactorily addressed through changes to the EPRs and the Incorporated Document.

The Proponent disagreed with DEECA's position that the terrestrial ecology assessment did not have sufficient regard to mapped wetlands and other modelled map layers, arguing actual assessed environmental values were more important than what is modelled or mapped in existing datasets.

Avoid and minimise impacts, including cumulative impacts

Mr Garden gave evidence that the relatively low impact of the Project reflects more than five years of planning and design refinement resulting in substantial avoidance and minimisation of impacts to biodiversity prior to the finalisation of Technical Appendix V.

HVP submitted it manages native forests and other native vegetation for conservation and community values, and was concerned the Project might adversely impact on HVP's conservation efforts. It identified locations of particular concern within the Thorpdale plantation, including two future offset sites and biolinks (shown in D148) and a native vegetation corridor south of Creamery Road.

In his forestry evidence for HVP, Mr Morton confirmed that *"HVP, as a responsible forest manager seeks to enhance biodiversity values under their management"*. He recommended EPR EC01 be amended to require trenchless construction methods for all native vegetation on forestry land, including land which is part of the Strzelecki-Alpine Biolink, or land identified for future offset sites.

DEECA had concerns regarding the extent to which it will be possible to minimise impacts on native vegetation and large trees by micro siting the land cables or reducing the width of the AoD (as required by EPR EC01). It submitted the distance between tree protection zones on either side of the trenches (which are not shown on the maps in Technical Appendix V) could be too narrow to accommodate the AoD without impinging on the tree protection zones in some areas.

The Latrobe Valley Field Naturalists Club (S15) expressed concern about impacts on heavily depleted and significant endangered vegetation EVCs and cumulative impacts, including the substantial amount of vegetation clearing undertaken for the overtaking lane on the Strzelecki Highway at Delburn.

Mr Garden responded stating the Project is expected to have residual impacts on no more than 0.016 percent of total native vegetation and habitat within the broader terrestrial ecology study area (within 10 kilometres of the alignment). He considered the impacts of the Project would be relatively small compared to the combined impacts of the Strzelecki Highway upgrades and proposed Delburn Wind Farm, and noted that unregulated clearance was also occurring in the area.

Delburn Wind Farm (S19) identified interface issues requiring resolution prior to finalising the detailed design of the Project, including the proposed removal of a significant tree at the corner of Smiths Road and the Strzelecki Highway which Delburn Wind Farm had protected through design refinements to its project footprint. Mr Garden responded that impacts on this tree were likely to be avoidable, and would be informed by arborist advice in accordance with EPR EC01.

In response to a question from the IAC to Mr Garden regarding the maximum expected extent of native vegetation removal, the Proponent submitted the EPRs should not specify a maximum amount of native vegetation that may be removed. The only Project to its knowledge where this applied was the Victorian Murray Floodplain Restoration Project, which had the aim of achieving overall improvement to biodiversity and did not provide for offsets.

Preparatory works

Clause 5.6 of the Incorporated Document deals with preparatory works that may be undertaken before Alignment Plans and Development Plans are approved. Clause 5.6.2 requires information about native vegetation to be prepared in accordance with requirements 1, 3, 5 and 9 of the Native Vegetation Guidelines before any native vegetation is removed for preparatory works.

DEECA submitted Clause 5.6.2 should be amended to expand the application requirements for preparatory works to include:

- topographic and land information (application requirement 2)
- details of other nearby vegetation removal (application requirement 4)
- a site assessment report (application requirement 10).

The Proponent disagreed, relying on its land use and planning expert Ms Boag whose evidence was that the first two requirements are not relevant for preparatory works and the requirement for a site assessment report can be addressed as part of the assessment of total biodiversity impacts in accordance with Clause 5.4 of the Incorporated Document. Ms Boag advised a number of recent projects (including North East Link and Suburban Rail Loop) took a similar more limited approach.

Offsets

Friends of the Koala (S11) expressed concerns about the uncertainty regarding offset requirements. DEECA initially submitted there was uncertainty regarding offset availability but subsequently submitted that offsets are likely to be available (D126).

In response to a question from the IAC, Mr Garden advised the anticipated required offsets are available for:

- general habitat units
- species units of habitat for Strzelecki Gum
- 184 large trees.

No offsets for Eastern Spider-orchid were formally registered on the credit register, and further enquiries would need to be made with brokers to determine whether suitable sites are available for development of an offset site for Eastern Spider-orchid.

The Proponent submitted that further enquiries enabled it to confirm all potential offset requirements, including those for Eastern Spider-orchid, were readily available.

Submitters 11 and 15 questioned the value of offsets, including the allocation of offsets remote from the area where vegetation has been removed. South Gippsland Shire Council (S10) suggested that any environmental offsets should be invested in local projects.

(iv) Discussion

Native vegetation assessment methodology

The native vegetation assessment in the EES is adequate for the purposes of determining the acceptability of the Project at the present stage of the assessment process. The IAC acknowledges field surveys of vegetation that informed the EES were incomplete due to access limitations. However, this knowledge gap was addressed in the EES by adopting conservative assumptions regarding native vegetation in unsurveyed areas and is proposed to be further addressed by completing the required surveys before construction commences.

Further information is required to fully meet the requirements of the Native Vegetation Guidelines. For example, the terrestrial ecology assessment did not meet the following requirements relating to mapped wetlands:

> Mapped wetlands are treated as a patch of native vegetation. The modelled condition score is used for mapped wetlands unless a site assessment is carried out soon after inundation, in accordance with section 6.5. …
>
> To change the extent of a mapped wetland, beyond excluding hardened man-made surfaces, a hydrological assessment must be undertaken by a suitably qualified person. The Secretary to DELWP must then provide written agreement to use the hydrological assessment to determine extent.

The additional assessments relating to wetlands will need to be completed prior to construction commencing, to inform the detailed design and ensure it avoids or minimises impacts, and to determine final offset requirements.

The IAC partly agrees with DEECA's proposed change to EPR EC01. It agrees it would be beneficial to clarify in broad terms the locations where vegetation quality assessments need to be completed. However, the IAC does not consider native vegetation surveys are necessary for vegetation bypassed by HDD crossings, unless there is a material a risk of that vegetation being impacted or disturbed. Except in the unlikely event of a frac-out[4], disturbance to native vegetation associated with HDD is expected to be limited to areas immediately around the drill pads and the HDD entry and exit points, which are included in the AoD.

Avoid and minimise impacts, including cumulative impacts

Mr Garden considered the Project's impact on native vegetation relative to other actions in the region, including historic land clearing, would be minor. Nevertheless, he acknowledged the Project will incrementally contribute to further native vegetation loss.

The IAC considers further avoiding and minimising native vegetation impacts in the design and construction of the Project will be important.

The guiding principles for implementing Biodiversity 2037 include *"sharing and collaborating"* to ensure *"contributions to the protection of biodiversity are aligned to a common purpose"*.[5] The interface between the Project and other projects and activities needs to be carefully managed to

[4] A 'frac-out' is the unintended migration of drilling fluids to the surface

[5] Biodiversity 2037, page 8

avoid and minimise cumulative impacts, and to avoid efforts by one party to conserve native vegetation being undermined by the actions of another. The large tree at the corner of Smiths Road and the Strzelecki Highway identified in the Delburn Wind Farm submission is a case in point.

Similarly, impacts on HVP's native vegetation conservation areas, including biolinks and the future offset sites identified in D148, should be avoided and minimised where practicable. Figure 6 in Technical Appendix V identifies parts of these areas as locations where avoidance and minimisation measures should be developed under EPR EC01. The remainder of HVP's future offset sites and biolink sites identified in D148 should be reviewed in the course of the pre-construction surveys and further assessments required under EPR EC01, and the priority locations for avoidance and minimisation should be extended if necessary based on this information. This includes koala habitat areas identified in Technical Appendix V and by HVP, as these areas have important wider ecological values, not just for koalas. EPR EC01 should be amended to require this.

The IAC agrees with the Proponent's submission that the EPRs (or Incorporated Document) should not specify a maximum amount of native vegetation that may be removed.

Preparatory works

The IAC notes DEECA's concern that potential impacts of preparatory works were not adequately addressed by the proposed 'limited' approach to native vegetation removal. Having considered the Proponent's reasons for disagreeing with DEECA's proposed approach, the IAC prefers the broader requirements proposed by DEECA for the following reasons:

- The potential footprint of the preparatory works is significant and potentially extends beyond the survey area for the native vegetation assessment in Technical Appendix V.[6]
- Given the diverse landscapes traversed by the Project alignment, erosion and land stability risks, and the role of vegetation in relation to land stability, topographic and land information (application requirement 2) is a highly relevant consideration.
- Given the cumulative impacts of other projects and activities in the near vicinity (including the Delburn Wind Farm and Strzelecki Highway widening), details of other nearby native vegetation removed or approved to be removed (application requirement 4) is relevant.
- The site assessment report (application requirement 10) is important in relation to the removal of any native vegetation outside the survey area, and for native vegetation within the survey area that was not actually surveyed due to access constraints.

Therefore, the application requirements in Clause 5.6.2 of the Incorporated Document should be amended as proposed by DEECA to include application requirements 2, 4 and 10 (in addition to 1, 3, 5, and 9).

Offsets

The IAC notes the concerns expressed by several submitters regarding the limitations of offsets for addressing native vegetation loss. However, the native vegetation impacts (including offsets) of the Project are being dealt with in accordance with regulatory requirements (including the Native Vegetation Guidelines).

[6] Under Clause 5.6.1 of the Day 2 Incorporated Document, preparatory works include "*creation, development and use of access points, access tracks and working platforms*", "*site establishment works including temporary site fencing and hoarding, site offices, and hardstand and laydown areas*" and "*establishment of temporary car parking*".

The total offset requirements for the Project are unknown at this stage, due to the AoD not having been fully surveyed. However, offsets have been calculated on the basis of an assumption that all unassessed vegetation is native and will need to be offset. Once the pre-construction surveys are completed, offset requirements are likely to be less than those indicated in the Offset Strategy, not more.

Mr Garden and the Proponent confirmed the availability of all potentially required offsets during the Hearing (D110). DEECA's second submission (D126) also indicated offsets are likely available.

On that basis, the IAC is satisfied that offsets have been appropriately calculated for this stage of the assessment process, and there are no major impediments to final offset requirements being able to be met.

(v) Findings and recommendations

The IAC finds:

- The assessment of native vegetation impacts in Technical Appendix V, while incomplete, is appropriate for this stage of the assessment process.
- The EPRs, with some modifications, will address the gaps in the native vegetation assessment undertaken to date.
- Changes are required to EPR EC01 to offer improved environmental outcomes and further reduce or mitigate significant environmental effects arising from native vegetation removal, including:
  - strengthening the requirements to complete the native vegetation surveys and assessments
  - ensuring koala habitat and forestry property biolinks and offset sites are included in the further assessments
  - strengthening the requirements for detailed design to be informed by the information gathered from the further surveys and assessments.
- Subject to the IAC's recommended EPRs and changes to the Incorporated Document, the effects of the Project on native vegetation can be acceptably managed.

The IAC recommends:

If the Marinus Link Project proceeds, amend the Environmental Performance Requirements as shown in Appendix E:1:

a) Amend requirement EC01 to:

- **provide more detail in relation to the further native vegetation survey and assessment work required, which should include areas of koala habitat and biolinks and identified future offset sites on forestry properties**
- **strengthen the requirement for detailed design and construction methods to avoid and minimise native vegetation.**

If the Marinus Link Project proceeds, amend the Incorporated Document as shown in Appendix E:2:

a) Amend Clause 5.6.2 to require preparatory works to meet additional application requirements in the Native Vegetation Guidelines.

9.4 Impacts on threatened flora

(i) The issues

The issues are whether:

- impacts on threatened flora species have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved outcomes for threatened flora species.

(ii) What did the EES say?

Threatened flora present

Technical Appendix V assessed the presence in the survey area of threatened flora species listed under the FFG Act, based on biological databases, habitat mapping and targeted field surveys. Not all land parcels were accessible during the field surveys. In situations where the presence of a threatened species could not conclusively be ruled out, it was assumed present.

A total of 27 threatened flora species were assessed as present, including:

- 25 species listed under the FFG Act (five of which are also listed under the EPBC Act)
- two species listed as threatened under the EPBC Act only.

These are listed in Table 4, grouped by the 'functional groups' referred to in Technical Appendix V.

Table 4 Threatened flora species considered present within the survey area

Functional group	Species	Conservation status under the FFG Act (EPBC Act)*
Coastal flora	Coast Bitter-bush (Adriana quadripartite)	EN
	Coast Colobanth (Colobanthus apetalus var. apetalus)	EN
	Coast Fescue (Poa billardierei)	EN
	Coast Wirilda (*Acacia uncifolia*)	EN
	Dune Wood-sorrel (*Oxalis rubens*)	EN
Strzelecki Ranges damp forest flora	Alpine Sun-orchid (*Thelymitra alpicola*)	CR
	Oval Fork-fern (*Tmesipteris ovata*)	EN
	Slender Fork-fern (*Tmesipteris elongata*)	CR
Waratah Bay woodland flora	Cobra Greenhood (Pterostylis grandiflora)	EN
	Currant-wood (*Monotoca glauca*)	EN
	Dense Leek-orchid (Prasophyllum spicatum)	CR (VU)
	Eastern Spider-orchid (*Caladenia orientalis*)	EN (EN)
	Fringed Helmet-orchid (*Corybas fimbriatus*)	EN
	Green-striped Greenhood (*Pterostylis chlorogramma*)	EN (VU)
	Leafy Greenhood (Pterostylis cucullata subsp. Cucullate)	EN (VU)
	Lizard Orchid (Burnettia cuneata)	EN
	Orange-tip Finger-orchid (*Caladenia aurantiaca*)	EN

Functional group	Species	Conservation status under the FFG Act (EPBC Act)*
	Rush Lily (Sowerbaea juncea)	VU
	Silver Everlasting (Argentipallium dealbatum)	EN
	Slender Pink-fingers (*Caladenia vulgaris*)	VU
	Small Fork-fern (*Tmesipteris parva*)	EN
	Spurred Helmet-orchid (*Corybas aconitiflorus*)	EN
	Thick-lipped Spider-orchid (*Caladenia tessellata*)	(VU)
Threatened aquatic flora	River Swamp Wallaby grass (*Amphibromus fluitans*)	(VU)
Threatened Eucalyptus species	Bog Gum Eucalyptus (*kitsoniana*)	CR
	Strzelecki Gum (Eucalyptus strzeleckii)	CR (VU)
	Yarra Gum (Eucalyptus yarraensis)	CR

* Conservation status: VU – Vulnerable, EN – Endangered, CE – Critically Endangered

Source: IAC based on information from Table 28 in Technical Appendix V.

One threatened ecological community was identified in the survey area, consisting of a single patch of the FFG Act listed Forest Red Gum Grassy Woodland community within the road reserve of McFarlane Road, at Kilometre Point (KP) 79.7.[7]

Impacts of construction

Bog Gum (*Eucalyptus kitsoniana*) is listed under the FFG Act as critically endangered. Construction will have high residual significance of impact for Bog Gum, resulting from the removal of numerous trees and potential further losses in habitat not yet surveyed.

'Moderate' residual significance of impact was assessed for:

- the Forest Red Gum Grassy Woodland community
- the Waratah Bay woodland flora functional group
- River swamp wallaby grass.

See Table 4 for the listing status of the affected species.

Technical Appendix V stated:

- The 'moderate' residual significance of impact rating for the Forest Red Gum Grassy Woodland community was a result of the very high sensitivity of this community. The actual significance of impacts was predicted to be low.
- Due to access limitations, there is significant uncertainty regarding potential impacts on the Waratah Bay woodland flora functional group and River swamp wallaby grass.

Technical Appendix V assessed a 'low' residual significance of impact for:

- the Coastal flora functional group
- the Strzelecki Ranges damp forest flora functional group
- Strzelecki Gum and Yarra Gum.

[7] KP is a point along the land cable alignment, measured from the foreshore and coastal dunes at Waratah Bay (KP 0)

Impacts on the coastal flora functional group will be avoided by HDD of the Waratah Bay dunes and beach. Potential impacts on the Strzelecki Ranges damp forest flora functional group, Strzelecki Gum and Yarra Gum will be avoided through design refinement and construction controls.

Three EPRs are proposed to address impacts on threatened flora in the design and construction stages:

- EPR EC01, requiring native vegetation and habitat loss and degradation to be avoided and minimised
- EPR EC02, requiring a biodiversity management plan
- EC03, requiring aquatic habitat protection measures (relevant for River swamp wallaby grass).

Impacts of operation

Potential impacts on terrestrial ecology values during operation are expected to be low or negligible. Types of potential impacts include spreading of weeds and pathogens by Project vehicles. The EES did not include any specific EPRs to address impacts of operation on threatened flora.

Impacts of the revised timing for Stage 2

The Supplementary Report (D45q) indicated the Stage 2 works will not require the disturbance or clearance of threatened flora as all major land based construction works will have occurred in Stage 1. EPR EC01 (avoidance and minimisation of native vegetation and habitat loss and degradation) is not expected to be relevant to Stage 2 because no change in the AoD is expected. The biodiversity management plan (EPR EC02) should be reviewed (and revised if necessary) prior to Stage 2 to ensure identification and protection of priority habitats occurs prior to commencement of works in both stages. EC03 will also be relevant for Stage 2.

(iii) Evidence and submissions

DEECA submitted:

> …the EES has adequately described threatened flora species that may be present in the project area but has not adequately described the numbers of individuals that may be impacted.

In response, Mr Garden's evidence was the EES assumed habitat quality on the unsurveyed land to be much higher than it is likely to be in reality, due to the precautionary approach of assuming suitable habitat to be present when it could not be ruled out. Mr Garden considered there are likely to be low numbers of threatened species actually present in the survey area.

Bog Gum

DEECA and the Latrobe Valley Field Naturalists Club expressed concerns about potential impacts of the Project on Bog Gum. The Latrobe Valley Field Naturalists Club submitted the Project's impacts were inconsistent with the habitat protection and restoration objectives of the FFG Act Action Statement for this species.

Mr Garden's evidence confirmed the Project is expected to have a high residual significance of impact on Bog Gum. He advised:[8]

[8] D32 at page 14

> Impacts to populations of Bog Gum, both in land that has and has not been surveyed, remains a key concern.

Mr Garden said Bog Gum occurs primarily in the southern part of the land cable alignment, between KP 3.5 and KP 34.2. Surveys to date identified over 500 individuals within the survey area. He indicated not all the potential habitat for this species has yet been surveyed due to access constraints, but the information currently available indicates Bog Gum is more prevalent than initially expected.

Mr Garden acknowledged a number of Bog Gums will be removed where the Project alignment intersects patches of native vegetation, and further on-ground assessments and refinement of the Project design are required before impacts on Bog Gums can be finally determined. Mr Garden was of the opinion that the removal of individual Bog Gums for the Project would be unlikely to result in a significant decline in the species at the regional scale.

DEECA submitted compensation will be required for any Bog Gum removal. In response, the Proponent submitted the FFG Act permit application process is the appropriate mechanism to address any compensation requirements rather than the EPRs.

Forest Red Gum Grassy Woodland

DEECA submitted the EES has not adequately described the presence of Forest Red Gum Grassy Woodland and suggested the extent of occurrence may have been under-reported. It drew attention to a modelled occurrence of this community near the proposed Hazlewood converter station, which had not been recorded in the surveys conducted for Technical Appendix V.

Mr Garden responded that only one patch of this community was identified in the survey area. No native grasslands were identified, and all other native vegetation assessed had canopy species that did not include Forest Red Gum. He advised the area around the proposed Hazlewood converter station was surveyed and was found to be grazed farmland regularly cut for hay.

The Proponent submitted that after the exhibition of the EES, the preferred construction methodology for the patch of Forest Red Gum Grassy Woodland Community at McFarlane Road was changed from trenched construction to HDD, to avoid impacts on this community. Mr Garden advised the change in construction methodology reduced the residual significance of impacts on Forest Red Gum Grassy Woodland to low.

Mr Garden acknowledged land access constraints did not permit surveys of all the properties where Forest Red Gum Grassy Woodland is likely to occur, but he advised observations from adjoining areas indicated they have been significantly modified by intensive pastoral practices, reducing the likelihood of this community being present. He confirmed the EPRs require measures to avoid or minimise impacts to this community, should it be identified in the further assessments to be completed prior to construction.

Waratah Bay woodland flora and River swamp wallaby grass

Mr Garden gave evidence confirming the moderate residual significance of impact ratings for the Waratah Bay woodland flora functional group and for River swamp wallaby grass were due to limited access and the precautionary approach taken in Technical Appendix V (of assuming these species were present when it could not be ruled out).

FFG Act permit requirements

DEECA submitted EPR EC01 should be amended to require FFG permits to take protected flora, and any permit conditions to be incorporated into the biodiversity management plan and CEMP.

The Proponent disagreed with the inclusion of a requirement to obtain an FFG Act permit as part of an EPR, because it unnecessarily duplicates a statutory requirement. Further, it argued including such a requirement in EPR EC01 (which applies prior to commencement of Project works and to inform the design) would be impracticable from a timing viewpoint.

(iv) Discussion

The level of survey work undertaken to date, while incomplete, is adequate to inform an assessment of the likely impacts of the Project on threatened flora. That said, significant parts of the survey area have not yet been surveyed due to access constraints. Further work will be required to confirm the threatened flora species present in the unsurveyed areas and describe the number of individuals of each species that may be impacted across the Project area. This further survey work will need to be completed before construction starts.

Bog Gum

The IAC considers the high residual significance of impact on Bog Gum indicated by Technical Appendix V to be unacceptable. The species is listed as critically endangered under the FFG Act. The key conservation objectives in the FFG Act Action Statement for Bog Gum include:[9]

- Mitigate threats to populations and habitat to increase resilience, increase genetic fitness and minimise future population decline;
- Increase the Bog Gum's range and/or extent, by providing opportunities for natural movement/dispersal.

Bog Gum occurs in the survey area between Waratah Bay (KP 2.2) and Tarwin River East Branch (KP 40.6). The targeted surveys showed that Bog Gum is likely to be more prevalent in this area than previously thought, with over 500 individuals already identified in the survey area. The full extent of Bog Gum in the survey area is not yet known because of gaps in the survey coverage due to access constraints.

Further assessments will need to be undertaken to ensure all potential habitat for this species along the land cable alignment has been identified prior to construction. The further surveys should input into the detailed Project design, and into determining further areas where he land cable may need to be micro sited to avoid individual trees, or trenchless construction methods applied.

The EES did not explain why the removal of groups of known Bog Gums in areas where surveys have already been completed cannot be avoided by HDD. Impacts on Bog Gum should be further avoided and minimised through trenchless construction methods or micro-siting or both. By applying these additional measures, it should be possible to reduce impacts on Bog Gum to an acceptable level. In addition to the recommendations in Chapter 9.3, EPR EC01 should be amended to:

- confirm the requirement to complete the surveys for Bog Gum
- require close attention to be paid to measures for reducing residual impacts on Bog Gum.

[9] FFG Act Action Statement, Bog Gum (*Eucalyptus kitsoniana*)

Compensation for any residual loss of any Bog Gums after applying such measures should be determined through the FFG Act permit process. Consistent with the principles outlined in Chapter 8, it is not appropriate for the EPRs to deal with compensation.

Forest Red Gum Grassy Woodland

Impacts on the only known patch of Forest Red Gum Grassy Woodland at McFarlane Road will be avoided through the change in preferred construction method from trenched to HDD. EPR EC01 should be amended to specifically state trenchless construction is the preferred methodology for the McFarlane Road site.

The EES field surveys did not cover all the properties in the Project area where Forest Red Gum Grassy Woodland could potentially occur. Mr Garden and DEECA expressed differences in opinion regarding the likelihood of Forest Red Gum Grassy Woodland (with or without trees) occurring in these areas. Completion of the further surveys to inform the detailed design and construction methods will resolve this issue.

Waratah Bay woodland flora species and River swamp wallaby grass

As for other threatened flora species, further assessments will be needed to complete the surveys to ensure all potential habitat for these species is identified prior to construction. The further surveys should inform the detailed design of the Project, and measures to avoid and minimise impacts on these species where found to be present.

FFG Act permit requirements

The biodiversity management plan will need to be informed by (and be consistent with) the FFG Act permits. Whether it should include any such conditions should be determined at the time the plan is prepared – there is no need for the EPRs to specifically require this as it may not be appropriate.

(v) Findings and recommendations

The IAC finds:

- The assessment of impacts on threatened flora species in Technical Appendix V, while incomplete, is appropriate for this stage of the assessment process.
- Changes are required to EPR EC01 to offer improved environmental outcomes and further reduce or mitigate impacts on threatened flora species, including adding specific reference to:
  - completing surveys for identified threatened species before construction starts, to inform the detailed design of the Project and measures (including micro siting and trenchless construction methods) to further avoid and minimise impacts
  - the need to further reduce residual impacts on Bog Gum
  - trenchless construction being the preferred methodology to avoid impacts on the patch of Forest Red Gum Grassy Woodland at the McFarlane Road site.
- Providing the further surveys are conducted and appropriately inform the detailed design of the Project, the effects of the Project on threatened flora species can be acceptably managed.

The IAC recommends:

If the Marinus Link Project proceeds, amend the Environmental Performance Requirements as shown in Appendix E:1:

a) **Amend requirement EC01 to:**
   - **make it clear that trenchless construction is the preferred method for avoiding impacts on the patch of Forest Red Gum Grassy Woodland at McFarlane Road**
   - **make it clear that detailed design and construction methods should seek to avoid and minimise impacts on priority habitat for threatened flora species, including Bog Gum.**

9.5 Impacts on threatened fauna

(i) The issues

The issues are whether:

- impacts on threatened fauna species have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved outcomes for threatened fauna species.

(ii) What did the EES say?

Threatened fauna species present

Technical Appendix V assessed the presence of threatened fauna species listed under the FFG Act in the survey area, based on biological databases, habitat mapping and targeted field surveys for some species. Not all land parcels were accessible during the field surveys. In situations where the presence of a threatened species could not conclusively be ruled out, it was assumed present.

A total of 35 threatened fauna species were considered present, including 25 species listed under the FFG Act (12 of which are also listed under the EPBC Act). See Table 5.

Australian grayling is diadromous (migrates between rivers, estuaries and the sea) and is also included in the list of threatened species relevant to the marine environment (Chapter 10).

Table 5 Threatened fauna species considered present in the survey area

Functional group	Species	Conservation status* under FFG Act [EPBC Act]
Aquatic fauna	Australian Grayling (*Prototroctes maraena*)	EN [VU]
	Dwarf Galaxis (Galaxiella pusilla)	EN [VU (EN)]
	Flinders Pygmy Perch (*Nannoperca sp. 1*)	VU
	Growling Grass Frog (*Litoria raniformis*)	VU [VU]
	Narracan Burrowing Crayfish (*Engaeus phyllocercus*)	EN
	Platypus (Ornithorhynchus anatinus)	VU
	South Gippsland Spiny Crayfish (*Euastacus neodiversus*)	EN
Ground-dwelling fauna	Glossy Grass Skink (*Pseudemoia rawlinsoni*)	EN
	Southern Toadlet (Pseudophryne semimarmorata)	EN
	Swamp Antechinus (Antechinus minimus maritimus)	VU [VU]
	Swamp Skink (Lissolepis coventryi)	EN [EN]
	White-footed Dunnart (*Sminthopsis leucopus*)	VU
Owls, raptors and other fauna with large ranges	Grey Goshawk (Accipiter novaehollandiae)	EN
	Grey-headed Flying-fox (*Pteropus poliocephalus*)	VU [VU]
	Lace Monitor (*Varanus varius*)	EN
	Little Eagle (Hieraaetus morphnoides)	VU
	Powerful Owl (*Ninox strenua*)	VU
	White-bellied Sea-Eagle (*Haliaeetus leucogaster*)	EN [Ma]
	White-throated Needletail (*Hirundapus caudacutus*)	VU [VU, Ma, Mi]
Shore birds	Caspian Tern (Hydroprogne caspia)	Vu [Ma, Mi]
	Eastern Curlew (Numenius madagascariensis)	CR [CE, Ma, Mi]
	Hooded Plover (Thinornis cucullatus cucullatus)	VU [VU, Ma]
Water birds and waders	Australasian Bittern (Botaurus poiciloptilus)	CR [EN]
	Hardhead (Aythya australis)	VU (NL)
Woodland birds	Gang-gang Cockatoo (Callocephalon fimbriatum)	NL (EN) [EN]

* Conservation status: VU = Vulnerable, EN = Endangered, CE = Critically Endangered, Ma = Marine, Mi = Migratory, NL = Not Listed. EPBC Act status (where relevant) is shown in square brackets.
Changes to the FFG Act and EPBC Act conservation status since the EES was prepared are shown in round brackets, as at 15 October 2024, based on D140c.

Source: IAC, based on information in Table 27 of Technical Appendix V.

Impacts of construction

Construction is expected to have low residual significance of impact for the following functional groups of threatened fauna species, due to avoidance of priority habitats and implementation of construction controls:

- owls, raptors and other fauna with large ranges
- aquatic fauna

- waterbirds and waders
- woodland birds.

Moderate residual significance of impact is expected for two functional groups:

- ground-dwelling fauna
- shorebirds.

There is uncertainty regarding impacts on ground-dwelling fauna because areas of potential habitat have not been physically surveyed due to land access constraints. Threatened ground-dwelling fauna species may not actually occur in the unsurveyed areas.

The moderate residual significance of impact rating for shorebirds reflects high sensitivity due to the critically endangered Eastern curlew being included in this functional group. Direct impacts to habitat will be avoided though HDD of the shore crossing, and construction controls will avoid disturbance during sensitive periods such as nesting. Therefore the actual significance of impact is expected to be low.

EPRs EC01 (avoid and minimise native vegetation and habitat loss and degradation), EC02 (biodiversity management plan) and EC03 (aquatic habitat protection measures) are proposed to address impacts to threatened fauna in the design and construction stages.

Impacts of operation

Potential impacts to threatened fauna during operation are expected to be low or negligible. Potential impacts include:

- project vehicles colliding with fauna
- light, and noise and vibration pollution from project vehicles and transmission stations
- spreading of weeds and diseases by Project vehicles.

The EES does not include any EPRs to address the impacts of operation on threatened fauna.

The revised timing for Stage 2

The Supplementary Report (D45q) indicated all major works with the potential to disturb habitats will occur in Stage 1, although impacts associated with disturbance to fauna (such as noise) are relevant to both stages. EPR EC01 (avoidance and minimisation of native vegetation and habitat loss and degradation) is not expected to be relevant to Stage 2 because no change in the AoD is expected. The biodiversity management plan (EPR EC02) will be relevant in both stages, and should be reviewed and revised if necessary prior to Stage 2 to ensure priority habitats are identified prior to commencement of works in both stages, and protected during construction works. EC03 will also be relevant for Stage 2.

(iii) Evidence and submissions

Threatened fauna species present

Mr Garden's evidence was that key unsurveyed areas for threatened fauna included patches of Lowland Forests in the low hills behind Waratah Bay and some minor waterways likely to support sensitive values. The EES took a conservative approach by assuming threatened species were present in unsurveyed areas, and in the case of cryptic and mobile species that could not be effectively surveyed. His opinion was few threatened species are likely to actually occur in the survey area.

Impacts on threatened fauna

Several submitters expressed concern about impacts on birdlife, wildlife and aquatic fauna, including endangered and threatened species (S1, S4 and S12). DEECA's initial submission (S21) indicated concern about impacts to threatened aquatic species (including Platypus and Dwarf Galaxias), shorebirds (including Hooded Plover) and ground-dwelling fauna (including Glossy Grass Skink and Swamp Skink).

Mr Garden's evidence was that implementation of the EPRs would substantially reduce impacts on threatened fauna species, with no 'high' residual significance of impact for any threatened species, and 'moderate' residual significance of impact for only two functional groups (shorebirds and ground-dwelling fauna).

Mr Garden advised the shore crossing is expected to take eight to 12 months with HDD continuously over that period, but the tall coastal dunes will be a physical barrier to potential disturbance of shorebirds. Optimal nesting and foraging habitat is likely to be restricted to a small band of coastal grassland immediately above the high-tide mark on the ocean side of the dunes. The predicted construction noise levels of 55 to 60 decibels at the dunes and beach were lower than the behavioural response threshold for shorebirds (62.4 decibels) shown by UK studies.

Mr Garden identified the area affected by disturbance from HDD would be about 350 metres of the 16.1 kilometre length of the Waratah Bay Beach, or approximately 2 per cent of breeding and nesting habitat for shorebirds within Waratah Bay. He noted EPR EC02 requires work restrictions during sensitive shorebird life-stages within 100 metres of priority habitats, which includes a small portion of the foreshore at Waratah Bay. He confirmed the actual residual significance of impact on shorebirds is likely to be low despite the moderate rating in Technical Appendix V (which is influenced by the sensitivity of some shorebird species, including the Eastern curlew).

Mr Garden considered the 'moderate' residual significance of impact for ground-dwelling fauna reflected the precautionary approach of assuming ground-dwelling fauna species were present when this could not be conclusively ruled out. He advised there is limited habitat for Glossy Grass Skink and Swamp Skink in the survey area and in his opinion, *"the likelihood of the project having a significant impact on the species is low due to efforts to avoid and minimise impacts to areas likely to support high-quality habitat"*.

Mr Garden provided the following advice regarding threatened aquatic species:

- Platypus has been recorded in six streams intersected by the proposed alignment but only one of these (Berrys Creek) is proposed to be trenched.
- Dwarf Galaxias has been recorded in the Latrobe Valley, including the Morwell River, but has not been recorded within or south of the Strzelecki Ranges and is unlikely to occur widely in this region.
- No Narracan Burrowing Crayfish were identified during targeted surveys.
- No surveys were undertaken for South Gippsland Spiny Crayfish within the survey area due to access limitations.

DEECA submitted EPR EC02 should be amended to include a requirement to micro site works where possible to avoid any threatened species habitat detected during pre-clearing surveys. The Proponent disagreed, arguing:

> The appropriate time to consider and adopt measures to minimise habitat loss including micro siting is during the [detailed] design stage under EPR EC01 and preparation of the

vegetation and habitat management measures under the biodiversity management plan under EC02, not immediately prior to habitat removal during fauna clearance inspection.

Chytrid fungus

DEECA submitted the biodiversity management plan (EPR EC02) should include a procedure to manage and limit the spread of Chytrid fungus *(Batrachochytrium dendrobatidis)* when working in or within 200 metres of waterways, dams, wetlands and other aquatic habitat. DEECA argued this was important to protect the Growling Grass Frog, which is listed as vulnerable under both the FFG and EPBC Acts. The Proponent disagreed, arguing measures to manage and limit the spread of Chytrid fungus are part of standard operating procedures, and this could be clarified by inserting a broad reference to 'pathogens' in EPR EC03.

(iv) Discussion

Threatened fauna species present

The IAC considers the threatened fauna species likely to be present have been adequately described for the purpose of this stage of the assessment process, providing an adequate basis to inform an assessment of the likely impacts of the Project on threatened fauna. The EES adopted a precautionary approach of assuming threatened species to be present where this could not be conclusively ruled out. EPR EC01 requires further habitat assessments and targeted surveys for threatened species prior to works commencing and to inform the detailed design, which is appropriate. These measures will effectively plug the gaps in the EES surveys.

Impacts on threatened fauna

HDD at the Waratah Bay shore crossing will be undertaken continuously for 8 to 12 months. Continuous drilling is necessary to manage the pressure in the drill holes to minimise the risk of frac-out, discussed further in Chapter 11 (geomorphology and geology). However, the coastal dunes will be a physical barrier to noise and light from the HDD site, and only a small area of shorebird habitat will be affected by these disturbances. On that basis, the IAC is satisfied the residual impact of construction on shorebirds will be low, despite the residual significance of impact presented in the EES as 'moderate' (which is due to the high sensitivity of some shorebird species).

The residual significance of impact for threatened ground-dwelling fauna was assessed in the EES as 'moderate'. The IAC is satisfied the 'moderate' rating is a result of the conservative assumption adopted in Technical Appendix V. While further information is required to confirm the impact of the Project on this group, the IAC is satisfied impacts can be acceptably managed through the EPRs, including the additional habitat assessments and targeted surveys required by EPR EC01.

The IAC agrees with DEECA that micro siting of works should be undertaken wherever possible to avoid habitat for threatened species. The changes to EPR EC01 proposed by the IAC in Chapter 9.3 (threatened flora) ensure that measures to avoid and minimise impacts on priority habitats include locations identified in the further surveys and assessments required by EPR EC01, in addition to the priority habitats identified in Figure 5 in Technical Appendix V.

Impacts on aquatic fauna species are discussed in Chapter 9.7.

Chytrid fungus

The FFG Act list of potentially threatening processes includes: *"Infection of amphibians with Chytrid Fungus, resulting in chytridomycosis".* The FFG Act Action Statement for Growling Grass Frog states this species is susceptible to chytridomycosis with rapid population declines coinciding with the spread of the Chytrid fungal pathogen. The Growling Grass Frog Action Statement recommends taking action to "*minimise the spread of Chytrid [fungus] by implementing suitable hygiene protocols to protect priority populations"*.

On this basis, the IAC agrees with DEECA that measures to avoid the spread of Chytrid fungus are important. The EPRs should include a specific requirement to minimise the spread of Chytrid fungus. The requirement should be inserted into EPR EC02 (biodiversity management plan) as proposed by DEECA, rather than EPR EC03 (aquatic habitat measures) as proposed by the Proponent. This is because EC03 refers specifically to defined waterways, whereas Growling Grass Frog inhabits a wider range of freshwater habitats including wetlands, ponds and dams.

(v) Findings and recommendations

The IAC finds:

- The assessment of impacts on threatened fauna species in Technical Appendix V, while incomplete, is appropriate for this stage of the assessment process.
- Changes are required to the EPRs to offer improved environmental outcomes and further reduce or mitigate impacts on threatened fauna species. These include:
  - completing habitat surveys before construction starts, to ensure all suitable habitat for threatened fauna species is identified
  - strengthening the requirement for detailed design and construction methods to be informed by the further surveys
  - changes to EPR EC03 to require procedures to manage the spread of Chytrid fungus.
- Subject to these changes, the effects of the Project on threatened flora species can be acceptably managed.

The IAC recommends:

If the Marinus Link Project proceeds, amend the Environmental Performance Requirements as shown in Appendix E:1:

a) Amend requirement EC01 to make it clear that:
  - **the further habitat surveys should include all potential habitat for species in the ground-dwelling fauna functional group**
  - **detailed design and construction methods should seek to avoid and minimise impacts on priority habitat for threatened fauna species.**

b) Amend requirement EC02 by inserting a specific requirement that the biodiversity management plan include procedures to manage and limit the spread of Chytrid fungus.

9.6 Impacts on koalas

Koalas are not listed as threatened under the FFG Act. Nevertheless, they are a regionally significant species, important to the community and protected under the Koala Strategy. Gippsland is one of three regions that together support approximately 80 per cent of Victoria's koala population.

(i) The issues

The issues are whether:

- impacts on koalas have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved outcomes for koalas.

(ii) What did the EES say?

The EES described the distribution of koalas in the Project area, but did not assess the Project's impacts on koalas (as they are not a listed species).

Technical Appendix V reported there were numerous historical records of koalas in the study area. Targeted drone surveys for koala (as well as the Greater Glider) were undertaken as part of the threatened fauna surveys. The maps of 'Threatened ecological communities, species and priority habitats' in Figure 5 in Technical Appendix V show the locations of the koalas recorded in the targeted surveys.

The EPRs do not include any specific requirements in relation to koalas.

The Supplementary Report did not directly address the implications of the revised timing for Stage 2 for koalas. However, it can be inferred from the information in the Supplementary Report regarding native vegetation and other fauna species that koala habitat impacts from native vegetation clearance will only occur in Stage 1, whereas impacts associated with disturbance such as noise are relevant to both stages.

(iii) Evidence and submissions

Koalalivesmatter (S6), Friends of the Koalas Inc. (S11), the Latrobe Valley Field Naturalists Club, HVP and Submitter 14 all expressed concern about impacts on koalas. Key issues raised in these submissions included:

- Gippsland provides important koala habitat
- the Strzelecki koala population is genetically distinct and unaffected by inbreeding, but numbers have been reduced by habitat loss and bushfires
- the EES did not address impacts on koalas, including habitat fragmentation
- the EES did not adequately reference the Koala Strategy
- concern about cumulative impacts on koalas, including Delburn Wind Farm, the Strzelecki Highway widening works at Delburn, and other causes of habitat depletion, including native vegetation destruction by storms
- impacts on the Alpine-Strzelecki Biolink Project, which is significant for increasing the range and connectivity of koala habitat
- the presence of koala habitat on HVP land, including in the HVP offset areas and biolinks.

Mr Garden's evidence confirmed koalas were observed and recorded along the Great Southern Rail Trail and through the Strzelecki Ranges. No koalas were observed in the other parts of the study area, but they may be present in intact woodland or forest remnants. He noted that HVP reported koalas present from time to time in its plantations.

Mr Garden confirmed koala is not a listed species under either the FFG Act or EPBC Act. His evidence was that the EES provided a detailed assessment of the presence of koala in the study area in recognition of the concerns of stakeholders and the importance of koalas to the local community. However:[10]

> Given the species is not listed under relevant legislation as threatened, a specific impact assessment has not been conducted for this species.

In response to a direction from the IAC, Mr Garden provided a supplementary assessment of Project impacts on koalas in his expert witness statement, based on inferences from the assessed impacts on native vegetation in Technical Appendix V. This identified:

- The residual impact on native vegetation suitable for koalas in the Strzelecki Ranges includes direct impacts on 1.87 hectares, including 14 large trees, and indirect impacts on 0.41 hectares and 9 large trees.
- The residual impact on native vegetation suitable for koalas in the Tarwin Valley section of the Project area is approximately 0.21 hectares.
- In both the Strzelecki Ranges and Tarwin Valley regions, the impacted vegetation is a tiny fraction of the total extent of native vegetation in the region.
- The effects of the Project on koala habitat are very small compared to other stressors in the region, such as Blue Gum harvesting and conversion of eucalypt forests to pine.
- Based on residual impacts to koala habitat, the Project is unlikely to materially reduce the area of habitat or lead to a long-term decrease in the size of the local populations.
- The Project does not present a significant threat to Koala populations in the Strzelecki Ranges.

In response to a question from the IAC at the Hearing, DEECA indicated that the residual extent of loss of trees suitable for koalas was not expected to be significant at the population level, although a small number of individuals may be locally affected.

The Proponent's updated submissions summary table provided with its closing submission (D140b) noted the Koala Strategy does not present any evidence that projects such as Marinus Link present any sort of risk to koalas. Nor should this species warrant special consideration in projects of this nature beyond what is required under existing legislation. The Proponent noted DEECA had not raised any concern regarding impacts to koalas, including the Strzelecki population. It submitted that concerns raised in other submissions were satisfactorily addressed in the EPRs and Mr Garden's evidence.

Further, the Proponent submitted the Project does not present an increased risk to koalas as a result of bushfire risks. The EES indicated a low risk of fire ignition and escape from Project activities. The Proponent's bushfire expert Mr Kearnes gave evidence that:[11]

> … impact on the Strzelecki koala population from bushfire originating from the Project to the severity and extent that would place the population at risk of extinction, is not considered plausible.

[10] D32, page 23

[11] Document 37

The Proponent submitted EPR EC02 (biodiversity management plan) and EPR A02 (the requirement for PMPs to avoid impacts to trees and tree protection zones) were appropriate for addressing potential impacts on koalas.

(iv) Discussion

In terms of koala sightings, key parts of the Project area are along the Great Southern Rail Trail (KP 21.7 to KP 28.6) and the Strzelecki Ranges between KP 61.4 and KP 73.1.

Koalas are an iconic species of significant interest to the community. The Koala Strategy states the koala population in the Strzelecki Ranges and South Gippsland has significantly higher genetic diversity than other koala populations in Victoria and is thought to be an original population largely unaffected by hunting in the 1800s and subsequent reintroduction programs. It states:[12]

> Given the higher levels of genetic diversity, this population may have a greater ability to adapt to future environmental pressures and conservation of the population and its genetic diversity is of high importance.

The Koala Strategy states Victoria is fortunate to have large and secure koala populations, which is not the case nationally, and this:[13]

> …imposes a responsibility on Victoria to manage its koala populations in a way that ensures the species remains secure in the wild and koala habitat is protected into the future.

The omission of an assessment of impacts on koalas on the basis that it is not a threatened species is not consistent with the intent of the Koala Strategy to address Victoria's responsibility to ensure koalas remain secure in the wild into the future. The Koala Strategy does not contemplate waiting for koala populations to come under threat before taking measures to protect them.

The Koala Strategy identifies ongoing, incremental habitat loss, degradation and fragmentation as a significant threat to Victoria's koala populations. On this basis, even small impacts on koala habitat should be avoided wherever possible.

The Koala Strategy draws attention to the Strzelecki-Alpine Biolink project as an example of a cooperative approach to habitat conservation across public and private land, involving habitat conservation and revegetation, with koala being the flagship species for this project. Biodiversity 2037 emphasises the importance a whole-of-government approach to biodiversity management, including alignment of goals and activities, as well as a collaborative approach that encourages non-government investment in biodiversity.

HVP's submission indicated it is a participant in the Strzelecki-Alpine Biolink project and its land in around the Project site includes areas that function as biolinks for koalas. Removal of native vegetation and koala habitat from HVP's biolink areas would be inconsistent with the intent of the Strzelecki-Alpine Biolink project, the Koala Strategy and Biodiversity 2037. It should therefore be avoided, or (where avoidance is not practical) minimised.

Changes should be made to the EPRs to explicitly require impacts on koalas to be avoided and minimised. Specifically, EPR EC02 should be amended to require the further assessment of priority habitats to include koala habitat.

With these changes, the IAC is satisfied that the impacts of the Project on koalas can be acceptably managed.

[12] Koala Strategy, page 16

[13] Koala Strategy, page 3

(v) Findings

The IAC finds:

- While koalas are not a listed threatened species under Victorian legislation, they are a regionally significant species. Adopted government policy, including the Koala Strategy and Biodiversity 2037, requires their protection.
- Changes are required to the EPRs to offer improved environmental outcomes and reduce or mitigate impacts on koalas.
- With the IAC's recommended changes to the EPRs identified in Chapters 9.3 and 9.4, the effects of the Project on koalas can be acceptably managed.

9.7 Impacts on aquatic habitat and biota

(i) The issues

The issues are whether:

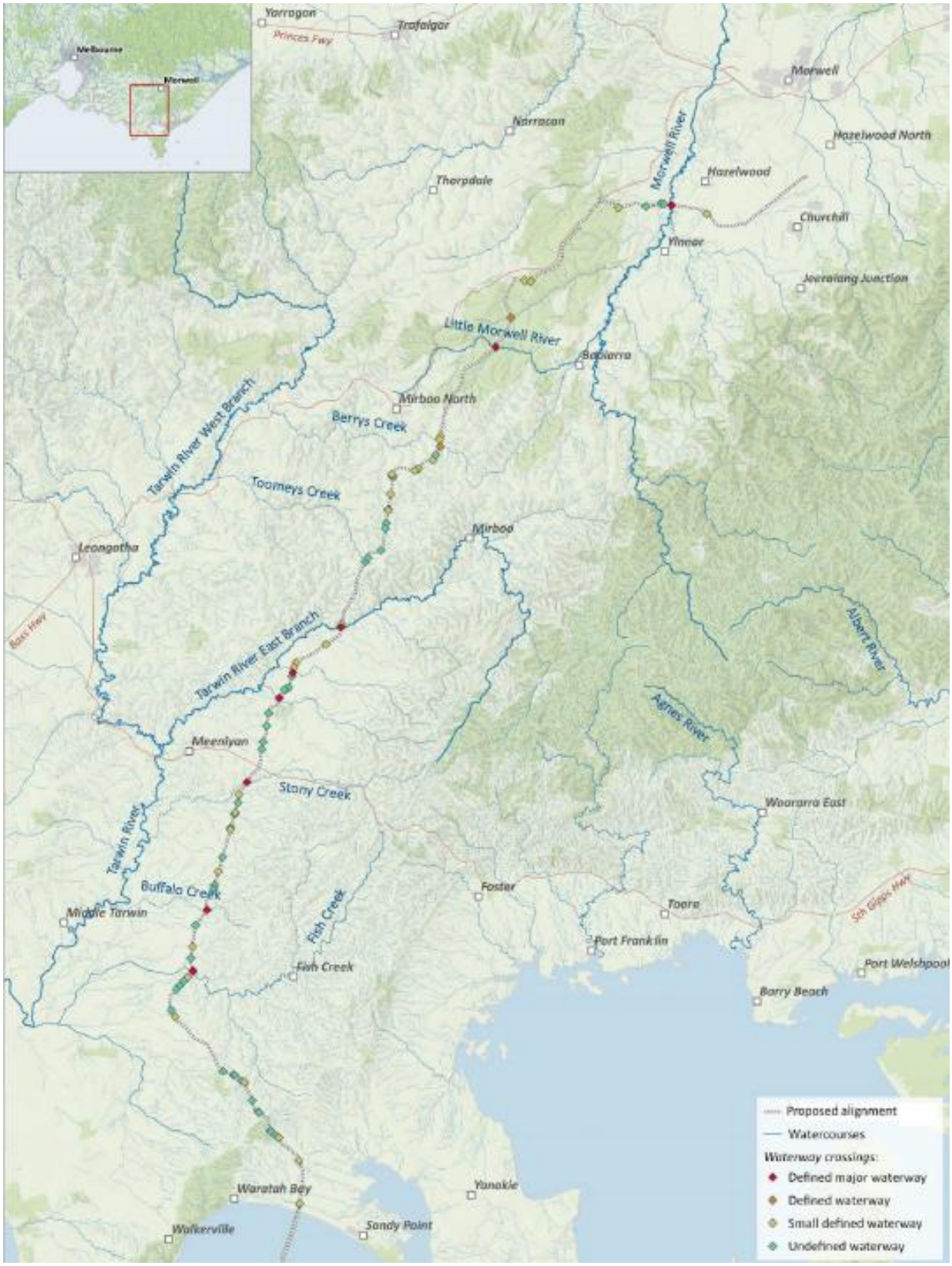
- impacts on aquatic ecosystems have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved outcomes for aquatic ecosystems.

(ii) What did the EES say?

In addition to Technical Appendix V, other technical studies are relevant to impacts on aquatic habitat and biota:

- Technical Appendix Q (Surface water) identified 82 designated waterways along the Project alignment, 15 of which were proposed to be crossed by HDD and the remaining 67 to be trenched (see Figure 3 below).
- Technical Appendix P (Groundwater) identified 12 locations along the Project alignment that are moderately likely to support groundwater dependent ecosystems, including 10 waterways crossed by the alignment and two adjacent wetlands.

Figure 3 Designated waterway crossings along the Project alignment



Source: Technical Appendix Q, Figure 52

Technical Appendix V reported the survey area supports a range of aquatic habitats, including rivers and creeks, ephemeral and semi-permanent wetlands, and small dams. It said the land cable alignment largely avoids the need to remove aquatic habitat, while acknowledging that

several "*low-quality ephemeral streams may still be trenched*". It did not specifically assess the impacts of the Project on the aquatic habitats and biota in the waterways and groundwater dependent ecosystems identified in Technical Appendices Q and P, except in so far as they were covered by the assessments of impacts on threatened flora and fauna.

Technical Appendix V assessed the residual significance of impact on:

- River swamp wallaby grass (a threatened aquatic plant) as 'moderate', due to uncertainties about potential impacts and its distribution in the survey area
- threatened aquatic fauna species as 'low', based on the avoidance of priority habitats through design refinement and construction controls.

EPR EC03 specifically addresses impacts on aquatic ecosystems in the design and construction stages. EPRs EC01 and EC02 are also relevant, as are EPRs relating to waterways including surface water EPR SW01 and geomorphology EPR GM09.

Potential impacts on aquatic ecosystems during operation were expected to be low or negligible, and the EES did not include any EPRs to address impacts of operation on aquatic ecosystems.

The Supplementary Report indicated the revised timing of Stage 2 would not result in any further impacts to threatened aquatic fauna or River swamp wallaby grass. No changes to the EPRs were required.

(iii) Evidence and submissions

DEECA's initial submission (S21) stated the EES did not adequately address potential impacts on aquatic values, and submitted further work was necessary. It later submitted (D126) EPR EC03 should be amended to require aquatic surveys prior to commencement of works to inform design and construction methods if any of the waterways nominated for HDD in EC03 require trenching.

DEECA further submitted the EES did not adequately address potential impacts to aquatic values resulting from reinstatement activities for trenched waterway crossings, including reconstruction and stabilisation methods such as rock armouring, geotextile fabric and plantings. It submitted EPR EC03 should be modified to require the site environmental management plan for waterway crossings to include *"requirements for a permit to take protected fish under the [FFG Act] for any works which may impact protected fish such as temporary damming or works in waterways"*.

The Proponent disagreed with DEECA's proposed changes to EPR EC03, arguing:

- the changes regarding aquatic surveys unnecessarily duplicated requirements in EPRs EC01 and SW01 – instead, EPR SW01 should be amended by inserting a reference to habitat into the requirement to document existing waterway condition, as recommended by surface water expert Mr Cleven
- adding a requirement for a permit to take protected fish unnecessarily duplicates a statutory requirement.

Key matters of concern for HVP included appropriate management of the many gullies and waterways through the HVP land so that flora and fauna reliant on healthy waterways are not detrimentally impacted. It sought further consultation as to whether additional waterways on HVP land would benefit from trenchless construction.

Submitter 12 submitted the Project would have unacceptable impacts on:

- the Little Morwell River, which supports Narracan Burrowing Crayfish, Platypus and River Blackfish

- wetlands in the vicinity of the Little Morwell River that are not acknowledged in the EES, including a wetland situated between the Little Morwell River and Pleasant Valley Road that supports Narracan Burrowing Crayfish.

Mr Garden's evidence was that impacts on waterways supporting sensitive values will be avoided by trenchless construction. Waterways that are proposed to be trenched (those thought unlikely to support sensitive ecological values) will be surveyed prior to construction, to inform the detailed design and control measures. Where a risk remains to sensitive aquatic values, alternative approaches or controls will be considered, including trenchless construction, in accordance with EPR EC03.

Mr Garden's evidence responded to concerns raised by DEECA and Submitter 12 regarding the impacts of waterway crossings. He undertook a supplementary assessment of the impacts of crossings of the 22 (of 82) designated waterways along the Project alignment that he considered potentially support sensitive ecological values.[14] The supplementary assessment was based on the following assumptions:

- minor seasonal waterways and waterways in disturbed areas had minimal aquatic values
- impacts of trenched crossings will be restricted to the crossing point and the duration of construction
- potential impacts can be minimised by trenching at existing crossing points.

The supplementary assessment outlined existing waterway condition, proposed construction methodology and post-mitigation impacts. It showed HDD would avoid impacts to 13 of the 22 assessed crossings, including the Little Morwell River which the Proponent advised was now proposed to be crossed using HDD rather than trenched (D110). Mr Garden considered the trenched crossings of the other 11 waterways could have impacts on riparian vegetation where present, but would not have significant impacts on aquatic ecosystems.

Mr Garden considered that if subsequent inspections show sensitive values are present or if trenching at existing crossing points is found to be unfeasible, alternative treatments would be considered in accordance with EPR EC03. He acknowledged Submitter 12's concerns about the wetlands near the Little Morwell River and recommended this area be accurately mapped and appropriate controls implemented during construction if HDD is not possible.

Mr Garden considered the other 60 designated waterways that will be crossed by the Project were 'drainage lines' or 'gullies' that do not support aquatic values. His evidence was these waterways were often indistinguishable from the surrounding paddocks in terms of vegetation and habitat.

The IAC asked Mr Garden what he considered to be a 'waterway', using the Project alignment between Buffalo Creek and Stony Creek as an example. Technical Appendix Q identified 10 designated waterways in this section of the Project alignment. In Mr Garden's view, only two of these could be properly described as 'waterways'. He described the rest as drainage lines, not waterways, because few aquatic values were apparent – even though some of these drainage lines supported remnant native vegetation including the critically endangered Bog Gum.

(iv) Discussion

Aquatic habitats support aquatic biota as well as indirectly supporting habitat for non-aquatic species. They are addressed in Clause 12.03-1S of the South Gippsland Planning Scheme, which

[14] D32, Annexure D

seeks *"To protect and enhance waterway systems including river and riparian corridors, waterways, lakes, wetlands and billabongs"*.

The IAC agrees with DEECA that the EES did not adequately address potential impacts on aquatic ecosystems. Technical Appendix V presented little information about the effects of the Project on aquatic ecosystems, other than in relation to listed threatened aquatic fauna species and one flora species (River swamp wallaby grass).

The definition of a waterway

The specialist assessments that addressed impacts on waterways (Technical Appendices O, P, Q and V) did not share a common definition of a 'waterway'. The Proponent inserted the following proposed definition into the Day 1 and Day 2 versions, which was based on Mr Cleven's surface water evidence:

> … a river, creek, stream or watercourse and includes all drainage lines and open channels.

Mr Garden's characterisation of 60 of the designated waterways proposed to be crossed by the Project as 'drainage lines' or 'gullies' rather than waterways is inconsistent with the:

- definition inserted into the Day 1 and Day 2 EPRs, which specifically references drainage lines
- requirement in the *Water Act 1989* for a Works on Waterways Permit for any works on a designated waterway.

The need for further assessments of waterways

Before works start for a trenched waterway crossing, a high level assessment should be undertaken of the existing condition and aquatic values of the waterway, including aquatic habitat and biota. The Victorian Waterway Management Strategy highlights the interaction between aquatic habitat and the riparian zone, stating "*Healthy waterways depend on the condition of riparian land*".[15] The riparian zone should therefore be considered as part of the aquatic condition and values assessment.

The assessment should be undertaken by a suitably qualified aquatic ecologist, and can inform which waterways are deemed to be potential habitat for threatened species, and therefore require an aquatic survey under EPR EC03.

To ensure a proper integrated assessment, the aquatic ecologist conducting the high level assessments and aquatic surveys (where required) should work closely with the specialists addressing the other aspects of the waterway crossings, including under the requirements of EPRs SW01 and GM09. Consistent terminology should be used by all specialists, and the IAC supports the Proponent's addition of a definition of a designated waterway in the Day 1 and Day 2 EPRs.

Trenched versus trenchless crossings

Mr Garden assumed 13 of the 22 waterways assessed in his supplementary assessment will be HDD. This is consistent with the Map book (EES Attachment 6), which indicates that HDD is the preferred construction method for these waterways. However, EPR EC03 only identifies HDD as the preferred construction method for eight of these 13 waterways. EC03 should be amended to indicate HDD as the preferred construction methodology for all 13.

[15] Victorian Waterway Management Strategy (Department of Environment and Primary Industries 2013), page 118

The unnamed waterways at KP 66.7 and KP 67 have existing built-up crossing points associated with access tracks. The Day 2 version of EPR EC03 contemplates alternative design and construction approaches (including trenchless construction methods) for these crossings where trenching works may extend beyond the existing crossing points.

The criteria for determining construction methods should not just be limited to whether the footprint of the works extends beyond the existing tracks. It should also be informed by the aquatic values of a site, and whether effects on those values will be acceptable. For example, Technical Appendix V noted the targeted surveys for Delburn Wind Farm recorded a Growling Grass Frog population of about 20 to 30 individuals in the waterway at KP 67. EPR EC03 should be amended to address this.

The high level assessments and aquatic surveys (where required) undertaken by the aquatic ecologist will inform the selection of the appropriate construction method for waterway crossings.

Waterways on forestry properties

In regard to HVP's concerns, the Code of Practice for Timber Production includes the following goals in relation to aquatic habitat:[16]

> Water quality and river health are maintained or improved by protecting waterways and aquatic and riparian habitat from disturbance.
>
> Where crossings are required, minimise the extent of habitat damage, constriction to streamflow and barriers to fish and other aquatic fauna.

The requirements proposed in EPR EC03 are consistent with these objectives. The IAC anticipates West Gippsland CMA will have regard to the relevant objectives of the Code of Practice when considering Works on Waterways permits under the *Water Act 1989* for waterways within the plantations. No further amendments to the EPRs are required to address HVP's concerns.

References to permit requirements under the FFG Act

DEECA drew attention to the need for a permit under the FFG Act to take protected fish where trenched waterway crossings and rehabilitation works are proposed. Consistent with the EPR principles in Chapter 8, the IAC agrees with the Proponent that it is an unnecessary duplication with statutory requirements for EPRs to reference the need for permits.

(v) Findings and recommendations

The IAC finds:

- Impacts of the Project on aquatic ecosystems have not been fully assessed.
- EPR EC03 should be amended to:
  - be consistent with the assumptions made by Mr Garden in identifying the 13 waterways where trenchless construction methods are preferred
  - require a high level assessment by an aquatic ecologist of all waterways proposed to be crossed by trenching, that can inform whether a targeted aquatic survey is required and inform the construction method for the crossing
- Subject to these changes, the effects of the Project on aquatic ecosystems can be acceptably managed.

[16] Code of Practice for Timber Production, Sections 2.2.1, 2.2.1.6 and 3.2.1

The IAC recommends:

If the Marinus Link Project proceeds, amend the Environmental Performance Requirements as shown in Appendix E:1:

a) Amend requirement EC03 to:

- **explicitly state where trenchless crossings will be constructed**
- **require a high level survey by an aquatic ecologist of all waterways proposed to be trenched, to document existing conditions and identify whether the waterway provides potential habitat for threatened species**
- **strengthen the requirement to avoid and minimise impacts to aquatic habitat through trenchless construction methods or project alignment changes.**

10 Marine environment

10.1 Introduction

Impacts on the marine environment are assessed in:

- EES Volume 3 Chapter 2 (Marine ecology)
- EES Volume 3 Chapter 3 (Marine Resource Use)
- EES Volume 3 Chapter 5 (Summary of environmental effects in the marine environment)
- Technical Appendix G (Marine Benthic Habitat Characterisation)
- Technical Appendix H (Marine Ecology and Resource Use Impact Assessment).

Technical Appendix A (Electromagnetic Fields and Electromagnetic Interference Impact Assessment) is also relevant.

The following experts provided evidence for the Proponent:

- David Balloch of EnviroGulf on marine ecology (D29)
- Scott Chidgey of Consulting Environmental Engineers on benthic ecology (D40).

Mr Balloch was principal author of Technical Appendix H. Mr Balloch presented oral evidence at the Hearing. Mr Chidgey was the principal author of Technical Appendix G, which was an input to Technical Appendix H. Mr Chidgey did not appear at the Hearing.

Ane other key document is:

- D110 – Proponent Response to the IAC's questions

10.2 The issues

The issues are whether:

- impacts on marine habitat, biota and threatened marine flora and fauna species have been appropriately avoided and mitigated
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved environmental outcomes for the marine environment.

10.3 What did the EES say?

(i) Threatened marine species

The EES identified threatened marine species that may occur within Victorian coastal waters surrounding the Project. They include the following FFG Act listed species:

- one flora species (Tasman Grass-wrack (*Heterozostera tasmanica*), which is listed as endangered)
- 15 marine invertebrate species, including seven critically endangered and eight endangered species
- two migratory fish species, White Shark and the diadromous Australian Grayling, both listed as endangered
- one sea turtle species (Leatherback Turtle), listed as critically endangered
- four whale species, listed as endangered
- two pinniped (seal) species, listed as endangered and vulnerable.

The marine study area also supports threatened and migratory bird species, including marine birds (including albatrosses, petrels, gulls, terns and skuas, shearwaters and prions), shorebirds and wetland birds. Impacts on shorebirds are addressed in Chapter 9.5.

(ii) Impacts of construction

The EES reported construction was expected to have 'low' to 'very low' residual significance of impact on the marine environment, except for underwater noise which would have 'moderate' residual significance of impact on high-frequency hearing cetaceans (HF cetaceans). HF cetaceans are whales and dolphins with a hearing range from 227 hertz to 160 kilohertz, and include Pygmy Sperm Whale, Pygmy Right Whale and Dusky Dolphin.

Marshall Day Acoustics undertook underwater noise modelling to identify spatial zones where acoustic physiological damage, acoustic disturbance and behavioural impacts to marine fauna could occur based on distance from the noise source.[17] The noise from surrogate cable laying ship *CS Giulio Verne* was used to define a 'worst-case' scenario, based on a noise level of 185 dB re 1 µPa[18] at a distance of 1 metre from the ship.

The modelling showed one hour of cumulative exposure at this noise level would not kill noise-sensitive marine fauna, but would cause permanent and irreversible hearing loss to HF cetaceans. Technical Appendix H reported this outcome was unlikely because whales and dolphins could be expected to move away from the noise source.

Seabed disturbance would arise from the burial of the cables in soft seabed sediments using a jet trencher to 'fluidise' the sediments. The EES assessed a 'low' to 'very low' residual significance of impact on water quality, seabed habitats and benthic communities (those that live in or near or interact with the sea floor).

Other construction impact pathways assessed in the EES included effects of artificial lighting, introduction or translocation of invasive marine species, and marine fauna collisions with construction vessels. All were assessed to have 'low' to 'very low' residual significance of impact.

The EES included the following marine ecology and resource use EPRs to address construction impacts on the marine environment:

- MERU01, requires HDD activities for the shore crossing to be monitored to avoid or minimise impacts to the marine environment
- MERU02 requires the subsea project alignment to avoid or minimise impacts on benthic habitats
- MERU03 requires a pre-lay survey prior to subsea cable installation
- MERU05 requires a cable crossing management plan
- MERU06 requires a marine communication plan
- MERU07 requires a marine fauna management plan
- MERU08 requires a cetacean interaction management plan
- MERU09 requires a plan for managing interactions with sea turtles
- MERU10 requires measures to minimise lighting impacts on marine fauna and avifauna
- MERU11 requires a plan to avoid the introduction of invasive marine species
- MERU13 requires notification of the final subsea project alignment.

[17] Technical Appendix H, Attachment G

[18] 'dB re 1 µPa' is the relative unit used to specify the intensity of an underwater sound

(iii) Impacts of operation

The EES assessment of impacts of operation focused on the effects of magnetic, electric and thermal fields on marine fauna. It assumed the Project will adopt a modern high voltage direct current (HVDC) cable design that minimises electromagnetic fields and heat emissions (MERU12). With the cables bundled and buried, the residual significance of impacts was assessed as 'low' to 'very low'.

Modelling in the Electromagnetic Fields and Electromagnetic Interference Impact Assessment (Technical Appendix A) showed magnetic fields and electric fields from the subsea cables will be confined to a limited area. Based on this, Technical Appendix H assessed the residual significance of impacts on magnetosensitive and electrosensitive marine fauna as 'low' to 'very low'.

Modelling in Technical Appendix A showed the heat generated by power transmission will not cause significant warming of the seabed surface. On that basis, Technical Appendix H found that benthic flora and fauna were not predicted to be impacted by thermal fields.

The EES did not assess the effects of electromagnetic fields on marine flora, because a review of scientific literature and local experience indicates such impacts are not known to occur.

(iv) Cumulative impacts

Technical Appendix H assessed the cumulative impacts of five other projects that could potentially interact with the Project, including four offshore wind energy projects and one oil and gas project:

- Star of the South Offshore Wind Project
- Great Eastern Offshore Wind Project
- Greater Gippsland Offshore Wind Project
- Seadragon Wind Project
- Yolla Infield Well Project BassGas Project.

Cumulative impacts were assessed to have 'low' to 'very low' residual significance of impact.

(v) The revised timing for Stage 2

The Supplementary Report (D45e) indicated the EES had already contemplated that the two subsea cable bundles across Bass Strait would be installed during separate stages of the Project. A longer time gap between the stages, due to the revised timing of Stage 2, would not affect the assessments in Technical Appendix H, nor would it require any changes to the EPRs relating to the marine environment and resource use.

10.4 Relevant policy and guidelines

The IAC has had regard to relevant policy and guidelines, including:

- Victorian legislation, regulations and policies
  - EP Act
  - FFG Act
  - MAC Act
  - *Pollution of Waters by Oils and Noxious Substances Act 1986*
  - *Fisheries Act 1995, Fisheries Amendment Act 2015* and the Fisheries Regulations 2019
  - *Wildlife Management Act 1975* and the Wildlife (Marine Mammals) Regulations 2019
  - *Environment Protection Regulations 2021*

- Commonwealth legislation, regulations and policies to the extent they relate to matters that affect the Victorian marine environment:
  - EPBC Act
  - *Biosecurity Act 2015*
  - *Australian Maritime Safety Authority Act 1990*
  - *Navigation Act 2012*
  - *Protection of the Sea (Prevention of Pollution from Ships) Act 1983*
  - *Offshore Electricity Infrastructure Act 2021*
  - Environment Protection and Biodiversity Conservation Regulations 2000 and EPBC Act Policy Statements 1.1 and 2.1
  - *Australian and New Zealand guidelines for marine water quality*, 2018
  - *Australian and New Zealand guidelines for sediment quality*, 2018.
- International guidance:
  - *Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing,* National Marine Fisheries Service, 2018 (NMFS 2018 guidelines).

10.5 Marine impact assessment methodology

(i) Evidence and submissions

Mr Chidgey's expert witness statement (D40) confirmed his role was limited to characterisation of benthic (seabed) habitats. Seabed habitat surveys were undertaken using purpose-built towed underwater cameras.

Mr Balloch prepared a detailed expert witness statement (D29) and adopted Technical Appendix H (summarised above) as part of his evidence. He also provided written responses to questions raised by the IAC during the Hearing (D110).

Mr Balloch gave evidence that the key sources of information used for the marine ecology and resource use assessment included benthic habitat surveys undertaken by Mr Chidgey[19], the EPBC Act Protected Matters Search Tool, commercial fisheries data, modelling of electromagnetic and thermal fields[20] and underwater noise[21], and unpublished geophysical survey reports.

Mr Balloch advised the benthic habitat surveys in Technical Appendix G did not follow the current Project alignment in Waratah Bay because the project alignment was altered after the surveys were completed. Mr Balloch advised that based on geophysical data, he expected the marine benthic communities along the new alignment would be similar. The Proponent submitted further surveys were underway and will be used for final identification of impacts and refinement of the subsea alignment in accordance with the marine environment and resource use EPRs.

DEECA (S21) submitted the marine ecology surveys were adequate to describe the general physical environment and marine habitats likely to be present in the survey area, including the presence of seagrass.

[19] Technical Appendix G

[20] Technical Appendix A and Attachment H to Technical Appendix H (Technical Memorandum on additional EMF modelling, Jacobs 2022)

[21] Appendix G to Technical Appendix H (Underwater Noise Modelling, Marshall Day Acoustics 2023)

(ii) Discussion

The marine environment and resource use assessment in the EES was based largely on desktop studies and modelling, with Project-specific field data collection confined to the benthic habitat assessment in Technical Appendix G and unpublished geophysical surveys. The IAC notes the benthic habitat surveys for Technical Appendix G were not of the present alignment, but considers this acceptable based on:

- Mr Balloch's evidence that the benthic communities will be similar
- the understanding that further surveys will be undertaken prior to construction, as an input to Project design
- DEECA being satisfied the physical environment and marine habitats were adequately described.

(iii) Finding

The IAC finds:

- The marine environment in Victorian coastal waters was adequately characterised for the purposes of the EES.

10.6 Seabed works

(i) Evidence and submissions

Impacts on seabed habitat and benthic communities

Mr Balloch gave evidence that the total area of seabed habitat disturbed by construction will be very small. He estimated 2.1 hectares of seabed in Victorian coastal waters will be disturbed by cable laying and burial, based on a total disturbance width of 2.87 metres for each of the two cable bundles. The footprint of the six HDD marine duct exit holes will be even smaller, each duct having a diameter of 300 millimetres and a total disturbance area of up to 3 square metres. He expected impacts will be temporary given the short-term duration of wet jetting (a few days) and rapid infill of any depressions by natural movement of the seabed sediments by currents.

DEECA (S21) expressed concern about the effects of Project construction on seagrass, submitting:

- the Project will have a direct impact on approximately 0.3 hectares of seagrass as well as possible indirect temporary impacts resulting from sedimentation (although it acknowledged it was unlikely these impacts would lead to a long-term reduction in the extent of seagrass in Waratah Bay)
- a permit under the FFG Act will be required for any impacts to the FFG Act listed Tasman Grass-wrack
- compensation should be offered for the loss of approximately 0.3 hectares of seagrass through the FFG Act permit application and MAC Act consent application
- EPR MERU02 should be amended to require the subsea project alignment to be located in areas of sparse seagrass cover.

Mr Balloch's response:

- confirmed Tasman Grass-wrack is the main seagrass species present in Waratah Bay
- acknowledged the FFG Act permit requirement in relation to Tasman Grass-wrack
- advised the cable route cannot avoid the Tasman Grass-wrack, which occurs in a specific water depth zone across Waratah Bay

- advised disturbance will be localised and temporary, noting the Tasman Grass-wrack in Waratah Bay is adapted to a high-energy environment exposed to large natural physical disturbances resulting from waves and tidal action.

The Proponent disagreed with DEECA's proposed changes to EPR MERU02 to require the subsea alignment to avoid seagrass, arguing it was unnecessary. It did not object to compensation but submitted the FFG Act permit application was the appropriate mechanism to address this, rather than the EPRs.

Impacts on water quality

Mr Balloch confirmed seabed cable burial will create turbidity plumes with elevated suspended solids concentrations. He advised cable burial by wet jetting has lower impacts on water quality than alternative cable burial methodologies.

Submitter 20 expressed concern about increased turbidity resulting from drilling at Waratah Bay. Mr Balloch advised the increase in turbidity will be localised and temporary. He gave evidence that a small volume (less than 2.35 cubic metres) of residual drilling fluid containing cuttings and bentonite clay will be released at each of the six marine HDD duct breakthroughs, resulting in temporary localised increases in suspended sediment concentration and turbidity. Most of the drilling fluid will be removed for land based disposal at the onshore end of each HDD drill hole prior to breakthrough, in accordance with EPR MERU01.

In both instances, Mr Balloch advised the disturbance to water quality will be temporary for the following reasons:

- settling of medium- to fine-grained sediment particles is expected to reduce suspended sediment concentrations
- currents are expected to dilute plumes of finer materials.

Mr Balloch advised the residual significance of impact on Victorian nearshore water quality was low, based on high sensitivity but negligible impact.

(ii) Discussion

Impacts on seabed habitat and benthic communities

The area of seabed in Victorian coastal waters disturbed by installation of the subsea cable will be very small, but is expected include around 0.3 hectares of seagrass. The main seagrass species is Tasman Grass-wrack, which is listed as endangered under the FFG Act. Tasman Grass-wrack occurs in sparsely distributed patches of low to moderate densities in Waratah Bay.

Seagrass is native vegetation. The Native Vegetation Guidelines do not apply as the Waratah Bay marine environment is outside the South Gippsland Planning Scheme. However, the objective of no net loss to biodiversity as a result of native vegetation removal, and the three-step approach of the Native Vegetation Guidelines (avoid, minimise, offset) are endorsed in Biodiversity 2037. The IAC considers they are relevant considerations.

The three-step approach requires:[22]

> Avoid the removal, destruction or lopping of native vegetation …
>
> Minimise impacts from the removal, destruction or lopping of native vegetation that cannot be avoided…

[22] Native Vegetation Removal Guidelines, page 12

> Provide an offset to compensate for the biodiversity impact from the removal, destruction or lopping of native vegetation

The IAC accepts Mr Balloch's advice that avoidance of seagrass is not possible because it occurs across a specific water depth zone in Waratah Bay. However, efforts should be made to minimise impacts on seagrass given its endangered status. EPR MERU02 should be amended to require the final subsea alignment be determined with regard to avoiding Tasman Grass-wrack to the extent reasonably practicable.

As the native vegetation offsets system does not apply in this situation, an alternative mechanism to compensate for loss of Tasman Grass-wrack is a reasonable proposition. Based on the EPR principles in Chapter 8, the IAC does not consider the EPRs to be the appropriate mechanism for directing compensation requirements. This should be done through the FFG Act permit or MAC Act consent processes.

The IAC considers the effects of the Project on seabed habitat and benthic communities in Victorian coastal waters will be acceptable, subject to its recommended changes to EPR MERU02 and any compensation required through the FFG Act permit or MAC Act consent processes.

Impacts on water quality

Construction will lead to temporary and localised increases in the turbidity of Victorian nearshore waters resulting from two activities:

- the HDD exit hole breakthroughs
- seabed cable burial.

The wet jetting methodology for cable burial, which Mr Balloch advised is a relatively low-impact methodology compared to alternative methodologies, is embedded in the Project description (EES Volume 1, Chapter 6). Project controls on the HDD shore crossing in EPR MERU01 will further mitigate impacts on turbidity and suspended sediment concentrations.

The IAC considers the effects of the Project on Victorian nearshore waters in relation to turbidity and suspended solids will be acceptable.

(iii) Findings and recommendation

The IAC finds:

- Seabed works, including cable laying and burial, and the HDD duct exit holes, will have localised and temporary impacts on seabed habitat and benthic communities, and water quality.
- These impacts can be acceptably managed through the marine ecology and resource use EPRs.
- EPR MERU02 should be amended to require the final subsea cable alignment be determined having regard to the distribution of Tasman Grass-wrack to the extent reasonably practicable.
- No other design modifications or changes to the EPRs are necessary to ensure seabed works achieve acceptable outcomes.

The IAC recommends:

> **If the Marinus Link Project proceeds, amend the Environmental Performance Requirements as shown in Appendix E:1:**

a) **Amend requirement MERU02 to include a requirement to avoid areas with moderate or dense cover of seagrass to the extent reasonably practicable when finalising the undersea cable alignment.**

10.7 Impacts of vessels and equipment during construction

(i) Evidence and submissions

Underwater noise

Submitter 20 expressed concern about underwater noise impacts from construction on marine fauna, including behavioural effects.

Mr Balloch confirmed the residual significance of impact of underwater noise was 'low' for most marine biota, including whales and dolphins (except HF cetacean species), seals, sea turtles, Little Penguins, fish and cephalopods (molluscs such as squid and octopus). He also confirmed the residual significance of impact on HF cetaceans was moderate, based on the potential for auditory damage. He considered impacts of underwater noise on marine fauna were appropriately addressed through EPR MERU07 (marine fauna management plan), EPR MERU08 (cetacean interaction management plan) and EPR MERU09 (sea turtle interaction management plan).

In response to a question from the IAC, Mr Balloch advised two species of HF cetaceans occur in Victorian coastal waters near the Project area – Pygmy Sperm Whale and Dwarf Sperm Whale. Pygmy Sperm Whale is more commonly sighted in Victorian nearshore waters than Dwarf Sperm Whale and was used as the basis for the assessment of underwater noise impacts on HF cetaceans in the EES.

Mr Balloch gave evidence that the 'moderate' rating for HF cetaceans was an anomaly, and a 'low' residual rating would be more plausible. His reasoning was:

- The noise source (185 dB re 1 µPa at 1 metre) was based on the cable lay ship in dynamic positioning mode, which is a worst-case scenario.
- The 'moderate' rating was derived using a 'stationary model', which assumes an HF cetacean will remain for an hour within 67 metres of the cable lay ship, which is the extent of the area where the noise from the ship will exceeds the noise level for the onset of permanent threshold shift onset.
- A 'fleeing model' is more realistic, which recognises HF cetaceans would move away from the noise source and avoid auditory injury or hearing loss.

Mr Balloch advised the EES underwater noise assessment was based on the NMFS 2018 guidelines. A draft version of updated guidelines, NMFS 2024 guidelines, had been released after publication of the EES. He did not consider the release of the draft NMFS 2024 guidelines warranted re-analysis of the effects of the Project, noting the NMFS 2024 guidelines were still in draft and open to review.

Invasive marine species

Mr Balloch advised the introduction and spread of invasive marine species may occur during all phases of the Project. EPR MERU11 addresses this risk by requiring the development and implementation of a plan to avoid the introduction of invasive marine species that complies with regulatory requirements in relation to ballast water and biofouling management. Mr Balloch

confirmed the finding in Technical Appendix H that risks of introducing or spreading invasive marine species have a 'low' to 'very low' residual significance of impact.

Technical Appendix H indicated ships arriving from temperate waters in the northern hemisphere have the highest potential to introduce invasive marine species, and stated this risk could be mitigated by ballast water exchange at the equator. In response to a question from the IAC regarding whether this should be specified in the EPRs, Mr Balloch advised there is no mandatory requirement for ballast water exchange at the equator (D110). However, he advised the *Biosecurity Act 2015* prohibits the discharge of water within 12 nautical miles of the Australian coast unless it has been treated to remove or kill pathogens.

Mr Balloch advised that in accordance with the Ballast Water Convention,[23] Australia is phasing out ballast water exchange in favour of ballast water treatment using an International Maritime Organisation approved Ballast Water Management System (D110). He advised the new requirement for a Ballast Water Management System rather than ballast water exchange is likely to apply to the contracted cable lay ship for the Project.

Vessel collisions with marine fauna

Vessel collisions with marine megafauna can occur when vessels are deployed or in transit. Mr Balloch gave evidence confirming the EES assessment that risks associated with vessel collisions have a 'low' to 'very low' residual significance of impact. The risk will be addressed through EPRs MERU07 (marine fauna management plan), MERU08 (cetacean interaction management plan) and MERU09 (sea turtle interaction plan).

DEECA submitted the marine fauna management plan should include a section for seals. The Proponent disagreed, arguing seals will be covered by the plan in any event and specific reference to seals is not required. Mr Balloch advised the nearest seal colony is located at Kanowna Island (southwest of Wilson Promontory), 11.3 kilometres from the nearest point on the subsea cable alignment.

(ii) Discussion

Underwater noise

The EPRs do not mention underwater noise. Given the risk of permanent threshold shift to HF cetaceans discussed in Technical Appendix H as a result of underwater noise, the IAC considers this to be a significant omission. EPR MERU08 should be amended to require consideration of underwater noise, particularly in relation to Pygmy Sperm Whale and Dwarf Sperm Whale.

The 'worst case' noise source used in the underwater noise assessment (the surrogate cable laying ship *CS Gulio Verne*) was predicted to generate a noise level where permanent threshold shift onset was indicated for HF cetaceans. Technical Appendix H indicated temporary threshold shift and behavioural impacts for other marine fauna groups. It would therefore be preferable for underwater noise to not exceed this level.

EPR MER08 should be amended to require the marine fauna management plan to include a requirement for underwater noise to not exceed 185 dB re 1 µPa at 1 metre at source, to the extent reasonably practicable. This should inform the selection of the cable lay vessel, so as to avoid the use of any vessels that are noisier than the *CS Gulio Verne*.

[23] International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004

Impacts of underwater noise on marine biota are primarily addressed through management plans dealing with interactions with marine fauna (EPRs MERU07, MERU08 and MERU09), which focus on maintaining suitable approach distances. Opportunities to reduce vessel noise are constrained by safety considerations, because vessels need to use their thrusters to maintain their position.

The IAC considers it should be possible for the cable lay ship to power down its thrusters to the minimum required to maintain position under dynamic positioning control to allow marine fauna to pass and then power up the thrusters to continue the cable lay operation, as outlined in Technical Appendix H. The IAC considers this warranted in situations where a marine animal is present within a distance of the vessel where noise levels exceed the onset of permanent threshold shift. This should be provided for in EPR MERU08 (cetacean interaction plan).

The IAC accepts Mr Balloch's evidence that the residual significance of impact of underwater noise is generally expected to be low, and the 'moderate' rating for HF cetaceans reflected the conservative assessment methodology (including an assumption that HF cetaceans would stay within 67 metres of the ship for an hour rather than moving away from the noise source). With the IAC's recommended changes to the EPRs, the IAC agrees with Mr Balloch that the actual significance of impact for this group is likely to be low.

The IAC considers the approach taken by Mr Balloch to continue to rely on the NMFS 2018 guidelines was reasonable, given the underwater noise assessment had already been completed using those guidelines, and the new NMFS 2024 guidelines were only available in draft form at the time of the Hearing.

Invasive marine species

The IAC accepts Mr Balloch's evidence that EPR MERU11 adequately addresses risks associated with invasive marine species in accordance with Victorian and Commonwealth regulatory requirements, enabling the risks associated with introducing or spreading invasive marine species to be acceptably managed.

Vessel collisions with marine fauna

The EPRs include specific measures to mitigate the risk of vessel collisions with cetaceans and sea turtles, but not seals. The Wildlife (Marine Mammals) Regulations 2019 specify minimum approach distances for marine mammals, including seals, which are reflected in the *Guide to boating and swimming around whales, dolphins and seals,* DELWP, 2022. These documents are cited in EPR MERU08 (cetacean interaction management plan) but not in EPR MERU07 (marine fauna management plan), which (in the absence of a pinniped specific plan) addresses the risk of collisions with seals. To ensure the risk of collisions with seals is addressed appropriately, EPR MERU07 should be amended to require the measures in the marine fauna management plan to be consistent with the Wildlife (Marine Mammals) Regulations 2019 and the DELWP 2022 guide.

With this change to EPR MERU07, the risks of vessel collisions with marine megafauna can be acceptably managed.

(iii) Findings and recommendations

The IAC finds:

- Vessels and equipment used for construction will have generally minor impacts, including underwater noise effects on marine fauna, risks of invasive marine species and risks of vessel collisions with marine megafauna.
- Some changes are required to the marine environment and resource use EPRs to deliver improved outcomes for marine fauna:
  - EPR MERU07 should be amended to specify an upper limit for vessel noise at source
  - EPR MERU07 should be amended to refer to the Wildlife (Marine Mammals) Regulations 2019 and the *Guide to boating and swimming around whales, dolphins and seals* which specify minimum approach distances for marine mammals, including seals
  - EPR MERU08 should be amended to require underwater noise to be considered when defining precaution zones and to require vessels to power down their thrusters to the minimum necessary to maintain dynamic positioning for safety when HF cetaceans are present.
- With these modifications to the EPRs, impacts of vessels and equipment on the marine environment during construction can be acceptably managed.

The IAC recommends:

If the Marinus Link Project proceeds, amend the Environmental Performance Requirements as shown in Appendix E:1:

a) Amend requirements MERU07 and MERU08 to include additional requirements in relation to the marine fauna management plan and cetacean interaction management plan to protect marine species from underwater noise and vessel collisions.

b) Amend requirement MERU07 to include references to the Wildlife (Marine Mammals) Regulations 2019 and the *Guide to boating and swimming around whales, dolphins and seals* (DELWP 2022) to ensure appropriate protections for pinnipeds (seals).

10.8 Impacts during operations

(i) Evidence and submissions

Electromagnetic fields and thermal impacts

Several submitters expressed concern about potential impacts of electromagnetic fields on marine fauna and fisheries, including Seafood Industry Victoria (S8) and Submitter 20.

Mr Balloch advised electromagnetic fields and heat emissions will be minimised by adopting a modern HVDC cable design in accordance with EPR MERU012.

Bass Strait (including Victorian coastal waters) has naturally variable electrical and magnetic fields and the electromagnetic fields effects of the Project will be overlaid on this. Mr Balloch advised the assessment in Technical Appendix H included specific consideration of scientific literature, including experimental studies, and local (where available) and overseas field studies of impacts of electromagnetic fields on marine fauna. It focused on the following species and groups, which were identified as potentially susceptible to electromagnetic field impacts:

- magnetosensitive invertebrates, fishes (eels and elasmobranchs), migratory sea turtles, seals and cetaceans (using the humpback whale as a surrogate for all whales)
- electrosensitive fishes (primarily elasmobranchs – sharks, skates and rays) and the common bottlenose dolphin.

Mr Balloch acknowledged there is a paucity of information regarding the effects of electromagnetic fields associated with subsea power transmission cables on the six commercial fishery target species highlighted in the Seafood Industry Victoria submission (Southern Rock Lobster, Giant Crab, Shortfin Eel, Longfin Eel, Gummy Shark and School Shark). Based on information from northern hemisphere studies, Mr Balloch noted that although electromagnetic field exposure had some effects on individuals at close range, he did not expect the overall effects of Project operation on these groups to be significant.

The thermal field (heat) footprint from the subsea HVDC cables will be located within deeper sediment surrounding the buried cables. Mr Balloch advised the modelling in Technical Appendix A showed the temperature rise at the seabed surface (upper 10 centimetres) will be indistinguishable from the ambient seawater temperature. As a result, he advised no impacts on benthic or epibenthic fauna were expected.

Inspection and maintenance impacts

Mr Balloch gave evidence that maintenance requirements for the subsea cable during the Project's 40-year operational life will include:

- mid-life refurbishment in years 10, 20 and 30
- seabed remotely operated vehicle inspection surveys in years two and four, and then every six years
- remedial work every six years or as required.

The EES reported the risks and impacts of routine subsea cable inspection and maintenance during operation will be similar to those resulting from construction. It did not provide residual significance of impact ratings for inspection and maintenance impacts. Technical Appendix H recommended that the construction EPRs should also be applied to inspection and maintenance during operation, however this was not reflected in the EPRs or EMF.

Mr Balloch drew attention to underwater noise impacts from vessels as being the key issue arising from inspection and maintenance during the operational phase. The EES did not assess the impacts of vessel noise during Project operations.

(ii) Discussion

Electromagnetic fields and thermal impacts

EPR MERU012 requires the implementation of a modern HVDC cable design. No further mitigation measures in relation to electromagnetic fields and thermal fields that could be implemented during the operations stage were proposed in the EES, evidence or submissions.

For the reasons discussed in Chapter 13 (electromagnetic fields), the IAC is satisfied that the selection of an HVDC subsea cable will minimise electromagnetic fields generated by the subsea cable. It accepts Mr Balloch's advice that there is no evidence in the scientific literature that the magnitude of electromagnetic and thermal fields expected to be generated by Project operations will have significant impacts on marine biota.

Inspection and maintenance impacts

Technical Appendix H did not provide a formal assessment of impacts from the inspection and maintenance of the subsea cable but reported they will be similar to construction impacts but of lesser magnitude. Technical Appendix H recommended the following marine construction EPRs should apply to inspection and maintenance during the operations phase:

- EPRs MER02, adapted to apply to the location of a replacement cable during major cable fault repairs
- MERU06, MERU07, MERU08 and MERU09, relating to the marine communication plan, the marine fauna management plan, the cetacean interaction management plan and the sea turtle interaction plan
- MERU10, relating to the effect of lighting on marine fauna and avifauna
- MERU11, relating to the invasive marine species management plan
- MERU13, relating to notification of the final subsea cable alignment.

Only two of the EPRs relevant to construction (MERU10 and MERU11) include reference to the operations phase. General environmental management EPR EM03 includes a broad requirement for the OEMP to "*Consider the management plans implemented during construction and if any measures are relevant for operation"* but does not provide any further guidance.

The following changes should be made to the EPRs to address this:

- a new EPR MERU14 to require relevant marine environment and resource use EPRs to be implemented during inspections, maintenance and repair activities
- EPR EM03 should be revised to require the plans prepared under EPRs MERU06, MERU07, MERU08, MERU09 and MERU11 to be included in the OEMP.

(iii) Findings and recommendations

The IAC finds:

- Electromagnetic and thermal fields associated with Project operations will have minor localised impacts on marine biota, and can be acceptably managed.
- Vessels and equipment used for inspection and maintenance will have generally minor impacts, similar to those of vessels and equipment used for construction.
- To deliver improved environmental outcomes for the marine environment, the EPRs should be amended to require relevant mitigation measures applied during construction to also apply during operations.

The IAC recommends:

If the Marinus Link Project proceeds, amend the Environmental Performance Requirements as shown in Appendix E:1:

a) Amend requirement EM03 to ensure the Operating Environmental Management Plan includes the marine communications plan, the fauna management plan and the marine species protection plans.

b) Insert a new requirement MERU14 to require relevant marine environment and resource use Environmental Performance Requirements to be implemented during inspections, maintenance and repairs.

10.9 Cumulative impacts

(i) Evidence and submissions

Mr Balloch's evidence confirmed the cumulative impact assessment in Technical Appendix H. His expert witness statement provided a supplementary assessment of a sixth project, the Gippsland Skies Offshore Wind Energy Project (Gippsland Skies). He advised that the overall cumulative impacts of all six projects (including Gippsland Skies) have residual significance of impact ratings of 'low' to 'very low'.

Submitter 20 expressed concern about cumulative impacts in relation to two other Projects, the Hawaiki Nui Submarine Cable and the Subsea Fibre Optic Data Cable System. Mr Balloch did not make any comment on these projects in his expert witness statement (D29). The Proponent submitted the Hawaiki Nui Submarine Cable (EPBC referral 2024/09814) does not include a connection to Victoria and it was unaware of the Subsea Fibre Optic Data Cable System project.

Mr Balloch advised the main cumulative impact was the cumulative effect of underwater noise from the various projects on marine fauna, which will contribute to a trend of increasing background noise in Bass Strait and is expected to exacerbate the degree of 'masking'. Masking occurs when noise interferes with an animal's ability to perceive a sound.

(ii) Discussion

The IAC accepts Mr Balloch's evidence that the cumulative impacts of the Project together with the six known projects addressed in the EES and Mr Balloch's expert witness statement will have low to very low residual significance of impact.

(iii) Finding

The IAC finds:

- Cumulative impacts in relation to currently known projects are expected to be minor.

11 Geomorphology and geology

11.1 Introduction

Geomorphology and geology impacts are assessed in:

- EES Volume 4 Chapter 2 (Geomorphology and geology)
- Technical Appendix O (Terrestrial Geomorphology and Geology Impact Assessment).

Assessments relating to waterway geomorphology and stability in Technical Appendix Q and Waratah Bay shoreline stability in Technical Appendix H are also relevant.

A Supplementary Report to Technical Appendix O was prepared in relation to the revised timing for Stage 2 (D45k). The Supplementary Report to Technical Appendix Q (D45l) is also relevant.

The following experts provided evidence for the Proponent:

- Jules Darras of Tetra Tech Coffey on geology and landslip (D34 and D74)
- Neville Rosengren of Environmental GeoSurveys on geomorphology (D38)
- Stuart Cleven of Alluvium Consulting Australia on waterway geomorphology and stability (as part of the surface water evidence – D43).

Mr Rosengren is a geomorphologist, and was principal author of Technical Appendix O. Mr Rosengren did not appear at the Hearing, but answered questions from the IAC in writing. Mr Darras is a geotechnical engineer, and undertook a peer review of Technical Appendix O from a geotechnical engineering perspective. Mr Darras presented oral evidence at the Hearing.

Other key documents are:

- D73 – Joint Statement of Neville Rosengren and Jules Darras
- D84 – Neville Rosengren and Jules Darras Response to IAC's questions
- D110 – Proponent Response to IAC's questions.

11.2 Impacts on terrestrial landform stability

(i) The issues

The issues are whether:

- impacts of construction and operations on slope stability and landsliding have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would improve terrestrial landform stability outcomes.

(ii) What did the EES say?

Technical Appendix O reported the Project area extends along a varied landscape with soil and unconsolidated material typically several metres thick and minimal rock outcrop. Many slopes display landslides and mass movement. There are other forms of instability including soil erosion and gullying. Construction of the Project could result in initiation or exacerbation of these processes.

Technical Appendix O assessed the geomorphological impacts of construction of the Project on 183 terrestrial Trench Sectors along the cable route. These included 22 'Waterway Channel' Trench Sectors and 161 'Other' Trench Sectors, which included hillslopes and alluvial plains. Some

of the Other Trench Sectors include waterways, but the waterways are not the predominant landform.

Table 6 summarises the Project's unmitigated and residual impacts in the 183 terrestrial Trench Sectors. It shows the EPRs are expected to substantially reduce the geomorphological impacts of the Project, but the residual significance of impact rating remains 'high' for one Waterway Channel Trench Sector and 11 Other Trench Sectors (these are shown in red in Table 6).

Table 6 Significance of geomorphological impacts (unmitigated and residual)

Significance of impact	Waterway Channel Trench Sectors* (Unmitigated) > Residual	Other Trench Sectors (Unmitigated) > Residual	Total Trench Sectors (Unmitigated) > Residual
Shore crossing			
Major		(3) > 0	(3) > 0
High		(0) > 1	(0) > 1
Moderate		(0) > 2	(0) > 2
Low		(0) > 0	(0) > 0
Main alignment			
Major	(10) > 0	(22) > 0	(32) > 0
High	(2) > 1	(32) > 11	(34) > 12
Moderate	(10) > 15	(104) > 51	(114) > 66
Low	(0), 6	(3) > 99	(3) > 105
Hazlewood Offtake			
Major		(1) > 0	(1) > 0
High		(0) > 0	(0) > 0
Moderate		(0) > 1	(0) > 1
Low		(0) > 0	(0) > 0

* The Waterway Channel Trench Sectors are Trench Sectors described as 'channel' in Technical Appendix O, Table 6-4

Source: IAC, based on information in Tables 6-4, 6-7, 6-8 and 6-9 in Technical Appendix O.

Technical Appendix O stated activities with the potential to cause geomorphological impacts will be generally restricted to the construction phase, although the timespan over which impacts could occur could extends into the operations phase because geomorphological responses may take a long time. The EES did not anticipate any further impacts on geomorphology during Project operation.

The EPRs include the following mitigation measures to manage geomorphological risks:

- GM01, requiring assessment of ground conditions and landslide risks
- GM02, requiring the design to minimise construction induced ground movement
- GM03, requiring the design to minimise ground disturbance due to vegetation removal and disturbance of acid sulfate soils (ASS)
- GM04, requiring construction excavations to be undertaken in accordance with Australian Standards and informed by geotechnical investigations

- GM05, requiring trenchless construction methods (HDD) to have considered ground conditions
- GM06, requiring measures to provide trench stability during construction
- GM07, requiring measures to provide slope stability during trenching
- GM08, requiring a site drainage plan
- GM09, requiring a watercourse crossing plan.

Technical Appendix O considered cumulative impacts in relation to Delburn Wind Farm, Hazlewood Rehabilitation Project, Wooreen Energy Storage System and offshore wind farms. It concluded cumulative impacts were not expected due to the localised nature of the impacts of the Project and the geographically constrained boundaries of the other projects. It did not include any specific commentary about Delburn Wind Farm, even though it is co-located with part of the Project.

The Supplementary Report (D45k) indicated there is potential for geomorphological changes to occur between Stages 1 and 2, including ground subsidence, soil erosion, reactivation of former landslides and development of new landslides. It recommended conducting further investigations prior to Stage 2 to determine whether changes have occurred, and developing additional site-specific mitigation measures consistent with the EPRs to address any changes.

(iii) Relevant policy and guidelines

The IAC has had regard to relevant policy, guidelines and planning provisions, including:

- *Catchment and Land Protection Act 1994*
- South Gippsland Planning Scheme, Erosion Management Overlay
- *Code of Practice for Timber Production 2014* (as amended 2022).

(iv) Evidence and submissions

Impacts on land stability and landslide risks

Mr Darras gave evidence (D34) that the residual significance of geomorphological impacts assessed in Technical Appendix O could be further reduced by using appropriate geotechnical engineering methods. Based on the application of amended geomorphology EPRs (D74), he re-rated the 11 Other Trench Sectors with 'high' residual significance of impact as 'moderate' or 'low'.. He provided a detailed rationale for the revised rating for each of these Trench Sectors in D110.

Mr Darras and Mr Rosengren both attended an expert constructability workshop for the Project, which resulted in significant changes to the exhibited geomorphology EPRs that are shown in the Proponent's Day 1 version (D65). Key changes included:

- strengthening the geotechnical engineering considerations
- insertion of an additional EPR, GM10, which requires development and implementation measures to manage potential impacts to and from ground stability during the operations phase.

Submitter 12 expressed concern about impacts of the Project on the land stability on her family's property near Darlimurla, which features steep slopes.

Impacts on forestry land

HVP submitted much of its land is subject to the Erosion Management Overlay. Key matters of concern for HVP included avoidance of erosion and landslip, which HVP needs to carefully manage in its own operations (D112). HVP noted 37 Trench Sectors pass through HVP's land, for which the following significance of geomorphological impacts are expected:

- unmitigated – 7 major, 4 high, 24 moderate and 1 low
- residual – 0 major, 1 high, 11 moderate, 25 low.

HVP submitted the EES did not adequately address these impacts. It supported the changes made in the Proponent's Day 1 version of the EPRs, but sought further changes to GM02 (measures to minimise construction induced ground instability) , GM09 (waterway crossing plan) and GM10 (measures to minimise ground instability during operations) to the ensure the forestry context is adequately addressed, including within the context of the Code of Practice for Timber Production.

The Proponent responded the Day 1 EPRs relating to surface water and geomorphology and the CEMP adequately address erosion and land stability in HVP's plantations. It submitted *"no erosion risk specific to HVP land or to forestry operations has been identified"* (D139).

(v) Discussion

Impacts on land stability and landslide risks

The Project area extends across land with significant land stability risks, including areas covered by the Erosion Management Overlay. Appropriately managing geomorphology impacts will be important to ensure the Project delivers acceptable outcomes.

The Proponent's Day 1 version of the geomorphology EPRs was significantly different to the exhibited version as a result of revisions based on the expert constructability workshop and Mr Darras' recommendations.

The IAC accepts the evidence of Mr Rosengren and Mr Darras that their assessments are complementary, rather than contradictory. The joint expert statement of Mr Darras and Mr Rosengren (D73) confirms that the differences between their respective residual significance of impact ratings resulted from differences between geomorphological and geotechnical engineering approaches.

The IAC accepts that despite the high residual risk rating for 11 Other Trench Sectors in Technical Appendix O, applying the revised and strengthened EPRs (Day 1 and Day 2 versions) will ensure slope stability impacts can be reduced to an acceptable level. In reaching this finding, the IAC notes Mr Darras' explanation in D110 that his downgrading of residual significance of impact ratings in the 11 Other Trench Sectors (from 'high' to 'moderate' or 'low') assumed an appropriate understanding of ground conditions (EPR GM01), an appropriate HDD design (EPR GM02), groundwater and surface water management as required, and a suitably experienced construction contractor.

Mr Darras was not aware of any specific instances of sodic or dispersive soils in the Project area but advised their occurrence is possible and recommended the potential for sodic or dispersive soils be addressed by routine soil testing at the time of the detailed site investigations required under EPR GM01 (D84). In response to a question from the IAC, Mr Rosengren advised tunnel erosion may be a component of sensitivity for four Trench Sectors (Sectors 18, 29, 78 and 128)

(D84). The IAC considers a specific requirement to test for sodic or dispersive soils should be inserted in EPR GM01 to ensure this risk is appropriately addressed.

In relation to impacts on Submitter 12's property, the IAC observed on its site visit that parts of the land are steep. The EES shows the property coincides with Trench Sectors with medium to high unmitigated geomorphological significance of impact. The IAC accepts Submitter 12's submission that there have been previous landslips.

Neither Mr Rosengren nor Mr Darras inspected Submitter 12's property. The Proponent submitted that the further surveys required by relevant EPRs, including GM01, would address Submitter 12's concerns regarding deficiencies in site-specific knowledge. Mr Darras gave evidence that the amended EPRs would sufficiently mitigate Submitter 12's concerns, and residual significance of impacts for this property would be reduced to 'medium'.

EPR GM01 requires "*targeted site investigations along the alignment and surrounding area as relevant*". Given the high unmitigated significance of impact on slopes at Submitter 12's property and the complex geomorphological setting (which includes land on both sides of the Little Morwell River valley as well as the river itself), the IAC considers targeted site investigations to be necessary in this area. EPR GM01 should be amended to specifically reference this property.

Impacts on forestry land

The Code of Practice for Timber Production has extensive requirements relating to land stability and minimisation of the potential for soil erosion and mass movement. However, it was not mentioned in the EES in either the geomorphology or agriculture and forestry sections.

The Code applies to *"all land in the State of Victoria that is either being used for or is intended to be used for timber production or timber harvesting operations"*, including public and private land.[24] It applies to:[25]

> … planning and conducting of all commercial timber production and timber harvesting operations including haulage, road construction, significant road improvement operations or road maintenance works, tending, regeneration or rehabilitation activities conducted in association with a timber harvesting operation.

Although the Code is directed specifically at forestry operators, it would be inconsistent with the intent of the Code for others undertaking activities in timber production areas to not meet the Code. The IAC therefore considers the EPRs should specifically reference the Code and require it to be considered when implementing the geomorphology EPRs in forestry areas.

Forestry operations differ from other land uses in the Project area in terms of the loading on the ground from heavy vehicles, equipment and logs. Although the cumulative impact assessment for geomorphology and geology does not include forestry, the IAC considers the Project and forestry operations have potential cumulative impacts on land stability that should be addressed in relevant EPRs. EPRs GM02 and GM10 should therefore be amended to include specific requirements to consider forestry operations in relation to the design, construction and operation of the Project.

[24] See Section 1.2.7 of the Code

[25] See Section 1.2.4 of the Code

(vi) Findings and recommendations

The IAC finds:

- With the IAC's recommended changes to the EPRs, the impacts of the Project on slope stability and landsliding can be acceptably managed.
- Submitter 12's property is an area of elevated geomorphological risk. Site investigations should be undertaken at this property in the course of the targeted site investigations required under EPR GM01.
- The potential cumulative effects of the Project and HVP's forestry operations on land stability should be addressed by EPRs GM02 and GM10, which should be amended to include:
  - specific requirements to consider forestry operations in the design, construction and operations of the Project
  - specific references to (and requirements to consider) the land stability requirements in Code of Practice for Timber Production.

The IAC recommends:

If the Marinus Link Project proceeds, amend the Environmental Performance Requirements as shown in Appendix E:1:

a) Amend requirement GM01 to:
- **include 380 Darlimurla Road, Darlimurla in the locations requiring further geomorphological surveys**
- **require testing for sodic and dispersive soils.**

b) Amend requirements GM02 and GM10 to include a requirement to consider the *Code of Practice for Timber Production 2014* (as amended 2022) and the impacts of forestry equipment, log storage and loading, plant and vehicles that will use the land during operation.

11.3 Impacts of the shore crossing at Waratah Bay

(i) The issues

The issues are whether:

- the geomorphological impacts of construction of the shore crossing at Waratah Bay have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved environmental outcomes at the shore crossing.

(ii) What did the EES say?

The Waratah Bay coastline at the shore crossing consists of a sandy beach backed by a steep, high densely vegetated dune up to 80 metres wide and 15 metres high.

Technical Appendix O divided the coastal zone into three 'Trench Sectors' – coastal dunes (Trench Sector SC3), subtidal zone of Waratah Bay (Trench Sector SC1) and intertidal zone of Waratah Bay (Trench Sector SC2). The dunes are an inherently unstable landform, subject to wave and wind erosion. Potential risks arising from HDD include interception of perched aquifers and subsidence caused by overpressure during drilling, which could lead to sinkholes along the borehole alignment.

Technical Appendix O stated the Waratah Bay backshore is actively receding. However, Technical Appendix H stated the shoreline at the shore crossing is stable, based on analysis of 34 years of satellite imagery (from 1986 to 2020) on Google Earth.

Technical Appendix O stated that construction would have a 'high' residual significance of impact on the coastal dunes (SC3). The residual significance of impact on the subtidal (SC1) and intertidal (SC2) zones of Waratah Bay would be 'moderate'. Activities with the potential to cause geomorphological impacts will be generally restricted to the construction phase, although the timespan over which impact would occur may extend into the operations phase because geomorphological processes may take a long time. No further disturbances to geomorphology are expected during Project operation.

The 'high' residual significance of impact rating for the shore crossing is based on an incident during the construction of the BassLink shore crossing at McGaurans Beach in a similar geomorphological setting. In that instance, an incident during HDD resulted in four subsidence sinkholes and drilling fluid discharge.

The following geomorphology EPRs are particularly relevant to reducing impacts at the shore crossing:

- GM01, requiring investigation of ground and groundwater conditions, and identification and assessment of landslide and other hazards to inform design and construction methods
- GM05, requiring methods for trenchless construction (HDD) that consider ground conditions.

The Supplementary Report to the Geomorphology and Geology Impact Assessment (D45k) indicated there is potential for geomorphological changes to occur at the shore crossing between Stages 1 and 2, including coastal erosion and shoreline recession, activation of coastal dunes or changes in subtidal morphology. It recommended further investigations prior to Stage 2 to determine whether geomorphological changes have occurred, and developing additional measures to manage impacts consistent with EPRs if required.

(iii) Relevant policy and guidelines

The IAC has had regard to relevant policy and guidelines, including:

- MAC Act
- *Marine and Coastal Policy 2020*
- *Catchment and Land Protection Act 1994.*

(iv) Evidence and submissions

Existing conditions

Technical Appendices O and H made apparently conflicting statements about the stability of the Waratah Bay shoreline.

Mr Rosengren (author of Technical Appendix O) advised the satellite imagery cited in Technical Appendix H showed variation in the mean shore position of 20 or more metres over the period 1986 to 2020, and that in the absence of a long-term trend of accretion, the shoreline should be regarded as sensitive with the potential for rapid recession during storms (D84).

Mr Balloch (author of Technical Appendix H) gave evidence that at the scale of the satellite imagery in Figure 6.11 in Technical Appendix H, there was no clear indication that the northern Waratah Bay shoreline had visibly changed between 1986 and 2022.

Mr Balloch confirmed in evidence that closer examination of the satellite images did show erosion and accretion as noted by Mr Rosengren. Mr Balloch acknowledged he was not an expert in geomorphology and deferred to the opinions of Mr Rosengren and Mr Darras, who advised the Project design should be informed by consideration of potential shoreline regression (D84).

Impacts on coastal geomorphology

There were no submissions on the geomorphological effects of the Waratah Bay shore crossing.

Mr Darras (D34, D110) gave evidence that the residual significance of impact of construction on the coastal dunes (Trench Sector CS3) could be reduced to 'moderate' (rather than 'high' as assessed in the EES) with the application of relevant engineering measures. He advised:[26]

> With an appropriate understanding of ground conditions (EPR GM01) and with an appropriate HDD design (EPR GM02 and EPR GM05) and in employing a qualified and capable HDD contractor, the risk of subsidence due to overpressure / "frac-out" resulting in subsidence can be managed.

Relevant mitigation measures include targeting favourable strata, using appropriate drilling fluids and pressure and using casing to advance the bore. Further geotechnical investigations dated June 2023 (after the completion of Technical Appendix O) showed rock at the target drilling depth, which may be a preferrable stratum for HDD construction. Mr Darras's oral evidence was that careful attention to pressures during drilling was important, and risks could be mitigated by continuously drilling until each drill hole is completed to avoid risks associated with falls in pressure when drilling is paused. The Proponent confirmed (D110) that HDD works at the shore crossing will be 24 hours a day because of the increased risk of bore collapse.

(v) Discussion

Existing conditions

The IAC agrees with Mr Rosengren and Mr Darras that the design of the Project should be informed by consideration of potential shoreline regression. The Project design provides for this by avoiding the coastal dunes through the use of HDD, with the entry and exit points set well away from the beach and dunes, and the cables at a depth of approximately 10 metres below ground level when crossing the shoreline.[27] The IAC considers this to be appropriate.

Impacts on coastal geomorphology

'Frac-out' is the unintentional return of drilling fluids to the surface from HDD and has potentially significant impacts on the geomorphology and stability of the coastal dunes including subsidence and sinkhole development. Technical Appendix O reported construction would have 'high' residual significance of impact on the dunes, primarily due to the risk of frac-out as occurred at the BassLink crossing at McGaurans Beach.

The IAC accepts Mr Darras' evidence that the likelihood of frac-out can be reduced through appropriate geotechnical engineering measures, reducing the residual significance of impact to

[26] D110 Attachment 4, page 1
[27] EES Volume 1, Chapter 6

'moderate'. Given the high sensitivity of the coastal landforms to damage if frac-out were to occur, EPR GM05 should be amended to specifically require minimisation of the risk of frac-out at the Waratah Bay shore crossing.

(vi) Findings and recommendations

The IAC finds:

- Geomorphological risks associated with HDD, including frac-out, can be acceptably managed by the recommended EPRs.
- That said, EPR GM05 should be amended to specifically require minimisation of the risk of frac-out at the Waratah Bay shore crossing.

The IAC recommends:

If the Marinus Link Project proceeds, amend the Environmental Performance Requirements as shown in Appendix E:1:

a) Amend requirement GM05 by inserting a specific reference to minimising the risk of frac-out at the Waratah Bay shore crossing.

11.4 Impacts on waterway stability

(i) The issues

The issues are whether:

- impacts of construction and operations on waterway stability have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved waterway stability outcomes.

(ii) What did the EES say?

Technical Appendices O (Geomorphology and Geology) and Q (Surface Water) both assessed the effects of the Project on waterway stability.

Technical Appendix Q

Technical Appendix Q reported there are 82 crossings of designated waterways along the Project alignment (see Figure 3 in Chapter 9.7). It assumed 15 of those waterway crossings would be constructed using HDD, including seven of the eight 'major' waterway crossings (with the Little Morwell River proposed to be trenched). It provided detailed descriptions of the eight 'major' waterway crossing sites[28] but minimal information about the other 74 waterway crossings.

Technical Appendix Q presented risk ratings for specific impact pathways rather than for particular waterways. The assessed risks included bed and bank erosion and sediment release. Initial (unmitigated) risks to waterway stability were assessed as 'high' for open trench construction and 'moderate' to 'high' for trenchless construction, while residual risks were assessed as 'low' for both methods.

Technical Appendix Q (Attachment 4) also presented an assessment of the risks to the Project resulting from existing and ongoing geomorphological processes on the eight major waterways. It

[28] Morwell River, Little Morwell River, Tarwin River East Branch and two tributaries near Dumbalk, Stony Creek, Buffalo Creek and Fish Creek

reported the major waterways are currently laterally active (which means they are moving horizontally across the landscape), except the Morwell River, which is subject to potential long-term changes including gradual meander lengthening.

All the waterways except Fish Creek were assessed as vertically stable. Fish Creek was assessed as being at high risk of large-scale incision (deepening of the bed). There are also moderate risks of large-scale avulsion (abandonment of the existing waterway channel for a new course on a different part of the floodplain) at Tributaries of Tarwin River East Branch and Fish Creek.

Technical Assessment Q reported that permanent changes at the waterway crossing sites, such as access tracks or bunds, could have implications for waterway stability and sediment loads during the operation phase, with initial risk ratings of 'high' for the trenched crossing of the Little Morwell River and 'moderate' for the HDD crossings of the other major waterways. Residual risks (with implementation of relevant EPRs) were assessed as 'low' in all cases.

Technical Appendix O

Technical Appendix O included assessments for 22 waterway crossings, including the eight major waterway crossings discussed in detail in Technical Appendix Q. The remaining 60 designated waterway crossings were incorporated into longer Trench Sectors including other landforms such as slopes and floodplains, and were not separately assessed from a geomorphological perspective.

Technical Appendix O assessed the 22 waterway crossings using a 'significance of impact' approach. Initial significance of impact ratings in Technical Appendix O ranged from 'moderate' to 'major' whereas residual significance of impact ratings were generally 'moderate' or 'low', except for one minor waterway crossing in Trench Sector 82, which remained high (see Table 6 in Chapter 11.2).

Error! Not a valid bookmark self-reference. below sets out the unmitigated and residual significance of impacts on the eight 'major' waterways, based on information in Technical Appendix O. Like Technical Appendix Q, Technical Appendix O assumed the major waterway crossings (except the Little Morwell River) would be constructed using trenchless methods. It recommended "*Consider HDD as a better alternative*"[29] for the Little Morwell River crossing.

Table 7 Significance of geomorphological impacts on the major waterways resulting from construction

Waterway Crossing and construction method	Unmitigated significance of impact	Residual significance of impact
Fish Creek – HDD	Moderate	Low
Buffalo Creek – HDD	Moderate	Low
Stony Creek – HDD	Moderate	Low
Southern Tributary of Tarwin River East Branch – HDD	Moderate	Low
Norther Tributary of Tarwin River East Branch – HDD	Moderate	Low
Tarwin River East Branch – HDD	Moderate	Moderate
Little Morwell River – trenched	Major	Moderate
Morwell River – HDD	Moderate	Moderate

Source: IAC, based on Technical Appendix O, Table 6-4

[29] Technical Appendix O, PDF page 99.

The Supplementary Report for the Geomorphology and Geology Assessment (D45k) indicated there is potential for geomorphological changes to occur a between Stages 1 and 2, including changes in the plan and profile configuration of stream channels and banks. It recommended further investigations prior to Stage 2 to determine whether geomorphological changes have occurred, and developing additional site-specific measures to manage impacts in accordance with the EPRs if required. The Supplementary Report for the Surface Water assessment (D45l) did not identify any additional impacts or changes to impacts of waterway crossings.

(iii) Relevant policy and guidelines

The IAC has had regard to relevant policy and guidelines, including:

- *Water Act 1989*
- *Catchment and Land Protection Act 1994*
- *Victorian Waterway Management Strategy*
- *Technical guidelines for waterway management* (DEECA, 2024)
- *Waterway Management Plan Guidelines for Urban Developments in Gippsland* (West Gippsland CMA, January 2024)
- West Gippsland CMA website 'Apply for a Works on Waterways Permit', including Guidance on Bridges, Culverts, Ford Crossings and Jetties
- *West Gippsland Regional Waterway Management Strategy 2014-2022*
- Code of Practice for Timber Production.

(iv) Evidence and submissions

HVP expressed concerns about risks of erosion and sedimentation at crossings of gullies and waterways that intersect the Project route alignment on HVP land and submitted changes were required to the EPRs to reflect the specific circumstances of the forestry land. Submitter 12 expressed concerns about the impacts of the proposed trenched crossing of the Little Morwell River. West Gippsland CMA (S17) submitted it was satisfied the Proponent's Day 1 EPRs would ensure impacts on waterways are minimised.

The IAC asked the Proponent about the criteria that would be used by West Gippsland CMA in relation to the Works on Waterway Permits for the waterway crossings. The Proponent responded (D110) with a list of relevant guidance materials which included *Technical Guidelines for Waterway Management* (DEECA, 2024) and specific guidance relating to works on waterways for urban developments, bridges, culverts, ford crossings and jetties.

There was some discussion at the Hearing about whether HDD should be the preferred construction method for waterway crossings, particularly the major waterways. In response to a question from the IAC, the Proponent indicated (D110) that the preferred construction methodology for the Little Morwell River crossing had been changed from trenched to HDD, which was reflected in the Day 2 EPRs. It submitted HDD was not necessarily preferable to trenching for all waterway crossings, and that for some waterway crossings the impacts of trenching would be insignificant, or less significant than the impacts of trenchless construction methods (D139).

The IAC asked the Proponent about the relative costs of a waterway crossing constructed using trenched methods compared to trenchless methods. The Proponent advised that generally speaking, the cost of HDD is approximately 7 to 10 times the cost of trenching per lineal metre. It submitted:

> … trenchless construction methods are an alternative and intrusive construction technique, not a panacea for perceived environmental risks or impacts.

The EES indicated the eight major waterways are subject to ongoing geomorphological processes. Mr Cleven confirmed this in his evidence. For example, he advised Fish Creek is at risk of the creek bed deepening by about 4.5 metres as a result of waterway incision. Technical Appendix O indicates other waterways also show evidence of recent or historical instability.

(v) Discussion

Coordination of waterway crossing assessments

Technical Appendix Q determined the Project requires crossings of 82 designated waterways, each requiring a Works on Waterways permit. The assessment of impacts on waterway stability in Technical Appendix O (the geomorphology assessment) did not cross reference the list of designated waterways in Technical Appendix Q. It identified only 22 of the 82 designated waterway crossings (as Waterway Channel Trench Sectors), incorporating the other 60 waterways into the Other Trench Sectors. Technical Appendix O did not explain the selection criteria for the 22 waterways identified as Waterway Channel Trench Sectors.

The lack of a common framework for identifying waterways made it difficult to cross reference between the assessments in Technical Appendices O and Q, which was compounded by specific waterways (including major waterways) generally not being identified by name in Technical Appendix O. For the purposes of Project implementation, a consistent referencing system should be used for all waterway crossings, for all 82 designated waterways. EPR GM09 should be amended to require this.

Effects of waterway crossings

The assessments in Technical Appendices Q and O are generally consistent in terms of showing that construction of the waterway crossings would lead to significant unmitigated risks and impacts on waterway stability, but generally low to moderate residual risks and impacts.

The exception is the unnamed waterway comprising Trench Sector 82, where residual construction impacts are assessed as 'high' (see Table 6), although Mr Darras considered this could be reduced to 'low' to 'moderate' with engineering measures applied (including an appropriate HDD design).

While Technical Appendix O assessed a 'moderate' residual significance of impact for the Little Morwell River, the preferred construction methodology for this crossing has changed from trenched to HDD. This will likely reduce the risk of impact, although Mr Darras did not provide a revised residual risk impact for the Little Morwell River crossing.

Notwithstanding the lack of cross referencing between Technical Appendices O and Q, when the information from those two Technical Appendices is taken together, the IAC has a reasonable level of confidence that key issues relating to geomorphological impacts of the eight 'major' waterway crossings have been identified. The exceptions are the Little Morwell River and Fish Creek waterway crossing sites, where access constraints precluded site inspections. This results in greater uncertainties about these crossings.

While the IAC has a degree of confidence about the assessment of impacts on most of the eight 'major' waterways, there is uncertainty regarding impacts on the 74 other designated waterways. None were specifically assessed in Technical Appendix Q. Only 14 were specifically assessed in

Technical Appendix O, and the remaining 60 were not assessed except as undifferentiated components of longer Trench Sectors that also incorporated other landforms. There were no site inspections any of these waterways.

Risks and impacts of the Project on the stability of the 74 other waterways cannot be assumed to be minor. Given the uncertainties about the risks and impacts of the Project for waterway stability, the waterway crossing plan required under EPR GM09 should include a high level geomorphological and land stability assessment for each of the waterways that is proposed to be trenched, to inform the waterway crossing design and construction method. Targeted site assessments should be undertaken as necessary. These further investigations under EPR GM09 will complement the further assessments by an aquatic ecologist of the aquatic values of waterways where trenched crossings are proposed, recommended by the IAC in Chapter 9.7.

Implications of existing waterway processes

Waterway crossing designs needs to recognise and address geomorphological processes, to avoid future conflicts with waterway infrastructure during the operational period, such as exposure of the cable conduit by bed or bank erosion. Planning and design for avoidance of such conflicts is beneficial both to the Project and the environment, by minimising the risk of costly and intrusive remedial works. The further investigations of geomorphological and land stability recommended by the IAC under EPR GM09 should include investigation of existing geomorphological processes and threats as an input into waterway crossing design.

Waterway crossing construction methodology

EPR GM09 requires avoidance and minimisation of impacts to geomorphology at waterways for both trenched and trenchless construction, but does not identify waterway geomorphology and stability as a deciding factor in relation to the selection of construction methodology.

HDD is an important measure for minimising geomorphological impacts on waterway stability. This was confirmed by Mr Darras, who advised HDD is a good option for reducing landform disturbance, and despite the higher cost it may provide better value when the costs of remediating the impacts of trenching are also considered.

That said, the IAC does not assume the impacts of HDD on waterways will necessarily be insignificant, or less than the impacts of trenching waterway crossings.

EPR GM09 should be amended to specifically require waterway stability be considered in the selection of the construction method. This will ensure:

- the Project does not adversely impact waterway stability
- the design of waterway crossings has regard to geomorphological processes (including channel migration, headward erosion and avulsion) that could lead to future impacts on Project infrastructure.

The preferred construction method for each waterway crossing should be informed by the investigations and management controls required under EPRs SW01, EC03 and GM09, and the significance and acceptability of the impacts which could nominally be avoided by use of trenchless construction methods.

In response to a question from the IAC, Mr Cleven gave evidence that HDD drill pads should be moved away from waterways if possible. EPR GM05 should be amended to include a requirement for HDD drill pads to avoid waterways, including minor waterways, where practicable.

(vi) Findings and recommendations

The IAC finds:

- Notwithstanding some uncertainties, the IAC is generally satisfied impacts and risks of waterway crossings can be reduced to acceptable levels through implementation of the IAC's recommended EPRs.
- EPR GM09 should be amended to require a high level assessment of the geomorphological and land stability characteristics of the waterway, including geomorphological processes and threats. This assessment should inform the construction method for the crossing.
- Other changes are required to the EPRs to deliver improved waterway stability outcomes:
  - there needs to be a consistent referencing system for waterways throughout the EPRs
  - for trenchless crossings, HDD drill pads should be located away from waterways where reasonably practicable.

The IAC recommends:

If the Marinus Link Project proceeds, amend the Environmental Performance Requirements as shown in Appendix E:1:

a) Amend requirement GM05 by adding a requirement for drill pads associated with horizontal directional drilling to avoid encroachment into designated waterways.

b) Amend requirement GM09 by adding requirements for:

- **a consistent waterway referencing system for all 82 designated waterway crossings**
- **high level geomorphological and stability assessments of each waterway proposed to be trenched, and targeted site assessments as necessary, to inform the waterway crossing design**
- **selection of a construction methodology for each crossing that ensures waterway stability and has regard to geomorphological processes.**

12 Surface water and groundwater

12.1 Introduction

Surface water and groundwater impacts are assessed in:

- EES Volume 4 Chapters 4 (Groundwater) and 5 (Surface water)
- Technical Appendix Q (Victorian Surface Water Impact Assessment)
- Technical Appendix P (Groundwater Impact Assessment – Victoria).

Technical Appendix O, discussed in the previous chapter, is also relevant.

Supplementary Reports were prepared to Technical Appendix P (D45l) and Technical Appendix Q (D45t) in relation to the revised timing for Stage 2.

The following experts provided evidence for the Proponent:

- John Sweeney of Tetra Tech Coffey on groundwater (D33)
- Stuart Cleven of Alluvium Consulting Australia on surface water (D43).

Mr Sweeney was the principal author of Technical Appendix P, and Mr Cleven was the principal author of Technical Appendix Q. They both presented oral evidence at the Hearing.

Other key documents are:

- D110 – Proponent Response to IAC's questions
- D144 – Letter from West Gippsland CMA to Proponent – Comments on EPRs (4 October 2024).

12.2 Surface water

There is a considerable degree of overlap between this Chapter and Chapters 9.7 (impacts on aquatic habitat and biota) and 11.4 (impacts on waterway stability). All three chapters should be read together.

(i) The issues

The issues are whether:

- the Project's impacts on surface water have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved surface water outcomes.

(ii) What did the EES say?

As noted in previous chapters, the land cable alignment crosses 82 designated waterways and Technical Appendix Q focused on the crossing of eight major waterways, as well as the surface water impacts the converter station and the Waratah Bay transition station. The eight major waterway crossings assessed in detail in Technical Appendix Q are listed in Technical Appendices O (Geomorphology and Geology) and Q (Surface Water) both assessed the effects of the Project on waterway stability.

Technical Appendix Q

Technical Appendix Q reported there are 82 crossings of designated waterways along the Project alignment (see Figure 3 in Chapter 9.7). It assumed 15 of those waterway crossings would be constructed using HDD, including seven of the eight 'major' waterway crossings (with the Little Morwell River proposed to be trenched). It provided detailed descriptions of the eight 'major' waterway crossing sites but minimal information about the other 74 waterway crossings.

Technical Appendix Q presented risk ratings for specific impact pathways rather than for particular waterways. The assessed risks included bed and bank erosion and sediment release. Initial (unmitigated) risks to waterway stability were assessed as 'high' for open trench construction and 'moderate' to 'high' for trenchless construction, while residual risks were assessed as 'low' for both methods.

Technical Appendix Q (Attachment 4) also presented an assessment of the risks to the Project resulting from existing and ongoing geomorphological processes on the eight major waterways. It reported the major waterways are currently laterally active (which means they are moving horizontally across the landscape), except the Morwell River, which is subject to potential long-term changes including gradual meander lengthening.

All the waterways except Fish Creek were assessed as vertically stable. Fish Creek was assessed as being at high risk of large-scale incision (deepening of the bed). There are also moderate risks of large-scale avulsion (abandonment of the existing waterway channel for a new course on a different part of the floodplain) at Tributaries of Tarwin River East Branch and Fish Creek.

Technical Assessment Q reported that permanent changes at the waterway crossing sites, such as access tracks or bunds, could have implications for waterway stability and sediment loads during the operation phase, with initial risk ratings of 'high' for the trenched crossing of the Little Morwell River and 'moderate' for the HDD crossings of the other major waterways. Residual risks (with implementation of relevant EPRs) were assessed as 'low' in all cases.

Technical Appendix O

Technical Appendix O included assessments for 22 waterway crossings, including the eight major waterway crossings discussed in detail in Technical Appendix Q. The remaining 60 designated waterway crossings were incorporated into longer Trench Sectors including other landforms such as slopes and floodplains, and were not separately assessed from a geomorphological perspective.

Technical Appendix O assessed the 22 waterway crossings using a 'significance of impact' approach. Initial significance of impact ratings in Technical Appendix O ranged from 'moderate' to 'major' whereas residual significance of impact ratings were generally 'moderate' or 'low', except for one minor waterway crossing in Trench Sector 82, which remained high (see Table 6 in Chapter 11.2).

Error! Not a valid bookmark self-reference. below sets out the unmitigated and residual significance of impacts on the eight 'major' waterways, based on information in Technical Appendix O. Like Technical Appendix Q, Technical Appendix O assumed the major waterway crossings (except the Little Morwell River) would be constructed using trenchless methods. It recommended "*Consider HDD as a better alternative*" for the Little Morwell River crossing.

Table 7 in Chapter 11.4.

The remaining waterways were not assessed due to their lack of definition (small and ephemeral nature), smaller catchment scale, and low or minor importance classification.

Further, as noted in Chapter 11.4, geomorphological stability assessments were undertaken for the eight major waterways. All were assessed as laterally active (moving horizontally across the landscape), except for the Morwell River which is subject to potential long-term changes including gradual meander lengthening. The major waterways were assessed as being vertically stable apart from Fish Creek. Any potential risks to waterway stability during construction would be managed through the implementation of EPRs, including SW01 and SW03.

The EES was prepared on the basis that all of the eight major waterways would be crossed using trenchless construction methods such as HDD, except for the Little Morwell River. Since then, the Proponent advised the preferred construction method for the Little Morwell River crossing has been changed to HDD (as noted in Chapter 11.4).

HDD is proposed for another eight (non-major) waterways, while the remaining 67 waterways crossed by an open cut trench construction method. The decision to trench across waterways was based on the current land use within the river crossing (predominantly cattle crossing), the absence of riparian vegetation and the lack of evidence of erosion.

The impact of a flood event during the construction of the joint pits, work areas, access roads and trenches causing inundation of assets and sediment movement was assessed as low risk. This was because the duration of construction in flood plains was limited, and any impact would be temporary and moderate. Flood mapping indicated the proposed converter and transition stations would result in minor increases in flood depth of about five centimetres, but only within the immediate area resulting in a low risk of change/impacts to flood behaviour.

A cumulative impact assessment identified four projects that could affect surface water values near the cable route alignment. While these projects have the potential to impact waterways in their vicinity during construction, it is not expected they would affect impact the waterways in the Project area.

The Supplementary Report indicated the only ramification of the delay between Stage 1 and Stage 2 was the duration of the period for which access tracks would be required. No changes were required to the EPRs.

(iii) Relevant policy and guidelines

The IAC has had regard to relevant policy and guidelines, including:

- *Water Act 1989*
- EP Act and Environment Protection Regulations 2021
- the Environment Reference Standard[30]
- Code of Practice for Timber Production.

(iv) Evidence and submissions

Mr Cleven adopted Technical Appendix Q as his evidence. His opinion was that with the implementation of the surface water EPRs, all identified surface water impacts would be reduced to a low residual rating.

[30] As published 25 May 2021, and as amended by Environment Reference Standard No. S158 Gazette 29 March 2022

Mr Cleven responded to concerns about the assessment of surface water impacts raised by:

- Submitter 12 concerning impacts to the Little Morwell River, including bed and bank stability, increased flood risk from trenching and an increased risk of sediment runoff
- EPA (S18) requesting the removal of an EPA consultation requirement in a surface water monitoring plan
- DEECA (S21) concerning loss of aquatic habitat and impact on threatened species from trenched crossings and reinstatement activities
- HVP's submission which raised concerns about impacts (including from erosion) on waterways within forested areas.

Mr Cleven considered the Proponent's amended approach to use HDD for the Little Morwell River crossing would reduce the risk of impact to the river. He was satisfied EPR SW01 provides a framework for an erosion and surface water management plan, while SW02 and SW03 provide guidance for works in flood prone areas, with all plans and works developed in consultation with the West Gippsland CMA.

Mr Cleven supported the redrafting of EPR SW04 to remove the requirement for consultation with EPA in the preparation of a surface water monitoring program.

Responding to the concerns of potential loss of aquatic habitat, Mr Cleven recommended EPR SW01 be amended to include a specific requirement to document the aquatic habitat baseline condition to better inform development of measures to manage potential impacts from trenched crossings. This was included in the Proponent's Day 1 EPRs, in addition to a range of other clarifying changes to all surface water EPRs.

Mr Cleven considered EPR SW01 was framed appropriately to manage impacts in forested areas. He did not consider any further changes to the EPRs were needed to specifically address forestry impacts.

Mr Cleven's oral evidence was that the 82 waterways identified in Technical Appendix Q were all designated waterways, and as such would require a permit for Works on a Waterway from the West Gippsland CMA. He considered requirements in SW01, SW02 and SW03 (to prepare an erosion and surface water management plan and minimise flood risk from infrastructure and construction) would require consultation with the West Gippsland CMA.

(v) Discussion

As discussed in Chapters 9.7 and 11.4, Technical Appendix Q identified 82 designated waterways, but a detailed assessment was only made of the eight 'major' waterways. Field inspections were undertaken of six of the eight major waterway crossing sites including a short distance upstream and downstream, to gain an appreciation of the physical environment of each proposed crossing. Access constraints meant that inspections could not be made of the Little Morwell River or Fish Creek crossing locations. The other 74 waterways were classified as having low or minor importance were not inspected or subject to a detailed assessment.

Trenchless construction methods are proposed for 16 waterways, including (now all eight) major waterways. The decision to use HDD was based on the ground conditions along the alignment, and that HDD is more suited to crossings requiring longer distances.

As discussed in Chapter 11.4, the IAC accepts that HDD may not always be the most desirable or practical way of constructing waterway crossings. The decision on whether to use trenched or trenchless construct methods will be based on a range of factors. The EPRs, with the IAC's

recommended changes, provide an appropriate framework for making this decision on a case by case basis. In particular:

- EPR GM09 requires a waterway crossing plan to be developed and implemented
- EPR GM05 requires methods for trenchless construction to be developed and implemented that have considered ground conditions
- EPR GM01 requires construction methods to be specific to the location, geology, terrain, geomorphological processes and surrounding landscape stability
- EPR EC03, as amended by the IAC, requires a high level assessment of the aquatic values of each waterway before the crossing method is determined (see Chapter 9.7)
- EPR GM09, as amended by the IAC, requires a high level assessment of the geomorphological and land stability conditions of each waterway before the crossing method is determined (see Chapter 11.4).

All 82 waterway crossings are designated waterways, and will require a Works on Waterways permit to be issued by the West Gippsland CMA. The West Gippsland CMA confirmed that it had reviewed the Day 1 version of the EPRs and was supportive of the proposed changes (D144).

The Code of Practice for Timber Production seeks to maintain or improve river health in timber production areas by protecting waterways from disturbance. The Code prescribes detailed measures to avoid and minimise impacts on waterways from forestry operations, including buffer strips and crossing requirements, minimising the extent of habitat damage and streamflow construction at waterway crossings, and minimising the extent and duration of soil disturbance adjacent to and within waterways. EPR SW01 should be amended to include a requirement for the Code to be considered as part of the development of the erosion and surface water management plan for waterways in forestry areas.

(vi) Findings and recommendations

The IAC finds:

- While not comprehensive, the assessment of impacts on surface waters in Technical Appendix Q is generally appropriate for this stage of the assessment process.
- Implementation of the IAC's recommended EPRs will ensure the construction methodology for each waterway crossing will be appropriately informed by environmental, geomorphological and practicality considerations.
- Chapters 9.7 and 11.4 including findings that several EPRs should be amended to deliver improved environmental outcomes for waterways and their associated values.
- In addition, EPR SW01 should be amended to include a requirement to consider the Code of Practice for Timber Production when preparing the erosion and surface water management plan for waterways in forestry areas.
- With the implementation of the IAC's recommended EPRs, the Project's impacts on surface water can be acceptably managed.

The IAC recommends:

If the Marinus Link Project proceeds, amend the Environmental Performance Requirements as shown in Appendix E:1:

a) Amend requirement SW01 to include a requirement for the erosion and surface water management plan to consider the *Code of Practice for Timber Production 2014* (as amended 2022) in the design and construction of roads and works on or near waterways within forestry properties.

12.3 Groundwater

(i) The issues

The issues are whether:

- the Project's impacts on groundwater have been appropriately avoided and minimised, and are acceptable
- there are any feasible modifications to the design or management of the Project, or changes to the EPRs, that would provide improved groundwater outcomes.

(ii) What did the EES say?

The groundwater study area covered 500 metres from the centreline of the land cable alignment and other infrastructure between Waratah Bay and Hazelwood. A nominal 10 metre vertical study area limit was set based on the 1.5 metres maximum trench depth and an assumed margin of safety to allow for the depths required for HDD to extend under river crossings and surface infrastructure. Physical impacts on groundwater from changes to groundwater levels and temperature and water quality from pollutants and saltwater intrusion were assessed.

The depth to groundwater along the alignment was calculated by subtracting the published average water table elevation from the ground surface elevation. Where the trench depth was greater than the depth to groundwater, a high dewatering likelihood rating was applied. Six areas were identified where the trenches would potentially be below the water table and may require dewatering. This included near the shore area at Waratah Bay and locations where the alignment crosses shallow groundwater around surface drainage lines.

The trenches may result in groundwater drawdown, but drawdown of one metre was not predicted to spread beyond 200 metres from the edge of the trench in the highest conductivity aquifers under long term, steady state conditions. The estimated magnitude and duration of groundwater drawdown would have a negligible impact on the terrestrial groundwater dependent ecosystems identified in the study area.

The potential for HDD beneath Waratah Bay dune system to alter perched groundwater systems within the dunes (if present) was considered to be very unlikely as perched aquifers or potential groundwater dependent ecosystems were not identified within the dune system. Measures such as sealing the exit hole of the HDD ducts would be implemented to minimise the potential for saline water movement along the HDD borehole during construction of the shore crossing.

The groundwater assessment examined the consequences of groundwater drawdown which could allow saline water inland or upwelling of deeper saline water in the estuarine zone. Relatively limited groundwater drawdown was predicted away from the cable trench in the estuarine zone during the short construction period. Under these conditions, relatively minor changes to groundwater salinity in the estuarine zone was predicted.

The potential for coastal ASS was identified between the Waratah Bay landfall point and the first 430 metres of the onshore Project alignment. If acidification occurs, the extent of impact would be limited to within the Project area and could be rectified through remedial works such as lime dosing.

Site features with suspected groundwater contamination from historic or current sources were identified. None fall within the areas of predicted groundwater level drawdown. The risk and

impact of groundwater contamination associated with the use of small volumes of chemicals or mobile refuelling during construction was considered minor.

Backfilling cable trenches with material of higher hydraulic conductivity or material that is not adequately compacted may create pathways for surface water to preferentially recharge groundwater. This risk would be managed through groundwater EPR GW04, requiring original subsoil and topsoil be used to reinstate the soil horizons and be adequately compacted.

Seven registered bores located within the construction area would require decommissioning prior to construction if they still existed.

In relation to climate change impacts, the assessment considered the predicted long-term reduction in rainfall recharge in the area would result in long term declining groundwater levels. This would lower the risks of the Project adversely impacting groundwater.

The Supplementary Report (D45l) indicated that further studies were required to assess whether the conclusions of the groundwater assessment were still valid. That additional work was included in Mr Sweeney's expert witness statement. He concluded there was no increased risk from the extended project staging.

(iii) Relevant policy and guidelines

The IAC has had regard to relevant policy and guidelines, including the:

- EP Act
- *Water Act 1989*
- *Environment Protection Regulations 2021*
- Environment Reference Standard.

(iv) Evidence and submissions

Mr Sweeney adopted Technical Appendix P as his evidence. His opinion was that with the adoption of the nine groundwater EPRs, all the identified groundwater impacts would be reduced to a low potential impact. He considered there was a low residual risk of groundwater dewatering impacts on groundwater dependent ecosystems.

Mr Sweeney responded to concerns about the assessment of groundwater impacts in Technical Appendix P raised by:

- Submitter 12 concerning:
  - Little Morwell River aquatic ecosystem impacts
  - trenching through subterranean water flow along Darlimurla Road
  - potential dewatering of the wetland between Little Morwell River and Pleasant Valley Road
- the EPA relating to the use of outdated terminology and a requirement to consult with EPA in relation to groundwater disposal and monitoring
- HVP in relation to impacts on the ecosystem and on forestry production.

Mr Sweeney's evidence was the dewatering impacts from trenching near the proposed Little Morwell River crossing would be minor. Even if trenching occurred (rather than HDD as now proposed), the water level in the wetlands would be drawn down by no more than 0.1 metres which was within the natural level of fluctuation. Because HDD was now proposed for the Little Morwell River crossing he considered the impact on aquatic ecosystems would be even less.

In relation to the reported spring fed dam near Darlimurla Road, Mr Sweeney's said topographic maps indicated the dam is fed by sources upgradient from the dam. An overflow point from the dam flows towards the cable trench alignment. The cable route alignment would not therefore impact on water flows into the dam.

Mr Sweeney supported changes to EPRs GW05 and GW06 to remove the requirements for consultation with EPA in relation to groundwater disposal and monitoring.

He also noted that groundwater bores used for agriculture purposes were unlikely to be adversely affected by the Project due to the depth of those bores (below the shallow nature of any potential groundwater impact from the Project).

The IAC asked Mr Sweeney about the impact of removing the seven groundwater bores within the construction corridor. His view was that impacts would be negligible, as the groundwater bores were for monitoring purposes (mainly for the former State Electricity Commission), and could be replaced if required. He identified that EPR GW08 prescribes the appropriate bore decommissioning process and liaison with the bore owner about the need for a replacement bore.

Mr Sweeney advised that because the cable trench is not water tight, the trench may provide a preferential pathway for groundwater flow where it is located below the water table. This has the potential to give rise to three additional impacts that had not been assessed in Technical Appendix P:

- unintended water discharge to the surface and waterlogging of soils
- water eroding the trench and causing erosion and slope stability issues
- trenches acting as pathways for contaminants should the trench pass through a contaminated site.

Mr Sweeney's evidence set out recommended changes to the groundwater EPRs to deal with these impacts. These had been informed following discussions with the technical experts for contaminated land, geomorphology and surface waters at the constructability workshop, and were included in the Day 1 EPRs. This included a proposal by Mr Sweeney to add a new EPR GW10 to require:

- detailed design to identify areas where potential water gradients may develop within the conduit and cause raised pressures
- engineering solutions to be implemented to minimise water ingress, such as barriers or seals.

(v) Discussion

For the majority of the land cable alignment, groundwater will not be intercepted by the trenches. For those areas where groundwater would be encountered and needs to be extracted to keep the trench or connection pits dry while trenching or drilling occurs, the impact of groundwater drawdown is limited in both distance from the trenches and duration of impact.

Existing groundwater bores within the AoD will need to be decommissioned. These bores are all groundwater investigation or monitoring bores, mainly installed by the former State Electricity Commission. The groundwater EPRs require a replacement bore to be installed if required. Other bores outside of the immediate AoD are substantially deeper than the trench or HDD and would not be significantly impacted by any dewatering activities that may be required.

Mr Sweeney's proposed changes to groundwater EPRs GW01, GW02, GWGW03, GW05 GW07 and GW09 included in the Day 1 version are appropriate. The IAC accepts the basis on which EPRs GW05 and GW06 have been amended (at the request of the EPA) to remove reference to the consultation with the EPA.

The IAC is satisfied EPR GW10 is appropriate for managing the risk of potential preferential water flow, groundwater or surface water in the trench or conduit.

(vi) Findings

The IAC finds:

- Technical Appendix P appropriately assessed the Project's impacts on groundwater.
- The Project's impacts on groundwater have been appropriately minimised or avoided, and can be suitably managed through the groundwater EPRs.
- The addition of groundwater EPR GW10 in the Day 1 EPRs is appropriate to manage the risks of water flow, groundwater or surface water in the trench or conduit.
- No further design modifications or changes to the EPRs are necessary to ensure acceptable outcomes in terms of groundwater impacts can be delivered.

13 Electromagnetic fields

13.1 Introduction

Impacts of electromagnetic fields and EMI are assessed in:

- EES Volume 1 Chapter 10 (Electromagnetic Fields)
- Technical Appendix A (Electromagnetic Fields and Electromagnetic Interference Impact Assessment).

A Supplementary Report was prepared to Technical Appendix A (D45b) in relation to the revised timing for Stage 2.

Dr Rodney Urban of Jacobs was principal author of Technical Appendix A. He provided evidence on electromagnetic fields and EMI (D44) and appeared at the Hearing.

13.2 The issues

The issues are whether:

- the Project's electromagnetic fields, EMI and heating impacts have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved outcomes in terms of electromagnetic fields, EMI and heating impacts.

EMI impacts on the marine environment are dealt with separately in Chapter 10 and on shipping and navigation in Chapter 17.5.

13.3 What did the EES say?

Electric and magnetic fields and electromagnetic interference

Electromagnetic fields are invisible, physical fields that surround electrical charges and exert forces on all charged particles and objects in the field. As a current moves through a cable, it creates an electromagnetic field. The strength of the electromagnetic field is proportional to the amount of electrical current passing through the cable and decreases with distance from the cable.

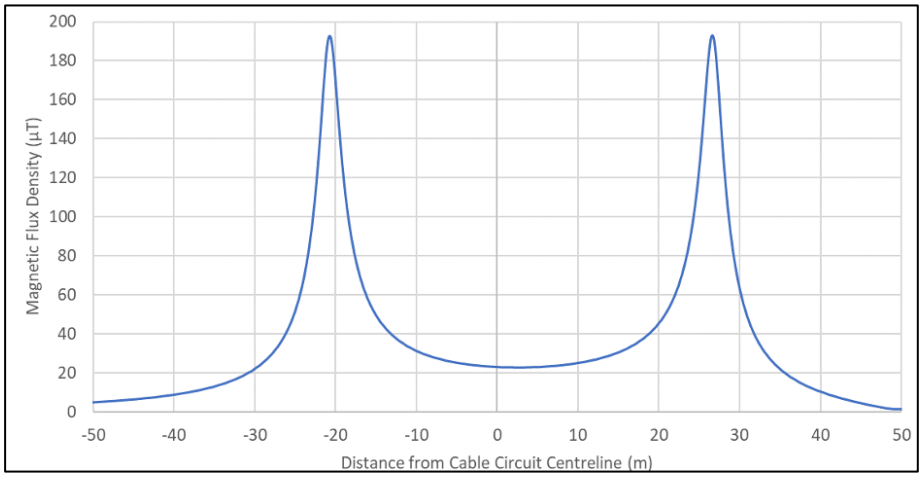
The direction of the magnetic field is directly related to the direction of the current, so for two cables located close together, carrying the same current in different directions, the magnetic fields will largely cancel each other out.

The nominal spacing between the trenched positive and negative cables will be 0.5 metres, but could increase to four metres for HDD sections.

Technical Appendix A examined the predicted level of electromagnetic fields from the cables and from the converter station. The assessment found the cables and indoor power equipment will not produce significant electric fields in the surrounding environment.

The worst case magnetic field on land was at Waratah Bay where the two cables comprising the electrical circuit for each stage are in ducts, at their maximum separation before being re-bundled and laid in the same trench. The calculated magnetic field above the cable at the shore crossing was less than the earth's magnetic field (approximately 60 microtesla (μT)) at a distance of 10 metres (see Figure 4).

Figure 4 Calculated magnetic field profile across the Waratah Bay shore crossing cable ducts (one circuit)



Source: Technical Appendix A Figure 7-37

Sensitive receivers considered in the impact assessment are listed in Table 8. The assessment found that Project operation would generate electromagnetic field levels below all applicable reference levels for all sensitive receivers assessed, with one exception. Honeybees are highly sensitive to EMI, and the assessment found electromagnetic fields emitted by the land cables could affect the behaviour of honeybees.

Table 8 Magnetic field exposure with 4 metre inter cable spacing

Exposure Scenario	Magnetic Field Strength (µT)	
	Reference Level	Calculated Level
People	400,000	124
Active implantable medical devices	500	124
Radio frequency identification tags	3,000,000	124
Livestock	400,000	124
Apiaries	2	124
Wildlife	400,000	124

Directly above the buried cables, and within five metres of the cable trench, the calculated field levels are above the reference level for apiaries of 2 µT. However, the cables will have negligible impact on bee colonies where the apiary has been relocated outside the 5 metre impact zone.

Electromagnetic field EPRs EMF01 and EMF02 require the location of beehives to be documented, and for the Proponent to work with landholders to implement reasonably practicable measures to address potential impacts.

Heat impacts

The operation of the cables will heat the soil immediately surrounding the trenches. A temperature increase of more than 3 degrees centigrade above the ambient 25 degrees at a depth of 0.1 metres or less can impact the health of pasture grass. Thermal backfill is proposed to fill the trenches to aid in dispersing any heat build-up. The soil temperature rise calculations indicated that the worst case soil temperature rise at 0.1 metres depth does not exceed 3 degrees (see Table 9).

Table 9 Cable soil heating assessment (with thermal backfill) along cable route alignment

	Soil temperature increase above ambient (25^{0}C) at 0.1 metres depth			
Operating condition	**Waratah Bay – Smallmans Road**	**Smallmans Road – Darlimurla Road**	**Darlimurla Road – Strzelecki Highway**	**Strzelecki Highway - Hazelwood**
Steady state current (normal operation)	0 degrees	+1 degree	0 degrees	+1 degree
Cable at 70 degrees	+1 degree	+2 degrees	+1 degree	+1.5 degrees
Cable at 90 degrees	+1.5 degree	<3 degrees	+1.5 degrees	+2 degrees

Source: Technical Appendix A, Figure 7-32

The assessment found that within Bass Strait, there would be negligible heating of seawater around the subsea cables due to the constant movement of the water.

Cumulative impacts

Technical Appendix A concluded the cumulative effect of other HVDC cables in the vicinity of the Project would not be significant at a distance greater than 10 metres from the land cable route alignment.

Revised timing of Stage 2

The relevant Supplementary Report (D45b) concluded the changes to the timing of Stage 2 would not impact the calculated electromagnetic fields and EMI emissions and the cable heating along the cable sections or at the converter stations. No changes are required to the conclusions or recommendations in Technical Appendix A.

13.4 Relevant policy and guidelines

There are no specific national or Victorian regulations or guidelines regarding public exposure to static electromagnetic fields or EMI. The Australian Radiation Protection and Nuclear Safety Agency promotes application of the International Commission on Non-Ionising Radiation Protection (ICNIRP) guidelines. The IAC has had regard to:

- *Guidelines for limiting exposure to electric fields induced by movement of the human body in a static magnetic field and by time-varying magnetic fields below 1 Hz* (ICNIRP, 2014)
- British Standard EN 45502-2-1:2003 *Active implantable medical devices Particular requirements for active implantable medical devices intended to treat bradyarrhythmia (cardiac pacemakers)*
- British Standard EN 45502-2-2:2008 *Active implantable medical devices - Particular requirements for active implantable medical devices intended to treat tachyarrhythmia (includes implantable defibrillators)*
- AS/NZS 61000.6.1: 2006 *Electromagnetic compatibility (EMC) Generic standards - Immunity for residential, commercial and light industrial environments* (Reconfirmed 2016).

13.5 Evidence and submissions

Dr Urban adopted Technical Appendix A as his evidence. His opinion was implementation of EPRs EMF01 and EMF02 would result in negligible residual electromagnetic effects on sensitive

receivers that would be potentially impacted by electromagnetic fields and EMI generated by the Project.

Dr Urban considered the cumulative impacts of the subsea cables and the proposed Gippsland Skies Offshore Wind Farm project, as the Project would intersect the Gippsland Skies feasibility licence area. His evidence was the cumulative electromagnetic field effects of parallel or crossing HVDC subsea cables were only significant within a few metres of the cables. The cable protection system required to mitigate the threat of physical damage to the cables at the crossing point would largely negate any cumulative electromagnetic field impacts.

Dr Urban responded to concerns about electromagnetic fields raised by:

- Submitter 7, relating to potential electromagnetic field impacts on earthworms, microbes and soil bacteria
- Submitter 8, relating to potential impacts of electromagnetic field on the behaviour, migration and recruitment of bony fish, elasmobranchs and invertebrate species
- Submitter 19, relating to cumulative thermal impacts of the Delburn Wind Farm cables along the 6 kilometres of shared underground cable alignment between Ten Mile Creek Road, Delburn and Kings Road, Driffield
- Submitter 20, relating to EMI impacts on threatened species and on the Hawaiki Nui Submarine Cable and the Subsea Fibre Optic Data Cable System.

While acknowledging the lack of published research on the potential impacts of electromagnetic fields on earthworms, microbes and soil bacteria, Dr Urban identified there was no conclusive evidence of the impacts of electromagnetic fields on crop yields or plant health. He concluded that the organisms needed for a healthy crop such as earthworms, microbes and soil bacteria must also be unaffected by electromagnetic fields.

As identified in Chapter 10, Mr Balloch's evidence was the magnetic fields generated by the Project would have an impact significance rating of 'very low' on marine invertebrates including decapod crustaceans, and the subsea cables were not predicted to be a barrier to marine invertebrates.

In relation to potential cumulative impacts, Dr Urban noted Technical Appendix A identified the potential for cumulative thermal impacts from the Project's cables and those for the Delburn Wind Farm, but these were not assessed. He was satisfied that EPR EMF01, which requires consideration of the impacts of existing and proposed developments on the design of the Project, would minimise or avoid potential adverse impacts. Dr Urban also noted that marine EPR MERU12 places obligations on the Project to adopt a HVDC cable design that minimises the electromagnetic fields and heat emitted from both the subsea and land cables.

Dr Urban's evidence identified the electromagnetic fields assessment did not identify any long-term disruptions to the lifecycle habits of threatened species at a population level. He considered impacts on the Hawaiki Nui Submarine Cable and Subsea Fibre Optic Data Cable System would be negligible.

Ultra high frequency radios are commonly used along segments of the cable alignment by forestry workers and farmers. When questioned by the IAC on potential impacts on radio use, Dr Urban said that there was no risk from the cable.

13.6 Discussion

For the majority of the length of the land cable alignment, the positive and negative cables will be bundled and buried in a 1 metre wide trench at a minimum depth of 1.2 metres. The positive and negative cables may have a separation of up to 4 metres in sections where trenchless construction (HDD) is used.

The further the spacing between the positive and negative cable, the greater the magnetic field. At the nominal in trench separation of 0.5 metres, the magnetic field at one metre above ground was calculated to be 24 µT, whereas with a four metre separation the magnetic field increases to 124 µT. The greatest separation of the land cables is at the shore crossing, where the cable spacing ranges from 20 to 600 metres. The largest generated magnetic field strength at the shore crossing is 194 µT. This compares to the earth's magnetic field of about 60 µT in this area.

These levels are well below all the electromagnetic field reference levels except as they relate to apiaries. The IAC accepts the evidence of Dr Urban that the land cables will have negligible impact on bee colonies where the apiary has been relocated outside the impact zone. The IAC is satisfied EPR EMF01 is adequate to ensure the relocation of any hives within five metres of the proposed cables, although Dr Urban noted that publicly available information does not identify any apiaries within the impact zone. Impacts on bees foraging would be limited to momentary disorientation.

The operation of the land cables will heat the soil immediately surrounding the cable conduits. Dr Urban's evidence was that soil heating was unlikely to adversely impact plant life. He acknowledged that an assessment was not undertaken for the potential cumulative thermal impacts including for the co-located Delburn Wind Farm cable. However, his opinion was that heating impacts would be managed through EMF01 and MERU12, which require Project design to reduce electromagnetic fields and EMI emissions on land and under the sea.

The focus of EMF01 is to design the Project to reduce electric and magnetic fields and does not mention thermal heat considerations. While it cross references MERU12, this is not sufficient to ensure an assessment of thermal impacts would occur for the land cable sections, including potential cumulative impacts from the Delburn Wind Farm. EPR EMF01 should be amended to specifically identify thermal impacts as a factor to be considered in the design of the land cables.

13.7 Findings and recommendations

The IAC finds:

- Technical Appendix A appropriately assessed electromagnetic fields and EMI impacts.
- Electromagnetic field and EMI impacts can be suitably managed through the electromagnetic fields EPRs EMF01 and EMF02.
- EPR EMF01 should be expanded to include specific references to the consideration of thermal impacts in finalising the detailed design and installation of the land cables.
- Subject to this change, the thermal effects of the Project will be acceptable.

The IAC recommends:

If the Marinus Link Project proceeds, amend the Environmental Performance Requirements as shown in Appendix E:1 as follows:

a) Amend requirement EMF01 to include consideration of heating impacts of the land cables in the Project design.

14 Noise and vibration

14.1 Introduction

Noise and vibration impacts are assessed in:

- EES Volume 4 Chapter 10 (Noise and vibration)
- Technical Appendix T (Victoria Terrestrial and Coastal Processes Technical Noise and Vibration Report).

Justin Adcock of Marshall Day Acoustics provided evidence for the Proponent on noise and vibration effects (D35). He undertook a peer review of Technical Appendix T, which was authored by another Marshall Day acoustic engineer. He appeared at the Hearing.

One other key document is:

- D66 – Letter from EPA to Proponent in response to revised EPRs.

14.2 The issues

The issues are whether:

- the Project's noise and vibration impacts have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved outcomes in terms of noise and vibration.

14.3 What did the EES say?

The Project will generate noise and vibration in the construction, operation and decommissioning phases. Primary noise sources include:

- plant and equipment used in construction and cable installation
- the construction of the converter station
- shore crossing HDD activity at Waratah Bay
- local feature crossings (for example waterways or roads)
- operational noise from the converter station.

Construction noise

Technical Appendix T stated that noise from construction activities and noise management measures were benchmarked against EPA Publication 1834.1 *Civil construction, building and demolition guide* (EPA Publication 1834.1). This guide does not set noise limits but sets times for the operation of noisy equipment and provides guidance on eliminating or reducing the risks of noise impacts so far as reasonably practicable.

Construction noise was modelled to predict the highest noise levels that may be experienced by receivers within 500 metres of the Project and in nearby noise sensitive areas. Construction activities would generally occur during the normal working hours specified in EPA Publication 1834.1, except where unavoidable works are required.

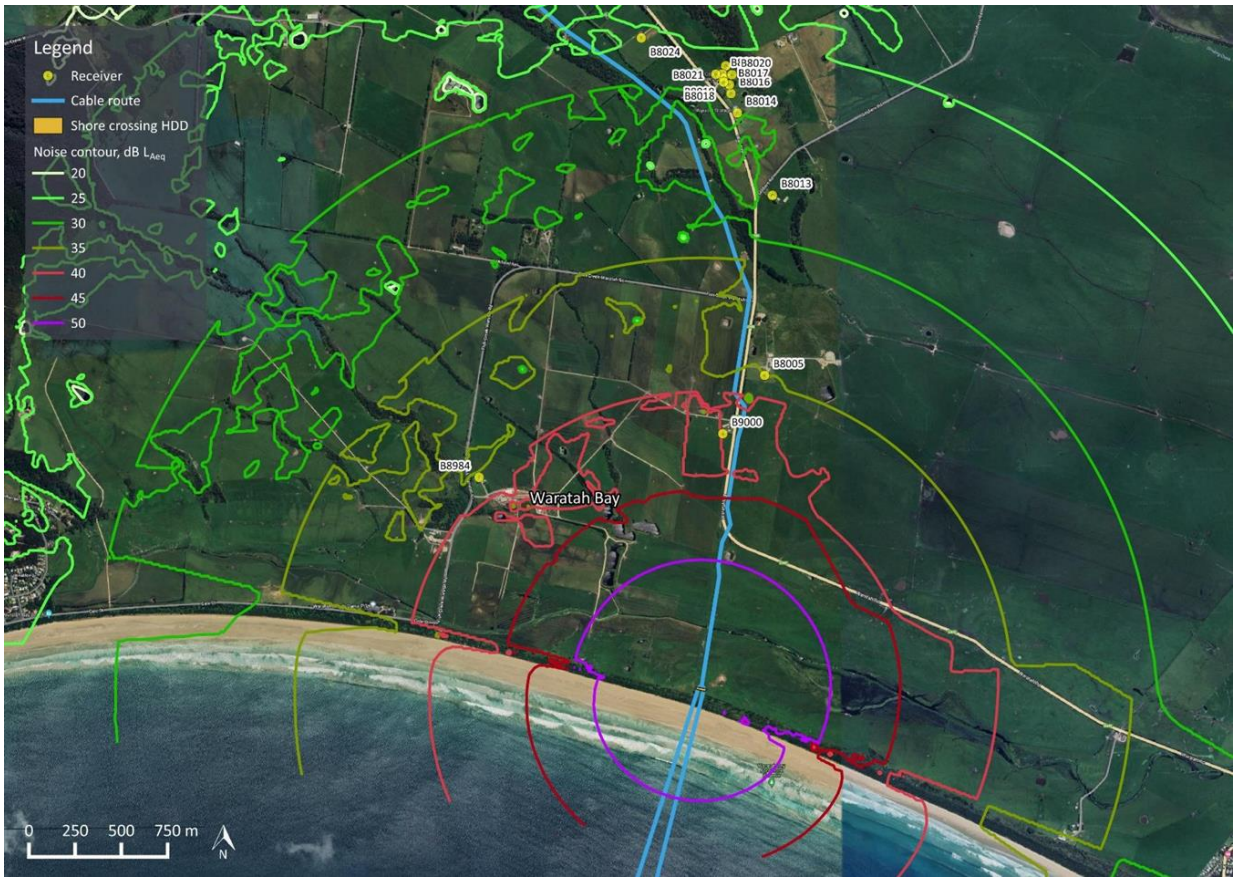
Construction of the cable trenches and access tracks, topsoil stripping and stockpiling are predicted to have the highest noise levels at the greatest number of sensitive receivers. The noise impacts

would be temporary as the work area would be fast moving, progressing about 100 metres per day.

Construction activities at the shore crossing would occur over a 12 month period and involve periods of continuous HDD to construct the six ducts. Two HDD rigs will be used during the day, evening and night periods. Continuous HDD activity is required to maintain bore hole stability. Noise levels were predicted to be at or below the World Health Organisation reference level at all sensitive receivers (the reference level being 42 dB based on sleep disturbance).

Technical Appendix T identified that shore crossing construction activities may be audible at coastal locations adjacent to the shore crossing (Waratah Bay – Shallow Inlet Coastal Reserve), and would impact the natural soundscape qualities of this section of the reserve for the duration of the works (see Figure 5 below). At the Cape Liptrap Coastal Park, to the west of the shore crossing, predicted noise levels were much lower and expected to be inaudible or difficult to discern in most conditions.

Figure 5 Waratah Bay horizontal directional drilling noise impact contours



Source: Technical Appendix T, Figure 7

Twenty four hour HDD works are proposed at the Morwell River crossing to ensure borehole stability.

Technical Appendix T assessed noise impacts from local feature HDD crossings (undertaken within working hours) would be rated 'medium' if unmitigated. Risks will be managed through the implementation of a Construction Noise and Vibration Management Plan (CNVMP), required under noise and vibration EPR NV02. The CNVMP requires the implementation of practicable measures to minimise the risk of harm as a result of noise and vibration. For more sensitive

locations where the highest noise levels would be experienced, a detailed noise and vibration impact assessment would be completed (EPR NV03). The EPRs require efficient work scheduling to complete activities near sensitive receivers in a timely manner and developing protocols for providing respite to affected residents.

While construction of the converter station would occur over a longer time frame than the trench sections, sensitive areas are more remote from the proposed site and noise levels at sensitive receivers would be lower. Construction noise impacts would be managed through the CNVMP. Residual risk of noise and vibration impacts was assessed as low for construction of the converter station.

Traffic noise

Technical Appendix T assessed traffic noise from Project generated traffic. It concluded most vehicle movements associated with Project's construction would occur within normal working hours, with travel mainly through rural and lightly populated areas. The overall risk of offsite noise impacts on the ambient noise environment due to construction heavy vehicles was assessed as low. This is due to the low number of traffic movements and traffic movements being intermittent, even at construction peak periods.

Vibration

The Project activities that may generate vibration relate to access road and haul road construction through the use of high vibration equipment such as vibratory rollers. There are a small number of sensitive receivers that could experience very low levels of vibration due to proximity to roads. Where there are sensitive receivers close to construction activities, low vibration emitting plant would be used to reduce the impacts to those receivers (EPR NV02). The likelihood (and risk) of perceptible vibration in sensitive (habited) areas or building damage from HDD was assessed as low. For that reason, specific EPRs are proposed to manage vibration from HDD.

Operational noise impacts

Operational noise from transformers and coolers at the converter station was predicted to be well below background noise levels at sensitive receivers. Selection of low noise emitting plant and use of site-specific noise attenuation measures (such as sound buffering enclosures) would reduce impacts to equivalent to the ambient noise environment during the operational phase of the Project.

The revised timing of Stage 2

The Supplementary Report (D#) indicated that the proposed changes to the timing of the stages for the Project are inconsequential to the assessment of noise and vibration.

14.4 Relevant policy and guidelines

The IAC has had regard to relevant policy and guidelines, including:

- the EP Act, including the GED and the Environment Protection Regulations 2021
- the Environment Reference Standard
- EPA Victoria Publication 1826.4 *Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venue* (Noise Protocol)
- EPA Publication 1834.1.

14.5 Evidence and submissions

Mr Adcock adopted Technical Appendix T as his evidence. It was his opinion that if the noise and vibration EPRs were adhered to, and the CNVMP is fully implemented, the residual risk of noise and vibration impacts was low for most of the construction activities. The only exception was for shore crossing works, where the residual risk of harm from noise was assessed as 'medium', due to night time HDD activity.

Mr Adcock's evidence responded to concerns about noise raised by:

- Submission 5, relating to traffic noise impact on organic farming and whether physical measurements of noise would be better than desktop modelling
- the EPA, relating to:
  - the referral of the CNVMP to the EPA
  - noise impacts on natural areas
  - adequacy of proposed EPRs to manage noisy works outside standard hours
  - the preparation of a detailed decommissioning plan.

Mr Adcock advised there were no specific assessment requirements or objective criteria which applied to noise levels from off-site construction traffic in Victoria. He considered a high level assessment was sufficient to conclude that construction traffic is unlikely to warrant dedicated noise mitigation measures, particularly given the short duration of any impacts.

Mr Adcock agreed with the EPA that it is not necessary for the EPA to be consulted in relation to the preparation of the CNVMP, noting the EPRs included a requirement for the CNVMP to be reviewed by an independent environmental auditor.

Mr Adcock considered that in protecting residents from noise, the natural noise environment would also be protected. When questioned by the IAC on noise impacts on natural areas, Mr Adcock stated he did not consider they required special consideration. He had only viewed the coastal area at the shore crossing as a natural area.

The EPA provided a detailed response (D66) to the proposed EPR NV02 relating to construction work outside of standard daytime hours. Mr Adcock's position was that NV02 did not need additional specifications as it already outlined a process for the justification, assessment and approval for works outside standard hours. He also noted NV02 requires EPA Publication 1834.1 to be addressed.

The EPA submitted that a dedicated EPR should be included for addressing noise and vibration from activities associated with decommissioning. Mr Adcock's evidence was this was unnecessary as EPR EM05 establishes appropriate obligations for the control of noise and vibration during the decommissioning stage of the Project.

Mr Adcock was asked by the IAC whether NV04 and NV05 relating to noise design and monitoring for the converter station should also include consideration of the low frequency noise guidelines, given NV02 and NV03 include consideration of low frequency noise. Mr Adcock agreed that it would be appropriate to include reference to EPA's low frequency noise guidelines in NV04 and NV05.

14.6 Discussion

The Environment Reference Standard defines natural areas as:

> … national parks, state parks, state forests, nature conservation reserves, wildlife reserves and environmentally significant areas and landscapes outside metropolitan Melbourne that are identified in a planning scheme.

Other than Waratah Bay, Mr Adcock had not considered whether areas along the cable alignment could potentially be classified as natural areas. While most of the cable alignment passes through agricultural land, part of the alignment passes through the Strzelecki State Forest, near a wildlife sanctuary at Darlimurla and an area in South Gippsland Shire Council with an Environmental Significance Overlay Schedule 1: Area of Natural Significance.

While the IAC accepts Mr Adcock's proposition that managing noise to acceptable levels at residential locations will largely protect natural areas as well, this may not always be the case. The IAC considers, as suggested by the EPA, that NV02 should include a requirement that all reasonable measures be taken to minimise noise impact on natural areas.

The IAC is satisfied that NV02 imposes requirements to develop a process for justifying and approving works occurring outside of normal working hours, and systematically evaluating noise control options to minimise impact. For each sensitive site, NV03 requires a detailed noise and vibration assessment to be reviewed by an independent environmental auditor prior to works commencing at that location. There is also a general requirement specified in NV02 and NV03 to address the requirements and guidance in EPA Publication 1834.1. This is sufficient to manage noise impacts to acceptable levels.

14.7 Findings and recommendations

The IAC finds:

- Technical Appendix T appropriately assessed noise impacts.
- To deliver improved environmental outcomes, and further reduce or mitigate noise impacts, the following EPRs need to be strengthened:
  - NV02, to include consideration of noise impact on natural areas
  - NV03 and NV05, to include consideration of EPA's low frequency noise guidelines.
- With the implementation of the IAC's recommended EPRs, the impacts of construction noise and vibration, including at the Waratah Bay shore crossing, will be acceptable.

The IAC recommends:

If the Marinus Link Project proceeds, amend the Environmental Performance Requirements as shown in Appendix E:1:

a) Amend requirement NV02 to include a requirement that the construction noise management plan include measures to minimise noise impacts in natural outdoor areas.

b) Amend requirements NV04 and NV05 to include consideration of low frequency noise impacts in the design and operation of the converter station and transition station (if required).

15 Air quality

15.1 Introduction

Air quality impacts are assessed in:

- EES Volume 4 Chapter 9 (Air Quality)
- Technical Appendix L (Air Quality Assessment of the Marinus Link – Victorian Component).

A Supplementary Report to Technical Appendix L was prepared in relation to the revised timing for Stage 2 (D45h).

Simon Welchman of Katestone Environmental was project director responsible for the preparation of Technical Appendix L and provided evidence on air quality effects (D42). He did not appear at the Hearing.

One other key document is:

- D66 – Letter from EPA to Proponent in response to revised EPRs and recommendations in submission.

15.2 The issues

The issues are whether:

- the Project's impacts on air quality have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved air quality outcomes.

15.3 What did the EES say?

The EES examined the potential air quality impacts associated with the construction, operation and decommissioning of the Project. The generation of dust from construction activities was identified as the primary impact on air quality and was the focus of Technical Appendix L. Dust management measures are described in the EPRs to mitigate any dust impacts. Overall, residual air quality risks associated with Project were considered negligible or low.

Construction impacts

Technical Appendix L assessed the potential risk of dust-related impacts due to the construction of the land cable trenches in categories of construction activity:

- earthworks
- construction
- trackout (the transport of dust and dirt from the construction site onto the public road network).

The potential impacts to air quality were assessed using the *Guidance on the assessment of dust generated from demolition and construction,* published by the Institute of Air Quality Management in 2014. The significance of any impact was based on air quality criteria set out in the Environment Reference Standard and based on the *National Environment Protection (Ambient Air Quality) Measure*, 2021.

Sensitive receivers within one kilometre of the land cable route alignment and converter station were identified with a focus on high sensitivity receivers in accordance with the Institute of Air Quality Management method. There are 245 residential receivers within 1 kilometre of the Project, 207 of which are within 350 metres of the land cable route alignment and access tracks.

Ecological habitats within 20 metres of the Project were also assessed as sensitive receivers. However, for ecological habitats to be impacted by dust, large volumes of dust deposition are required to reduce rates of photosynthesis and respiration. This level of dust deposition and build up was considered unlikely due to the high rainfall in the region.

Technical Appendix L noted the duration of works near individual receivers would be brief. It concluded that with the adoption of mitigation measures including a Construction Dust Management Plan (EPR AQ01), the land cable construction posed a low risk to residents and a negligible risk to ecological receivers.

Vehicle emissions

Gaseous air emissions produced by Project vehicles, such as carbon monoxide, nitrogen oxides, hydrocarbons, volatile organic compounds and sulphur dioxide, would be reduced by the adoption of best standard practices, outlined in EPR AQ02. Technical Appendix L concluded that these emissions posed no risk of significantly impacting sensitive receivers.

Operational impacts

The operation of the land cable and converter station is not expected to generate significant emissions to air due to the small-scale nature of operational works and the transient nature of those works. With the nearest resident located 375 metres from the Hazelwood converter station, operational and maintenance activities at the converter station were assessed as having a negligible impact on air quality.

Decommissioning

Decommissioning would be planned and carried out in accordance with regulatory requirements at the time. A decommissioning management plan in accordance with approvals conditions would be prepared prior to end of service and decommissioning of the Project.

The revised timing for Stage 2

The relevant Supplementary Report (D45h) concluded the changes to the timing of Stage 2 would not impact the conclusions or recommendations in Technical Appendix L. It identified that for some construction activities the impacts were unchanged, while for others the impacts may be lower resulting from a decrease in the intensity of construction and vehicle movement activity.

15.4 Relevant policy and guidelines

The IAC has had regard to relevant policy and guidelines, including:

- the EP Act, including the GED and the Environment Protection Regulations 2021
- the following EPA publications:
  - *Guideline for assessing nuisance dust* (EPA Publication 1943)
  - *Construction – Guide to preventing harm to people and the environment* (EPA Publication 1820)
  - EPA Publication 1834.1
  - *Guideline for assessing and minimising air pollution* (EPA Publication 1961).

15.5 Evidence and submissions

Mr Welchman's evidence statement (D42) adopted Technical Appendix L. His written statement responded to concerns about air quality impacts raised in submissions, including:

- Submitter 5, relating to potential impacts from traffic emissions on people, crops and water and organic farm certification
- EPA's proposal for the inclusion of a continuous improvement objective in EPR AQ01 (the dust management plan).

While acknowledging vehicle emissions can affect vegetation, Mr Welchman's evidence was that the exhaust emissions during construction and operation will be transient and insignificant. In relation to organic certification, his evidence was that dust and other contaminants generated by activities beyond the control of a farm were not a reason to deny or discontinue certification.

EPA's submission proposed alternative wording for EPR AQ1 to provide for the assessment of the effectiveness of air quality measures including providing for continuous improvement. Mr Welchman supported the inclusion of continuous improvement principles within EPR AQ01.

The Proponent included most of Mr Welchman's changes in its Day 1 version of AQ01, but did not support the inclusion of references to continuous improvement. It considered continuous improvement was addressed by Section 2.7 of the EMF (Evaluating compliance), the CEMP, the Environmental Management System required by EM01 and the GED.

15.6 Discussion

Air emissions were assessed using the framework contained in EPA Publication 1961. This guideline outlines a risk management approach that involves a repeating cycle of four steps: identifying hazards, assessing risks, implementing controls, and checking controls.

Emitters of air pollution have a responsibility under the GED to apply controls to eliminate or minimise risks to human health or the environment, so far as reasonably practicable. Consistent with the GED, the proposed EPRs accord with an 'all reasonable measures' approach. The EPRs reflect the preferred hierarchy of controlling hazards and risks set out in EPA Publication 1961.

The Project activities that have the potential to generate air pollution (including dust) are small scale over a large area. The risks associated with construction activities are well understood and the proposed mitigation measures are commonly used in the construction industry and are proven to be effective at minimising emissions. In most cases, other than the construction of the converter station, impacts at any particular location will be of a short duration. Dust impacts will be significantly less during winter or following rain events.

The focus of AQ01 is to develop and implement a Dust Management Plan. The framework of the plan is prescribed within AQ01 and must include:

- identifying sources of emissions
- dust containment measures that avoid or minimise impacts as far as practicable
- monitoring the effectiveness of those measures
- a review process to identify improvements.

The IAC supports Mr Welchman's proposed changes to AQ01, including those relating to continuous improvement. Continuous improvement is a cornerstone of an Environmental Management System conforming to AS/NZS ISO 14001:2016 *Environmental Management Systems*

– *Requirements with guidance for use* (or equivalent standard) as specified in EM01. Continuous improvement is one of the principles for well drafted EPRs (see Chapter 8). Further, EPR AQ01 already contains explicit commitments to implement continuous improvement of dust emissions and emission reduction.

AQ02 requires an OEMP to be developed and implemented, containing (among other things) measures to avoid or minimise air emissions from the converter station and from maintenance activities along the cable route, including vehicle emissions.

On the basis of the above, the IAC is satisfied that the Project's air emissions will not result in unacceptable outcomes for sensitive receivers including humans, flora and fauna.

15.7 Findings and recommendation

The IAC finds:

- Technical Appendix L appropriately assessed air quality impacts.
- EPR AQ01 should be amended consistent with Mr Welchman's recommendations, including his reference to continuous improvement.
- With these changes, the Project's impacts on air quality will be acceptable.

The IAC recommends:

If the Marinus Link Project proceeds, amend the Environmental Performance Requirements as shown in Appendix E:1:

a) Amend requirement AQ01 to include a reference to continuous improvement measures in the dust management plan.

16 Heritage

16.1 Introduction

Cultural heritage impacts are assessed in:

- EES Volume 3 Chapter 4 (Underwater cultural heritage)
- EES Volume 4 Chapter 13 (Aboriginal cultural heritage)
- EES Volume 4 Chapter 14 (Non-indigenous cultural heritage)
- Technical Appendix I (Underwater Cultural heritage and Archaeology Impact Assessment)
- Technical Appendix J (Aboriginal and Historical Cultural Heritage Technical Study – Victorian Component).

EES Volume 3 Chapter 4 and Technical Appendix I considered underwater heritage in Victorian, Tasmanian and Commonwealth waters. Consistent with the IAC's Terms of Reference, this Report only addresses underwater heritage in Victorian waters.

EES Volume 1 Chapter 8 (Community and stakeholder engagement) is also relevant, as it addresses consultation with the First Peoples Advisory Group in relation to impacts on Aboriginal cultural heritage.

Supplementary reports in relation to revised timing for Stage 2 were prepared for Technical Appendix I (D45f) and Technical Appendix J (D45g).

The following experts provided evidence for the Proponent on cultural heritage impacts:

- Michael Green of Eco Logical Australia on terrestrial (land based) heritage (D36)
- Cosmos Coroneos of Cosmos Archaeology on underwater heritage – this included both maritime heritage (shipwrecks and the like) and submerged Aboriginal cultural heritage (D27).

Mr Green was principal author of Technical Appendix J, and Mr Coroneos was principal author of Technical Appendix I. They both appeared at the Hearing.

Other key documents are:

- D4 – Letter from the Bunurong Land Council Aboriginal Corporation (BLCAC) to the IAC
- D5 – BLCAC – Marinus Link Cultural Values Assessment Recommendations
- D110 – Proponent Response to IAC's questions.

16.2 Relevant legislation, policy and guidelines

The IAC has had regard to relevant legislation, policy and guidelines, including the:

- *Australia ICOMOS Burra Charter for Places of Cultural Significance*, 2013
- *Aboriginal Heritage Act 2006* and Aboriginal Heritage Regulations 2018
- *Underwater Cultural Heritage Act 2018* (Cth)
- *Aboriginal and Torres Strait Islander Heritage Protection Act 1987* (Cth)
- *Gunaikurnai Whole-of-Country Plan*, Gunaikurnai Land and Waters Aboriginal Corporation (GLWAC), 2015
- Clause 15.03-2S Aboriginal cultural heritage of the Latrobe and South Gippsland Planning Schemes.

16.3 Aboriginal cultural heritage impacts

(i) The issues

The issues are whether:

- the Project's impacts on Aboriginal cultural heritage have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved Aboriginal cultural heritage outcomes.

(ii) What did the EES say?

Terrestrial (land based) Aboriginal cultural heritage

The EES stated that Aboriginal cultural heritage exists in the Project area, and the Project will have direct and indirect impacts on Aboriginal cultural heritage. Directly, ground disturbance and vegetation removal may impact of some of the identified sites. Indirectly, the Project may impact Aboriginal cultural values and other matters of importance to the Traditional Owners through site disturbance.

Technical Appendix J was informed by archaeological surveys which were based on predictive modelling of where Aboriginal cultural heritage was likely to be present. These were within a study area of 2.5 to 5 kilometres from the land cable alignment, including the 220 metre wide survey area along the proposed alignment (noting that the AoD is a narrower 20 to 36 metres wide corridor, with a wider area in some locations for associated works).

The archaeological surveys identified 28 Aboriginal cultural heritage sites within the survey area. This is in addition to the existing known 13 Aboriginal cultural heritage sites on the Victorian Aboriginal Heritage Register. Of these 13, not all could be located or inspected.

The EES described the sites as typically consisting of artefact scatters that were of moderate to low density distribution. Of the 28 new sites, one was an artefact scatter or ochre quarry, 10 were artefact scatters and 17 were low density artefact distributions. Technical Appendix J rated the 28 sites as moderate to low importance in archaeological assessment terms. Sites varied from a low of one artefact to a high of 101 artefacts and the condition of artefacts varied from poor to good.

There are three Traditional Owner groups in or near the area through which the Project traverses, all of which were members of a First Peoples Advisory Group established by the Proponent, including the GLWAC, BLCAC and the Boonwurrung Land and Sea Council.

The Traditional Owner groups participated in the archaeological surveys. They did not comment specifically on the significance of the 28 newly discovered sites, although in general terms, all sites are regarded as important.

Underwater (submerged) Aboriginal cultural heritage

The EES did not identify specific underwater Aboriginal cultural heritage sites within the jurisdiction of Victoria or across Bass Strait. The underwater surveying that informed Technical Appendix I identified potential landscapes that existed during the period when a land bridge existed between Victoria and Tasmania and may have been sites where human occupation was present. Testing during the underwater surveying showed that the last evidence of the land bridge was approximately 11,000 years ago. That landscape has since been covered by a significant layer of more recent marine sediments on the seabed which is deeper than the proposed 1 to 1.5 metre

depth of the underwater trenching for the cables. Any submerged landscapes are therefore unlikely to be disturbed by the cable laying.

The cultural heritage EPRs include:

- CH01, requiring the preparation of a historic heritage management plan which includes an unexpected finds protocol, artefact recognition, recording, management and retention arrangements, and cultural heritage awareness and induction
- CH02, requiring the implementation of and compliance with Cultural Heritage Management Plans during construction and operation[31]
- CH03, requiring working with First Peoples about intangible heritage values identified through completed Cultural Values Assessments, developing an understanding of terrestrial and underwater intangible values and incorporating that understanding in the two Cultural Heritage Management Plans.

The underwater cultural heritage EPRs include:

- UCH01, which requires magnetometer surveys to be undertaken and further geophysical surveys if the subsea cable alignment is revised
- UCH03, which requires research on the submerged beach ridge formations to assist in refining the Project design to minimise potential impacts on cultural heritage values within pre-inundation landscapes, and information about the beach ridge crossing points to be shared with First Peoples groups
- UCH04, which requires preparation of an underwater Cultural Heritage Management Plan, informed through consultation. The plan is to include an unexpected finds protocol, significant sites buffers, no anchor points and other recognition and recording protocols.

The Supplementary Reports indicated no change to Aboriginal cultural heritage impacts as a result of the revised timing of Stage 2.

(iii) Evidence and submissions

The EES did not comment on intangible heritage values as the Traditional Owners were still preparing Cultural Values Assessments. Since the EES was finalised, the IAC understands the BLCAC have completed a Cultural Values Assessment, and the GLWAC have started a Cultural Values Assessment that is not yet complete. The Proponent confirmed in D110 (item 34) that meetings have taken place with the Boonwurrung Land and Sea Council, but there is no draft Cultural Values Assessment at this stage.

Mr Green adopted Technical Appendix J as his evidence. His evidence was that South Gippsland is known to have extensive evidence of Aboriginal occupation, mostly through the presence of artefact scatters and to a lesser extent scarred trees, and shell middens on and near the coast. Mr Green's evidence was that these types of sites have been identified in many projects across South Gippsland and demonstrate a long and continuing occupation by Aboriginal people.

Mr Green referred to the 28 new sites discovered through the archaeological surveys undertaken to inform Technical Appendix J. He indicated that while each site was different in significance and condition, there was nothing exceptional or unusual about any of the sites.

[31] Drafts of these have already been prepared, with references 18201 and 18244.

Mr Green's evidence was that surveys have now been completed on roughly 44 per cent of the 220 metre wide survey area along the proposed cable route alignment. The intent is to survey as much of the land cable alignment as possible before construction in each sector commences, and more sites may be discovered as surveys continue. His evidence was that the unexpected finds protocols required under cultural heritage EPR CH01 would deal with newly discovered finds.

Mr Coroneos provided details in his evidence and expert presentation about the land bridge that existed between Victoria and Tasmania, and how it started to become submerged from about 11,000 years ago. Mr Coroneos outlined the methods of underwater surveying that identified the likely presence of a significant lake in the middle of the land bridge that would have supported the transit of people across what is now Bass Strait.

Mr Coroneos considered that it was highly improbable that specific underwater Aboriginal cultural heritage sites would be able to be identified now, due to the passage of time combined with effect of rising seas. He did however indicate that surveying had identified landscape features beneath the marine sediment layer that were typical of where evidence of Aboriginal occupation has been located on land. He confirmed that trenching to lay the subsea cables was unlikely to penetrate below recent marine sediments and disturb any archaeological sites which may still be present. Any artefacts in the sediment disturbed through trenching would be locally dislocated although he considered this would be a low magnitude impact.

Mr Coroneos noted the cultural heritage EPRs require further geophysical surveys before cable laying commences, and minimising potential impacts to submerged beach ridge landforms. He considered they provide appropriate mitigations to minimise impacts on underwater Aboriginal cultural heritage.

The BLCAC provided a copy of the recommendations from its Cultural Values Assessment to the IAC (D5). They relate to both terrestrial and underwater Aboriginal cultural heritage. The BLCAC recommendations focussed on further investigation of the geotechnical core samples and research of Bass Lake and involvement in any further cultural heritage work and research, economic opportunities and recognition.

The Proponent confirmed it would continue to work closely with the three Traditional Owner groups in the preparation of Cultural Heritage Management Plans and would consider completed Cultural Values Assessments during detailed design.

(iv) Discussion

The IAC acknowledges the extent of engagement undertaken to date with the three Traditional Owner groups to date, and considers the commitments to further engagement under the EPRs provide a level of comfort that engagement will continue, and appropriate cultural heritage considerations will be embedded into the Project moving forward.

South Gippsland is rich in Aboriginal cultural heritage. Written accounts of the early contacts between First Peoples and colonists shows a thriving way of life. Consequently, it is understandable that the construction footprint will inevitably intersect with sites of Aboriginal cultural heritage significance, particularly along dune systems and waterways.

This may result in the potential for disturbance in areas to be trenched and areas where HDD drill pads are to be constructed, some of which will likely be constructed within 200 metres of waterways (D110 item 35). Sites or artefacts of Aboriginal cultural heritage significance on the Bass Straight land bridge may also be potentially disturbed through trenching.

While the Project is unique in its purpose and approach, it is typical of projects in locations where Aboriginal heritage exists (or may exist). How it manages interactions with Aboriginal cultural heritage is no different to any other project in the South Gippsland area.

The cultural heritage EPRs adopt a standard approach of assessing impacts on terrestrial Aboriginal cultural heritage, which essentially defers to the Victorian Aboriginal heritage legislation and Cultural Heritage Management Plans to regulate the detailed management of Aboriginal cultural heritage. The IAC supports this approach.

The IAC is satisfied that potential impacts on underwater cultural heritage will be limited given the extent of subsequent sedimentation on the former land crossing. Any impacts will be appropriately avoided or mitigated through the underwater cultural heritage EPRs, in particular EPRs UCH03 and UCH04.

(v) Findings

The IAC finds:

- The Project design appropriately avoids and minimises impacts on terrestrial and underwater Aboriginal cultural heritage.
- Impacts on Aboriginal cultural heritage can be acceptably managed.
- No further design modifications or changes to the EPRs are necessary to ensure acceptable Aboriginal cultural heritage outcomes.

16.4 Non-Aboriginal heritage impacts

(i) The issues

The issues are whether:

- the Project's impacts on non-Aboriginal heritage have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved non-Aboriginal heritage outcomes.

(ii) What did the EES say?

Maritime heritage

EES Volume 3 Chapter 4 stated Waratah Bay is of state significance and is listed on the Victorian Heritage Register and by the National Trust. It housed limestone mining and shipping activities from the late 1800s to around World War I.

EES Volume 3 Chapter 4 and Technical Appendix I assessed three types of maritime heritage sites in Victorian waters:

- shipwrecks
- sea dumping sites and vessel discard (items lost overboard)
- geophysical anomalies on the seabed, which can indicate the presence of a shipwreck.

Shipwrecks were considered to be of medium to high historical significance. Shipwreck discoveries are rare in Bass Straight, and can contribute to the understanding of historical waterborne activities and traditions. Sea dumping sites and vessel discard are generally considered of low historical significance, as they can consist of rubbish and are common across Bass Straight.

The EES defined the whole of Waratah Bay as a potential shipwreck area. The desktop review indicated six shipwrecks could be present within 5 kilometres of the Project alignment, although the location of shipwrecks is highly uncertain due to vague descriptions in historical resources and the potential for wreckage to drift. Unreported shipwrecks may also be present.

Only one geophysical anomaly was found within 200 metres of the cable alignment in Victorian waters, which is thought to be a natural feature. Pre cable lay surveys will allow visual inspection of any geophysical anomalies that could be directly impacted by the Project, and the subsea cable could likely be micro sited to avoid any maritime heritage discovered as part of the pre cable lay surveys.

Technical Appendix I concluded that it is highly improbable that any potential maritime heritage site, including shipwrecks, in Victorian waters will be impacted by construction or operation of the Project.

Underwater cultural heritage EPRs include:

- UHC01, requiring a magnetometer survey for the final alignment of the Victorian shore crossing and additional geophysical surveys if the alignment is revised to be outside the study area
- UCH02, requiring unverified seabed anomalies identified through the geophysical survey to be avoided
- UCH03, requiring impacts to submerged beach ridge landforms to be minimised
- UCH04, requiring an underwater cultural heritage management plan to be implemented to manage (among other things) unexpected finds.

Residual impacts on maritime cultural heritage were assessed as low or no impact.

Terrestrial (land based) non-Aboriginal heritage

Technical Appendix J explained that around 44 percent of the survey area was able to accessed and surveyed for potential non-Aboriginal heritage. Only one location was identified, namely a brick cistern likely used for water storage in a paddock near the township of Buffalo. The cistern was likely constructed in association with a homestead that is no longer there (it is believed to have been relocated from the original site to a parcel of land closer to the coast).

Having regard to the Burra Charter criteria, the cistern was considered to have low historical significance as it was not associate with any particular historical event, person or theme. It has high scientific significance due to its relatively good condition, and low social or spiritual significance.

The cistern is not located within the AoD, but there is a potential for impacts from construction because it is located only 50 metres from the edge of the construction zone. Technical Appendix J concluded impacts could be successfully mitigated through EPR CH01, which requires a Historic Heritage Management Plan that includes (among other things) requirements to:

- set up a barrier to protect the cistern site from direct impacts (with a suitable buffer)
- monitor for potential vibration impacts during construction activities to protect against indirect impacts
- train contractors and employees working in the vicinity of the site of the protection strategy for the cistern.

The Historic Heritage Management Plan will also include a protocol for managing unexpected finds, including any archaeological features associated with the brick cistern or any newly

discovered non-Aboriginal heritage along the land cable route alignment, and measures to protect historically significant items during the Project's operational phase.

The Supplementary Reports indicated no change to non-Aboriginal heritage impacts (maritime or terrestrial) as a result of the revised timing of Stage 2.

(iii) Evidence and submissions

Mr Coroneos and Mr Green adopted Technical Appendices I and J as their evidence in relation to impacts on maritime heritage and terrestrial non-Aboriginal heritage.

No submissions were made in relation to non-Aboriginal heritage impacts.

In terms of underwater maritime heritage, Mr Coroneos said:

> It is my opinion that no known underwater cultural heritage sites are to be impacted by the proposed works. There is a likelihood that underwater cultural heritage sites that could not be identified with the existing technology may be impacted by the proposed works. Through the implementation of the proposed Environmental Performance Requirements (EPRs) specific to underwater cultural heritage the predicted residual impacts would range from Nil to Low.

Mr Coroneos gave evidence that there are a number of unidentified seabed anomalies within the seabed cable alignment. He considered it "*almost impossible*" that undiscovered shipwrecks will be impacted by the proposed works, but if this were to occur, impacts can be successfully managed through the exhibited underwater cultural heritage EPRs, specifically:

- further magnetometer surveys, dive inspections and visual inspections required before the subsea cable lay run (all required under EPR UCH01)
- underwater cultural heritage plan required under EPR UCH04, which would include (among other things) contractor inductions, artefact identification, notification and stop work protocols and artefact and site recording standards.

Mr Green's evidence was that impacts to the brick cistern are avoided and minimised through the land cable route alignment avoiding the cistern (EPR CH01), and that any unexpected historic heritage finds would be appropriately managed through the Historic Heritage Management Plan (EPR CH02). Mr Green considered the exhibited cultural heritage EPRs to be appropriate.

(iv) Discussion

On the basis of Technical Appendices I and J and the evidence of Mr Coroneos and Mr Green, the IAC is satisfied that impacts on non-Aboriginal heritage (both maritime and terrestrial) are minimal and can be appropriately managed through the EPRs.

(v) Findings

The IAC finds:

- The Project design appropriately avoids and minimises impacts on non-Aboriginal heritage (both maritime and terrestrial).
- Impacts on non-Aboriginal heritage can be acceptably managed.
- No further design modifications or changes to the EPRs are necessary to ensure acceptable non-Aboriginal heritage outcomes can be delivered.

17 Land use, social and economic impacts

17.1 Introduction

Land use, social and economic impacts are assessed in:

- EES Volume 1 Chapter 7 (Economics)
- EES Volume 4 Chapter 6 (Agriculture and forestry)
- EES Volume 4 Chapter 15 (Land use and planning)
- EES Volume 4 Chapter 16 (Social)
- Technical Appendix B (Economics)
- Technical Appendix K (Agriculture and forestry technical report)
- Technical Appendix S (Land Use and Planning Impact Assessment Report)
- Technical Appendix U (Victorian Social Impact Assessment).

EES Attachment 3 (Draft Planning Scheme Amendment: Strategic Assessment Report) is also relevant.

The following Supplementary Reports were prepared in relation to the revised timing for Stage 2:

- Supplementary Report to Technical Appendix B (D45u)
- Supplementary Report to Technical Appendix K (D45s)
- Supplementary Report to Technical Appendix S (D45n).

No Supplementary Report was prepared for Technical Appendix U.

Table 10 lists the experts providing evidence on land use, social and economic effects.

Table 10 Evidence on land use, social and business impacts

Party	Expert	Firm	Area of expertise
Proponent	Alisanne Boag (D25)	Beveridge Williams	Land use and planning
Proponent	Nicole Sommerville (D39)	Tetra Tech Coffey	Social impact
Proponent	David Schwartz (D30)	SGS Economics and Planning	Economics
Proponent	Craig Mickle (D50)	Ernst & Young	Economics
Proponent	John Gallienne (D51)	John Gallienne & Co	Agriculture and Forestry
HVP	Andrew Morton (D56)	Indufor Asia Pacific (Australia)	Forestry

The role of the Proponent's experts was:

- Ms Boag was principal author of Technical Appendix S, and prepared the draft PSA
- Mr Sommerville undertook a peer review of Technical Appendix U
- Mr Schwartz was principal author of Technical Appendix B
- Mr Mickle undertook a peer review of Technical Appendix B
- Mr Gallienne was principal author of Technical Appendix K.

All witnesses appeared at the Hearing except Mr Schwartz.

17.2 Relevant policy and guidelines

The IAC has had regard to relevant legislation, policy, planning provisions and guidelines, including the:

- PE Act
- Planning Policy Framework and particular provisions of the Latrobe and South Gippsland Planning Schemes including:
  - Clauses 14.01-1S (Protection of agricultural land), 14.01-3S (Forestry and timber production), 15 (Built environment and heritage) and 19 (Infrastructure)
  - Clauses 02.03-2 (Environmental and landscape values), 02.03-4 (Natural resource management), 15.01-1L-01 (Urban design), 19.01-2L (Alternative energy sources) of the South Gippsland Planning Scheme
  - Clauses 02.03-3 (Environmental risks and amenity), 02.03-4 (Natural resource management), 14.01-1L (Protection of agricultural land), 14.01-3L (Forestry and timber production) of the Latrobe Planning Scheme
  - zone and overlay provisions in both schemes
  - Clause 71.02 (Integrated decision making)
- *Gippsland Regional Growth Plan 2020-2025*
- *Victoria's Regional Statement 2015*
- *Victorian Forestry Plan,* Victorian State Government, 2021
- *Strong, Innovative, Sustainable: A new strategy for agriculture in Victoria 2020*
- *Victoria's Infrastructure Strategy 2021-2051*
- *South Gippsland Economic Development Strategy 2021-2031*
- *Latrobe City Council Economic Development Strategy 2016-2020*
- *South Gippsland Rural Land Use Strategy 2011*
- Code of Practice for Timber Production.

There are no current guidelines applying to social impact assessments in Victoria. The Social Impact Assessment was informed by the International Association for Impact Assessment's *Social Impact Assessment: Guidance for Assessing and Managing the Social Impacts of Projects,* and social impact assessment guidelines from NSW and Queensland.

In assessing the Project's social impacts the IAC had regard to the:

- International Association for Public Participation principles
- *National guidelines – Community engagement and benefits for electricity transmission projects* (Commonwealth Department of Climate Change, Energy, Environment and Water).

17.3 Land use planning impacts

(i) The issues

The issues are whether:

- the Project's impacts on land use in the surrounding area have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved land use outcomes.

Agriculture and forestry issues are addressed in Chapter 17.4.

(ii) What did the EES say?

Technical Appendix S (the Land Use and Planning Impact Assessment Report) identified that:

- 308 land parcels are located within the Project survey area
- 263 parcels are located within the proposed easement, of which:
  - 104 are Crown land (which includes land licensed to HVP) and government roads
  - 159 are freehold parcels in 90 different ownerships (including land owned by HVP).

Technical Appendix S provided an overview of:

- prevailing land uses within the study area
- relevant state and regional policies and strategies
- relevant land use, land use character, built form and strategic policy directives of the Latrobe and South Gippsland Planning Schemes
- zones, overlays and particular provisions that include planning permit requirements and assessment considerations for the Project (were the Incorporated Document not applied)
- current amendments and major development proposals that could impact on or be impacted by the Project (including the Hazelwood Rehabilitation Project, Star of the South Offshore Wind Farm, Delburn Wind Farm and the Gippsland Renewable Energy Zone declaration).

Prevailing land uses in the study area are agriculture (including grazing, dairying and cropping), timber production and State Forest. Some commercial, rural living, tourism and utility land uses are also present.

Technical Appendix S concluded the Project would not result in any significant inconsistency with planning policy or require any broad change of land use within the Project area. It would not result in unacceptable or long term impacts to existing land use or diminish the long term vision for land use planning and settlement growth in the broader Gippsland region. It concluded the Project:

- supports State, regional and local land use objectives for efficient energy supply
- appropriately balances policy objectives relating to energy with those relating to the protection of productive agricultural land and timber and forestry production
- responds appropriately to the environmental constraints outlined in the planning schemes, including significant coastal views and vistas and tourism values.

The assessment concluded that direct property impacts would generally be localised and site specific. Most impacts relate to construction and would be temporary and short term. Construction impacts (such as inconvenienced movement within and around properties, impacts to amenity, and potential disruptions to utility services) could generally be appropriately managed through the CEMP. Altered ground surface conditions will be largely temporary, and land and infrastructure will be returned to its pre-construction condition. Agricultural land would generally be restored to productive condition, and natural environments will be rehabilitated post construction.

Technical Appendix S concluded residual land use impacts would be low to very low with the application of the land use and planning EPRs:

- LUP01 – Minimise land use impacts through design, including the footprint of the Project
- LUP02 – Minimise disruption due to property and impacts from easement acquisition including engaging with landowners to negotiate property access for construction and ongoing maintenance

- LUP03 – Minimise land use impacts during and post construction, including through consideration of the construction footprint, temporary land use impacts, disturbance of existing ongoing existing land use, and reinstating land and access
- LUP04 – Avoid and minimise impact on services and utilities.

The Supplementary Report (D45n) concluded the changes to the timing of Stage 2 would not impact the conclusions or recommendations in Technical Appendix S.

(iii) Evidence and submissions

Ms Boag, the author of Technical Appendix S, adopted the Technical Appendix as her evidence in relation to general land use planning impacts. She responded to concerns about land use planning raised by:

- Submitter 11, who considered the Project would impact on the achievement of a proposed policy to support the protection of a Strzelecki-Alpine biolink
- Submitter 20, who considered the northern end of the Project could be located within a potential zone declared for nuclear activity
- Submitter 25, who identified potential for cumulative impacts associated with the Project and future energy projects near the Hazelwood converter station, and raised concerns the Project could limit potential connections across the proposed easement
- Delburn Wind Farm, who identified concerns about potential impacts on its approved (but not yet constructed) wind farm located within the HVP Thorpdale plantation.

Ms Boag acknowledged the Latrobe Planning Scheme recognises and seeks to facilitate the Strzelecki-Alpine Biolink in various policies and in Clause 74.02 (Further strategic work).[32] However, there are no planning controls or plans in place at this stage and there is no provision for the biolink in the South Gippsland Planning Scheme. Ms Boag considered that land use and planning EPR LUP01 would ensure any relevant strategic land use plans (including any future biolink plans) would be appropriately considered in the final Alignment Plans for the Project.

Ms Boag said the Project is consistent with Clause 02.03-7 of the Latrobe Planning Scheme which supports renewable energy and encourages alternative energy industries in locations convenient to existing energy distribution infrastructure. Her evidence was planning policy does not currently address the establishment of a nuclear energy facility in the Latrobe Valley. However, there is no reason why the Project could not co-exist with any alternative power generation facilities, including nuclear generation, in region. She considered EPR LUP01 could accommodate any potential design conflicts with other projects.

Delburn Wind Farm (S19) identified potential impacts on the approved 205MW Delburn Wind Farm which is anticipated to commence in the first half of 2025. While supportive of the Project and acknowledging the level of engagement with the Proponent to date, Delburn Wind Farm identified there were no agreed lease arrangements in place to manage cable crossings, the use of roads, lease footprint overlaps, access and construction timing overlaps. It sought resolution of interfaces with:

- the land cable trenches, to ensure a minimum 5 metre separation from the wind farm cables to minimise heat impacts and to ensure an appropriate construction method including for any cable crossings and on new or upgraded access tracks

[32] The biolink is recognised and referred to in Clause 12.01-1L, the Rural Framework Plan in Clause 02.04 and in Clause 74.02.

- the proposed wind farm site operations centre and construction compound, which is potentially impacted by a Project laydown area including its bushfire separation requirements
- a tree on Smiths Road near the Strzelecki Highway, which is proposed to be retained by Delburn Wind Farm but is potentially impacted by the Project to facilitate construction vehicle access.

In response, the Proponent indicated further consultation in relation to the preparation of PMPs and the Alignment Plans will allow the Project footprint, including the location of laydown areas, to be refined to avoid impacts on Delburn Wind Farm assets. The Proponent supported the retention of the tree based on the evidence of Mr Garden that impacts on the tree could be avoided through detailed access design.

(iv) Discussion

The Project has minimal interface with settlements, rural living areas and tourist land uses. There is no apparent impact on the achievement of planning policies relating to the growth or development of nearby towns, or the establishment of tourism activities.

Clause 19.01-1S (Energy supply) seeks to facilitate development of energy supply infrastructure with consideration given to any significant impacts on major utilities. In the IAC's view, the Project appropriately maximises the use of a major energy transmission facility (namely the Hazelwood Terminal Station and connecting high voltage transmission infrastructure), and enhances its strategic importance as an energy hub for the State. Impacts on significant existing energy infrastructure in the area, including the Hazelwood Terminal Station and the AusNet 500 kilovolt network extending through the HVP Thorpdale plantation, can be appropriately mitigated through the proposed EPRs including LUP04.

There is strong policy support at both the state and local level supporting renewable energy projects, including Clauses 19.01-1S and 19.01-2S (Renewable energy). While not a renewable energy project, the Project facilitates a greater proportion of renewable energy in the Victorian grid and the NEM. There is no planning policy relating to nuclear energy, and there is no planning reason why the Project should not be able to co-exist with a range of energy production activities, including nuclear generation.

The Latrobe Planning Scheme identifies the Strzelecki-Alpine Biolink extending from Yallourn North to Boolarra and west of Yallourn and Yinnar/Yinnar South. The Project extends though the southern portion of the biolink, which intersects with the HVP Thorpdale plantation. Clause 12.01-1L of the Latrobe Planning Scheme supports the creation of the biolink and rural landholders achieving a target of 30 per cent native vegetation cover within their properties. Clause 14.01-3L supports plantation forestry opportunities within the biolink. The Project's design approach to utilise existing forestry roads within the biolink area and minimise vegetation impact and loss will ensure that the strategy for a biolink is not compromised by construction or ongoing operation.

The land cable alignment is co-located with around 7 kilometres of access tracks proposed for the Delburn Wind Farm. It is encouraging to see that the Proponent has been working closely with the wind farm to resolve potential project conflicts. This was apparent in the Proponent's Project Overview which identified the proposed construction corridor adjacent to the wind farm's proposed access routes and export cables, including a minimum 5 metre separation between the two project cables.

It is likely construction of the wind farm will be well advanced by the time works are underway for the cable trenches. The land use and planning EPRs (along with other EPRs relating to the preparation of PMPs and stakeholder engagement) provide appropriate mechanisms to address the concerns identified by Delburn Wind Farm. This includes adjustments through detailed design to the laydown area and the retention of the identified significant tree. The finalisation of easement arrangements and lease negotiations is likely to resolve other Project overlap considerations.

In terms of impacts on other future projects in the area, the IAC does not consider it is reasonable to expect the EPRs to respond to impacts on, or the cumulative impacts of, theoretical projects or projects that are at an early pre-planning stage. The land use EPRs provide an appropriate basis for discussions with future stakeholders should any such proposals become more advanced. The appropriate time to consider cumulative impacts of the Project and other potential future projects is when approvals are sought for any such future project.

The IAC is confident the land use and planning EPRs will work in tandem with PMPs to ensure that impacts on existing land uses are minimised or mitigated to an acceptable level.

(v) Findings

The IAC finds:

- The Project will have minimal impacts on land use and land use planning including for settlements, tourism, major infrastructure, energy production and transmission and the creation of the Strzelecki-Alpine Biolink.
- Implementation of the land use and planning EPRs will ensure any potential land use and planning impacts are acceptably managed.
- No further design modifications or changes to the EPRs are necessary to ensure acceptable land use planning outcomes.

17.4 Impacts on forestry and agriculture

(i) The issues

The issues are whether:

- the Project's impacts on forestry and agriculture have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved outcomes for surrounding forestry and agricultural operations.

(ii) What did the EES say?

Technical Appendix K (agriculture and forestry technical report) identified potential impacts of the Project on agricultural values including:

- reduced amenity or productivity resulting from disturbance and dust emission and deposition during construction
- ongoing impacts from degraded soil structure, loss of soil moisture content or biosecurity risks including the spread of pathogens or weeds
- reduced production resulting from changes to agricultural practices by virtue of the restrictions in the easement (for example, no structures or deep rooted planting)

- reduced farm income due to constraints on farm development plans.

Key impacts on forestry included:

- temporary restrictions on plantation access and harvesting during construction
- ongoing loss of wood stock from the permanent clearing of trees or pre-mature harvesting of trees within the easement
- the potential for introduced diseases (plant pathogens such as Phytophthora cinnamomi)
- restrictions on plantation harvesting practices caused by the presence of Project infrastructure.

Table 4-1 in Technical Appendix K, extracted in Figure 6, sets out the proposed restrictions in the easement. These include restrictions on deep rooted planting and restrictions on heavy machinery that will impact agricultural and forestry activities throughout the life of the Project.

Figure 6 Proposed easement use restrictions

Permitted	Conditional	Prohibited
Cropping (ploughing/tilling to a depth of 0.5 m)	Cropping (ploughing/tilling to a depth of 0.7 m)	Cropping (ploughing/tilling greater than a depth of 0.7 m)
Grazing	Boring for groundwater or fence posts	Planting deep-rooted trees (greater than 0.5 m)
Irrigation	Fixed centre pivot irrigation (due to the depth of foundations required for a fixed centre pivot)	Building a dam
Most domestic recreational activities	Installing driveways	Reducing or increasing ground level
Minor structures e.g., washing lines or play equipment (subject to depth limits for objects inserted into the ground)	Building temporary/light structures e.g., shelters	Constructing houses or substantial structures
Planting a garden (access may be required in the unlikely event of a cable fault)	Planning subdivisions	Storing or using explosives
Parking vehicles (height/weight restrictions may apply)	Using electric fences	Installing fixed plant or equipment e.g., galvanised sheds or swimming pools
Driving vehicles	Excavation or earthworks	Placing or storing garbage, hay, silage or fallen timber
Electronic ear tags on stock	Constructing utility services whether overhead, buried or on the surface e.g., telephone, data and water	Storing or using flammable materials. Lighting fires

Source: Technical Appendix K Table 4-1

Technical Appendix K rated impacts on agriculture and forestry as 'high' to 'major' without the application of the agriculture EPRs, which include:

- A01, which requires property condition surveys prior to construction including details of crops, fencing and other farm infrastructure, shelter and wind breaks, access tracks and the like
- A02, which requires PMPs to outline specific measures for each property to avoid or minimise disruption to farming and forestry practices and operations

- A03, which requires property soil management plans
- A04, which requires a rehabilitation strategy
- A05, which requires measures to avoid or minimise impacts on agricultural and forestry properties during operation.

After the application of the EPRs, residual impacts were reduced to 'low' to 'moderate' in the construction phase, and 'low' to 'very low' in the operation phase. Depending on the success of reinstatement and rehabilitation after construction, residual impacts from construction on land capability for agricultural production would be short term. The easement will place ongoing restrictions on the use of land within the easement.

The Supplementary Report (D45s) concluded the changes to the timing of Stage 2 would not impact the conclusions or recommendations in Technical Appendix K. It noted the PMPs will need to be continually updated through the life of the Project to take account of potential changes in land ownership, agricultural land use and farm management practices over time.

(iii) Joint expert meeting on forestry

The IAC directed Mr Gallienne and Mr Morton to meet before the Hearing and produce a statement of agreed opinions and facts with a focus on:

- any drafting changes to the EPRs relating to forestry (A01, A02, A03, A04 and A06)
- any changes to the easement use restrictions identified in Figure 6 relating to forestry plantation practices.

Mr Darras also participated in the meeting given his geotechnical evidence covered issues relating to the operation of forestry machinery, vehicle movements and log storage within the easement.

The experts had the Day 1 EPRs available for their meeting.

The experts provided a joint statement dated 22 September 2024 (D82). The experts agreed:

- the Day 1 agriculture EPRs lacked context and were generally not couched in forestry specific terms
- the Proponent should engage a forestry expert to participate in a workshop to draft standalone forestry EPRs
- EPR A03 should be amended to change the subsoil compacting rate from 85 per cent to 90 per cent to minimise slumping and erosion
- EPR A06 should be amended to reference soil borne diseases as part of biosecurity controls
- the easement land use restrictions (Figure 6) should be further reviewed and redrafted through a joint workshop involving agricultural, forestry and geotechnical experts to:
  - clarify 'cropping' easement restrictions
  - refine easement use arrangements to provide greater guidance on subsurface activities required for road repair and drainage works, cable location identification, infrastructure protection and safe work practices
  - develop protocols in relation to the proposed prohibition of ground level changes
  - clarify the vehicle types and uses permitted within the easement
  - clarify restrictions on the storage of timber within the easement
- a road monitoring program should be developed to inform crossing points for forestry vehicles and maintenance requirements.

Some, but not all, these changes were incorporated into the Proponent's Day 2 version. In particular, the Proponent did not accept that a set of standalone forestry EPRs is required.

The Proponent's Day 2 version of the easement restrictions (D140a) acknowledged that:

- forestry vehicles could be parked within the parts of the easement that are not directly above the cables or joint pits
- forestry vehicles to a certain tonnage and vehicle type were automatically allowed within the easement, and vehicles over the permitted weight and type were conditionally allowed
- forestry log landing areas were permitted in locations not directly above the cables or joint pits, and conditionally permitted over cables (but not joint pits)
- the restrictions on 'Excavation and earthworks' and 'Reducing or increasing the ground level' do not apply to wheel ruts
- sub-surface activities including modification to or installation of surface water V drains to 400 millimetres below surface level were permitted.

(iv) Evidence and submissions

Forestry

Mr Gallienne adopted Technical Appendix K as his evidence. He acknowledged the Project will affect forestry production and that it was important to manage:

- biosecurity impacts including from soil pathogens through wash down facilities and restrictions on vehicle movements
- erosion, which could be managed through EPRs A02, A03, SW01 and SW02

He also considered the route design principles in EPR A02 will be important in managing impacts to forestry practices.

Ms Boag's evidence was that the effects of land severance by trench construction and the easement and loss of timber production on the easement could be addressed through PMPs and compensation for the easement.

Mr Morton gave an overview of HVP's Gippsland plantations saying:[33]

> HVP is the dominant plantation owner in Gippsland, and the estate is an essential resource underpinning much of the timber industry in the region. This includes a medium sized softwood sawmilling business and the largest pulp and paper producer in Australia, who collectively have than 800 employees. In turn the logs grown in the HVP Gippsland estate provide Australian consumers with a range of consumer products such as structural timber for housing, non-structural timber used in uses such as landscaping, fencing and decking, as well as being used in a wide range of packaging products. HVP currently supplies over 1,000,000 [cubic metres of] of logs annually to these industries in the Gippsland region.

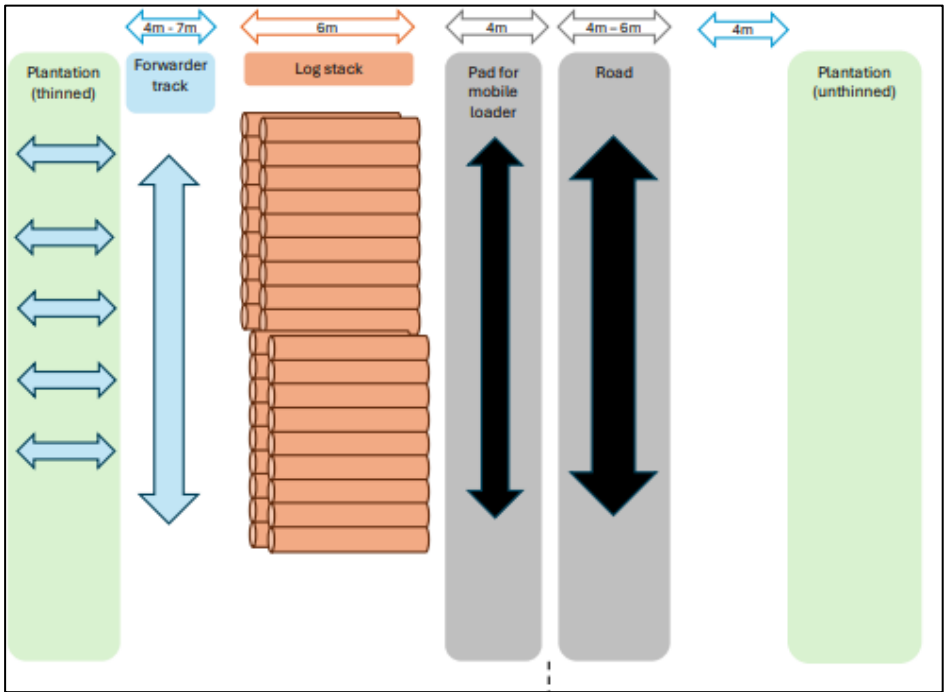
Mr Morton observed the Project intersected with around 41 hectares of HVP plantations over a 20 kilometre section of the land cable alignment. The plantation covers about 20 per cent of the total AoD.

Mr Morton's evidence provided details of typical plantation activities and the types (and weights) of machinery used for various forestry activities, as well as log storage areas which are typically

[33] Document 56

located every 300 metres along haulage routes. He provided details of the widths and areas required for these tasks (see Figure 7).

Figure 7 Typical widths for plantation log storage area and loading



Source: Morton evidence Figure 13 (D56)

Mr Morton considered Technical Appendix K would have benefited from oversight from a forestry specialist. He identified several impacts of the land cable alignment through the plantation that had not been specifically addressed, including:

- 'windthrow' effects on newly created edge trees
- the creation of suboptimal sliver areas, which he considered increased the fire risk
- the risk of pathogens being introduced through construction.

In addition to lost production of semi mature trees in the 36 metre wide construction corridor, Mr Morton concluded the Project would permanently impact on the productivity of the HVP plantation assets and would introduce additional management costs to HVP. He considered the easement restrictions were ambiguous and created uncertainty, and did not accommodate common forestry practices. He recommended the agriculture EPRs and easement restrictions be amended to:

- include definitions regarding easement corridor land uses
- include specifications regarding vehicle type, and related forest industry practice in respect to use of the easement corridor
- clarify proposed tree protection zone dimensions and permitted activities within tree protection zones
- include forestry specific EPRs, including a requirement for a Forestry Property Management Plan and a Forestry Land Rehabilitation Plan
- minimise the creation of forestry land slivers.

HVP provided a detailed submission (D112) which set out the potential impacts of the Project on HVP's Thorpdale plantation. It was critical about the lack of site-specific assessment and detailed

consultation with HVP and what it described as the generic nature of the EPRs that were not drafted with the benefit of specific forestry expertise.

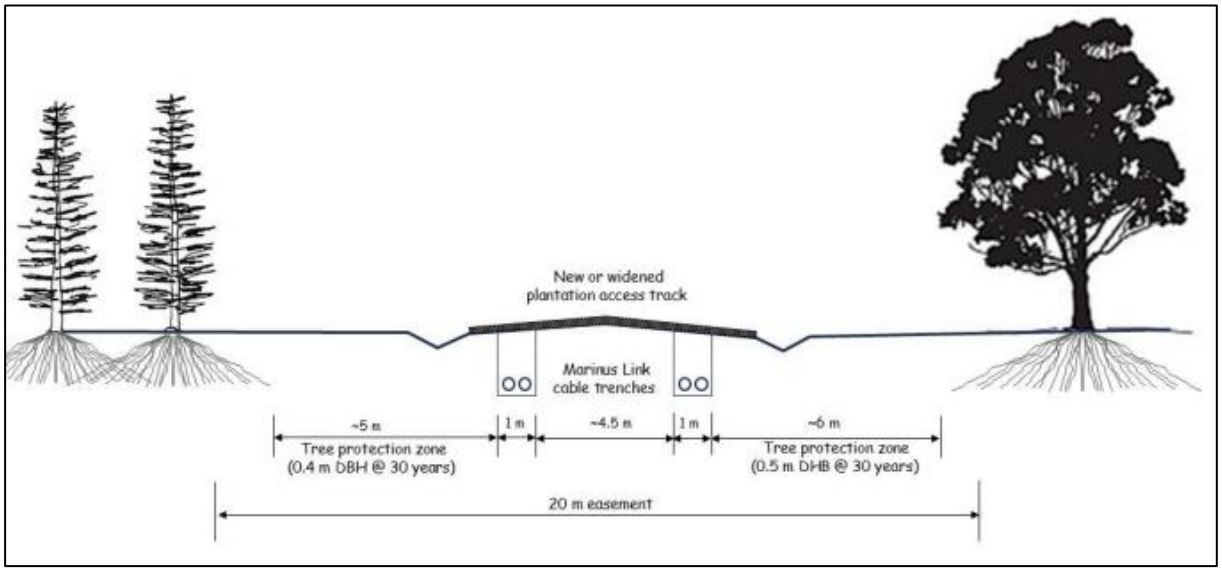
HVP submitted it was essential the EPRs be revised to provide greater clarity, include a sufficient level of guidance and specificity, and ensure the EPRs are enforceable and auditable. Examples included acknowledging HVP's specific maintenance responsibilities, firefighting resources and various policies, protocols and guidelines in relation to vehicle movements. It also set out its expectations about the preferred alignment and construction/reinstatement outcomes.

HVP provided its preferred version of the agriculture EPRs (D106) based on the Proponent's Day 1 version to address its concerns, including changes recommended by Mr Morton.

The Proponent responded that various measures would be applied (and were already provided for in the proposed land cable alignment and/or the Day 1 EPRs) to minimise impacts on plantation coupes and trees where possible or practicable, including:

- co-locating with existing access roads and tracks
- reducing the construction corridor to:
  - 20 metres (inclusive of a plantation and native vegetation tree protection zone) in coupes as shown in Figure 8
  - 36 metres in strategic firebreaks
- narrowing the construction zone for waterway crossings or through native vegetation
- co-locating with haul roads proposed to be used by the Delburn Wind Farm
- co-locating with the SP Ausnet easement for the 500 kilovolt transmission lines that traverse the plantation
- trench backfilling to allow unrestricted access by heavy forestry harvesting machinery and haulage vehicles.

Figure 8 Typical construction corridor adjacent to HVP plantation estates



Source: Proponent Project overview presentation (D72)

HVP was not satisfied with the Proponent's Day 1 or Day 2 versions of the EPRs or the updated easement restrictions (D140a). It provided further revisions to the Proponent's Day 2 versions (D155) and (D156).

Agriculture

South Gippsland Shire Council's submission identified the municipality contains some of the most productive land in Australia including around 400 dairy farms, one of the highest concentrations in Australia and an important part of the national economy. It supported the creation of renewable energy projects but sought outcomes which minimised impacts on hosting communities.

Mr Gallienne considered that agricultural impacts would be localised and site specific and would not result in unacceptable or long-term impacts to existing agricultural practices in the area, or the long-term vision for agricultural land use planning in the broader Gippsland region. He considered any impacts were manageable through the proposed agriculture EPRs which included developing PMPs in consultation with landholders to manage the day to day running of farms and address specific property issues and requirements. This included the ability to accommodate revegetation, support offset planting and manage impacts on domestic and stock water supply and access.

Ms Boag's evidence was the effects of land severance from trench construction and the easement could be significant on intensive agriculture and crop values. However, these operational impacts could be addressed through PMPs including arrangements for easement crossing by stock and machinery, and aligning the easement close to existing boundaries and fences.

Mr Sweeney's groundwater evidence identified potential impacts on groundwater that could impact agricultural activities, including on bores, spring-fed dams and from soil acidification. He was satisfied these impacts could be mitigated through the Day 1 groundwater EPRs.

Submitter 5 identified concerns about impacts of the Project (through traffic movement, noise and air emissions) on organic farm certification. Consistent with Mr Welchman's evidence discussed in Chapter 15, Mr Gallienne responded that he had not been able to identify any studies that indicated truck exhaust pollution had negative impacts on grazing, crops or horticulture including on organic certification. He noted the organic farm in question was some 2 kilometres from the cable route alignment and was unlikely to be directly impacted by truck movements associated with the Project.

Submitter 12 was concerned about the impacts of the cable alignment which extends through her family's property in Darlimurla, with potential impacts on:

- the utilisation of the flatter and more productive portions of the relatively small property for farming or planting orchards
- stock movement and location of fencing
- the potential for land slip given the presence of basalt and crab holes
- domestic water supply and stock watering from a spring fed dam and Little Morwell River including from potential erosion, contamination or interruption of spring/river flow
- the ability for reforestation of the site given easement planting restrictions
- future use the property for a tourist use or second dwelling.

Submitter 12 proposed an alternative route that only extended through the southern portion of their property and then traversed northwards through an adjoining plantation and access track owned by the (government owned) Victorian Plantation Corporation.

Submitter 25 identified food security and loss of agricultural land as a cumulative impact of the Project and other renewable energy infrastructure including wind farms.

(v) Discussion

Agriculture and forestry are the primary land use activities within the Project area. They make an important contribution to the region's economy and landscape character. These uses are supported, actively encouraged and sought to be protected through the Gippsland Regional Growth Plan and South Gippsland Rural Land Use Strategy, the Farming Zone and Public Conservation and Resource Zone and relevant planning policy.[34]

The IAC is satisfied that at a broad planning policy level, the residual impacts on these land use activities are acceptable. Impacts on individual businesses will be appropriately avoided or (where avoidance is not possible) minimised primarily with the development of individual PMPs (discussed in more detail below) in accordance with EPR A02. Further, application of the land use planning EPRs provide for the minimisation of:

- the footprint of the Project (LUP01)
- impacts of the easement and ongoing access requirements for the Project (LUP02)
- temporary land use impacts during construction (LUP03).

Forestry

A substantial portion of the cable route alignment extends through HVP's Thorpdale Plantation in addition to its other plantation area near Hazelwood. There is no doubt that the Project has the potential to impact HVP's operations at these locations. Key impacts will be on:

- loss of production from early removal of immature logs on a permanent basis within the easement or through the creation of unproductive isolated smaller plantation area pockets or slivers
- the access of heavy machinery for harvesting, log storage and haulage within the easement, although the Proponent's Day 2 version of the easement restrictions (D140a) indicated restrictions would be less severe than as described in Table 4-1 in Technical Appendix K.

The IAC had a detailed accompanied site inspection of the plantations. The inspection enabled the IAC to gain a good understanding of the nature of HVP's operations, including land preparation machinery, harvesting and timber thinning machinery, log landings and loading and truck log haulage.

While the impacts on forestry operations are not insubstantial, the Project design and cable route alignment has endeavoured to reduce impacts by:

- locating the cables under existing roads and fire breaks where possible
- co-locating with the proposed Delburn Wind Farm access tracks
- adopting a land cable alignment that follows property boundaries or coupe edges where possible
- adopting an alignment that minimises the creation of land slivers that are likely to be suboptimal for timber production or large areas that will be exposed to windthrow.

These design measures have resulted in significantly reducing the potential impact footprint on productive plantation land.

[34] See in particular Clauses 14.01-1S and 14.01-3S of both planning schemes, Clause 02.03-4 of the South Gippsland Planning Scheme and Clauses 02.03-4, 14.01-1L and 14.01-3L of the Latrobe Planning Scheme.

The potential for the creation of land slivers can be further minimised by micro siting adjustments. The impact footprint can also be reduced by narrowing the construction zone in certain locations, for example to minimise impacts on native forest or environmentally sensitive areas.

The IAC acknowledges that forestry operations are different to beef or dairy production, and present more complexity in terms of management regimes and requirements, harvesting activity, work force and contractors and legislative and other statutory responsibilities. It does not, however, agree with HVP that this creates the need for separate standalone forestry EPRs, or highly prescriptive detail in the EPRs. What is important is that the EPRs capture key aspects of forestry operations, and manage impacts to an acceptable level.

The IAC is satisfied that in the main, the EPRs (in combination with the design decisions referred to above) will mitigate impacts on forestry operation and minimise longer term impacts to an acceptable level. The Proponent's Day 1 and Day 2 changes appropriately respond to matters raised by HVP regarding forestry coupes and age classes, water points and fire breaks and the like. The IAC proposes further minor alterations to EPRs A01, A02, A04 and A06 based on HVP's preferred Day 2 version (D155), to add clarity or include additional references to forestry activities and related infrastructure or cross reference PMPs.

The EPRs provide a clear requirement for engagement with the forestry operator through site surveys, PMPs and a range of other documentation. This will provide ample opportunity for more nuanced requirements, mitigations and protocols to be resolved through the various management plans required under the EPRs. This level of detail does not need to be included in the EPRs.

During operations, maintenance of the easement or inspecting joint pits will have minimal impacts on forestry operations apart from the permanent loss of the easement as coupe areas. Access and maintenance can be resolved through PMPs and other EPRs. The financial impacts of the easement on forestry activities, including forcing premature harvesting and future production loss, will be compensated under other legislative regimes.

The Day 2 changes to the easement restrictions are appropriate and provide greater clarity and flexibility for critical forestry (and agriculture) operations. The revised restrictions form an appropriate starting point for the preparation of PMPs, the Alignment Plans required under the Incorporated Document and discussions between the Proponent and individual landholders about easement restrictions and compensation.

Agriculture

The Project is not anticipated to have any significant impact on the regional availability of land for agricultural production, overall agricultural productivity or its regional economic contribution. The Project does not impact the achievement of broader planning strategies or polices supporting agriculture. Impacts on agriculture will be localised, limited to locations along the cable route alignment and largely limited to the construction phase.

Agriculture EPRs A01 and A02 provide appropriate mechanisms to:

- identify existing activities, buildings and infrastructure and other above ground conditions that might be impacted (directly or indirectly)
- prepare PMPs to avoid or minimise the disruption of farm infrastructure, practices and operations to prevent reducing carrying capacity or yield during both construction and operation.

The more significant longer term potential residual impacts on agriculture relate to:

- loss of agricultural production from changes to soil conditions including landslip, soil ecology, groundwater and surface water conditions
- limitations on agricultural activities and production associated with the easement restrictions, including cropping which requires ploughing or tilling deeper than 0.5 metres, and constructing dams or fixed pivot irrigation.

Over 80 per cent of the agricultural properties affected by the easement undertake beef or dairy production. Beef and dairy operations are unlikely to be substantially affected by the easement restrictions given the reliance on shallower rooted grasses and noting that the easement will not be fenced. The EPRs make appropriate provision for the reconstruction of (or compensation for) any buildings which need to be relocated as a result of the Project, although this is understood to be limited. Horticultural activities such as potato growing occur in few instances along the cable route alignment. While these could potentially be affected by restrictions on tilling depths, impacts are not anticipated to be significant and can be mitigated through the EPRs and any easement negotiations.

In terms of potential erosion including landslip impacting farming properties or operations, the IAC considers the Day 1 changes to EPR GM01 provide appropriate measures to ensure risks are appropriately managed during construction, and ongoing residual risks are acceptable, through:

- managing further degradation including potential for landslip
- providing for appropriate remediation and rehabilitation of land affected by construction activities.

Higher value groundwater used for agriculture (for example, for broadacre irrigation) is drawn from deeper aquifers that will not be impacted by the Project. The IAC is satisfied the groundwater EPRs will ensure the residual risks to groundwater can be appropriately managed to a low level. This includes the Day 1 changes to GW08 which require landholders to be engaged in identifying and managing impacts on private bores or spring fed dams used for agriculture.

The EPRs provide appropriate measures to manage biosecurity risks (including pest plants and diseases) during construction and during maintenance access activity. The risk of the Project impacting the organic farm referred to in Submission 5 is very low, and EPR A05 provides an appropriate mechanism to manage any impacts on organic certification. EPRs relating to surface water impacts, geomorphology and soils, contaminated land and ASS will ensure any impacts on agriculture can be appropriately managed.

The Day 2 changes to EPR A01 (to include landholder consultation) and A02 (to identify reinstatement requirements for access tracks, water supply and drainage infrastructure) are appropriate. While the Day 2 changes to the easement restrictions relate primarily to forestry operations, the changes to parking and driving of vehicles will appropriately also apply to farm vehicles to reduce impacts on agricultural operations.

Submitter 12 indicated they had sought to discuss an alternative route for the cable with the Proponent, through the Victorian Plantations Corporation site adjacent to their property. She pointed to several advantages of this alternative alignment, including avoiding steep terrain and the swamp on their property which provides important habitat.

The IAC does not have sufficient information before it to endorse this alternative. The impacts have not been assessed and could result in an inferior environmental outcome, particularly in terms of native vegetation and habitat.

(vi) Findings and recommendations

The IAC finds:

- While the Project design and alignment has sought to minimise impacts on forestry operations, it will require premature harvesting and remove future production capability within the easement.
- The Day 2 EPRs, with some additional changes sought by HVP, will appropriately mitigate impacts on both forestry plantations and agricultural operations to an acceptable level.
- Standalone forestry EPRs are not needed.
- The Day 2 changes to the easement restrictions provide an appropriate starting point for the preparation of PMPs, Alignment Plans and discussions about easement restrictions and compensation.
- With these changes, the effects of the Project on forestry and agricultural operations can be acceptably managed.

The IAC recommends:

If the Marinus Link Project proceeds, amend the Environmental Performance Requirements as shown in Appendix E:1:

a) Amend requirements A01, A02, A04 and A06 to include some of the changes proposed by Hancock Victorian Plantations Pty Ltd.

17.5 Economic impacts

(i) The issues

The issues are whether:

- the Project's impacts on the local and regional economy have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved outcomes for the local and regional economy.

(ii) What did the EES say?

The economic assessment in Technical Appendix B identified the following wider economic benefits associated with the Project:

- an economic 'value add' to the Victorian economy of approximately $2.5 billion (construction and operation), including a $1 billion benefit to the Gippsland economy
- 5,247 Full Time Equivalent (FTE) year jobs[35] generated during construction within Gippsland and Victoria and 592 FTE year jobs during the operations phase.

The economic assessment identified additional community benefits arising from First Nations employment and procurement opportunities, skills and training opportunities, a community benefit sharing scheme, social benefits through investment in community infrastructure and more widely downward pressure on energy prices and tax revenue benefits.

Technical Appendix B identified a range of potential economic impacts of the Project (positive and negative) on:

[35] An 'FTE-year' represents one full time equivalent job supported for a full year – for instance, 100 FTE years may be 50 FTE jobs sustained over 2 years, or 10 FTE jobs sustained over 10 years.

- agriculture, forestry and fisheries through short term disruption, productivity impacts and competition for labour resources
- local sourcing of raw materials, equipment and goods and services
- land values and housing demand increasing as a result of a construction workforce population influx
- tourism, through temporary changes to amenity and character and constraints on short term accommodation as a result of meeting work force construction accommodation needs.

Negative economic impacts were assessed to be low to very low in the long term. In addition to EPRs A01, A02, LUP02, LUP03 and LUP04, any potential negative impacts would be further mitigated through the implementation of the social impact EPRs discussed in the following chapter, which will potentially result in greater economic benefits to local communities.

The Supplementary Report (D45u) concluded the changes to the timing of Stage 2 would not impact the conclusions or recommendations in Technical Appendix B, but potentially prolonged some impacts including on tourism, land values and housing. The Supplementary Report included updated expenditure, which increased as a result of two stages of construction and rising cost of materials. This resulted in an increase of the total economic value add to Victoria to $3 billion. Updated employment impacts were assessed as:

- 2,841 FTE job years in Gippsland (an increase of 295 FTE job years over the previous estimate)
- 6,093 FTE job years across Victoria (an increase of 326 FTE job years over the previous estimate).

(iii) Evidence and submissions

Submissions identified that:

- the job creation numbers estimated in the EES were uncertain or exaggerated and would not address existing challenges in providing suitable training, gender employment balance or employment opportunities for underrepresented groups
- the only economic benefits would be for the Proponent, the State and Federal governments and investors
- the induced economic benefits from other enabled projects could not be substantiated
- there were cheaper and more reliable energy options available
- the Project's high infrastructure costs would result in an increase in power costs.

In response to these submissions, Mr Schwartz's evidence was:

- the economic analysis applied standard methodology, modelling and employment metrics
- the economic analysis could only estimate labour demand and not supply (where employees will be from, for example fly-in fly-out, local or already employed or under employed)
- induced benefits from other enabled projects had been properly identified in the economic analysis
- the economic analysis had identified both local economic contributions as well as tax revenues which will be used in part to fund essential and community infrastructure.

Mr Mickle's evidence comprised a peer review of the economic analysis included in Technical Appendix B. He concluded the methodology applied to the economic analysis, including modelling and associated assumptions, were fit for purpose, utilised well known approaches and were reasonable. He considered there were no material differences in the costs and benefits identified, and the proposed EPRs appeared to address economic impacts arising from the Project.

HVP identified concerns about negative impacts on forestry associated with competition for workers. It proposed changes to:

- EPR S02 to require the accommodation strategy to consider economic and business impacts
- EPR S03 to require the engagement framework to outline engagement arrangements with the forestry operator.

The Proponent did not support HVP's proposed changes, although its Day 1 and Day 2 versions of the EPRs contained amendments to the social impact EPRs (discussed in more detail in Chapter 17.6) including:

- EPR S02, to confirm the workforce and accommodation strategy was to be prepared before the commencement of works
- EPR S03, to expand stakeholder groups involved in the community engagement plan to include business owners, business and industry associations, commercial and recreational marine users and local Councils among others.

Seafood Industry Australia (S8) identified the importance of Victorian coastal and Bass Straight waters in providing for a sustainable and thriving seafood industry. It was concerned that the impacts of electromagnetic fields from the subsea cable on a range of species were not fully understood and could impact resource and industry sustainability. Submitter 20 identified concerns about the potential impacts of electromagnetic fields and EMI on the lobster export industry and the cumulative impacts on fisheries.

Mr Balloch responded that residual impacts of electromagnetic fields and EMI (with MERU12 in place) were low to very low, and adverse impacts on commercial or recreational fisheries and shellfisheries are not predicted. Dr Urban agreed with Mr Balloch's assessment.

(iv) Discussion

In assessing the significance and acceptability of the economic impacts of a project when assessing an EES, the consideration of economic impacts is properly limited to those impacting the community rather than individual owners. Compensation for economic loss resulting from the easement are matters to be resolved between the Proponent and landholders through other legal processes.

Overall, the IAC is satisfied the Project will have a net economic benefit at the State and local level in terms of construction investment, ongoing operations and employment. That said, the Project will generate competition for access to resources required for construction, and it is likely there will be competition for employment resources and worker accommodation. These impacts may intensify as other projects such as Delburn Wind Farm commence. However, the impacts are localised and are typical of large projects.

As discussed in Chapter 17.5, the IAC is satisfied the social impact EPRs requiring an industry participation plan and workforce and accommodation strategy will assist in mitigating these

impacts to an acceptable level. They will assist in providing support to local businesses and access to employment and training opportunities for socially vulnerable groups.

HVP is a major employer in the region, and will no doubt have knowledge it can bring to bear in workforce and accommodation planning. However, the IAC does not consider it necessary to specify in EPR S02 that HVP must be consulted in the development of the workforce and accommodation strategy. The identification of 'government, industry and other relevant providers' is sufficient and does not exclude HVP from any discussions about the workforce and accommodation strategy.

In terms of potential operational impacts of the Project on shipping, commercial or recreational fishing, the IAC is satisfied based on the evidence of Mr Balloch and Dr Urban that residual impacts on the following will very low or low:

- commercial fishing resources and targeted fish resources
- marine traffic and navigation (including magnetic compass deviation)
- commercial fishing vessel movement
- recreational fishing activity
- recreational boating and marine based tourism.

The Stakeholder Engagement Plan includes a program of engagement and consultation with a range of maritime stakeholders including Seafood Industry Australia and other fisheries bodies, government departments and major industry operators with infrastructure in Bass Strait.

The IAC agrees with the Proponent that the Project will deliver additional economic benefits by putting downward pressure on energy prices. The Project will assist in the distribution of energy into the national grid, the connectivity of other energy projects and increase energy supply stability. While this provides a community benefit, the IAC was not persuaded the Project will necessarily result in cheaper electricity prices. There are a complex range of factors which contribute to lower production or consumer costs for energy.

(v) Findings

The IAC finds:

- The Project will not result in unacceptable economic impacts. Overall, the economic impacts on the local and regional economy are likely to be positive.
- The social impact EPRs will assist in mitigating potential employment and worker accommodation impacts during construction.
- No further design modifications or changes to the EPRs are necessary to ensure acceptable economic outcomes.

17.6 Social impacts

(i) The issues

The issues are whether:

- the Project's social impacts have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved social outcomes.

(ii) What did the EES say?

The Social Impact Assessment at Technical Appendix U found that the most significant social impacts of the Project are likely to occur during construction. Impacts on First Peoples heritage and culture, native flora and fauna and the marine environment were highlighted as key factors that have the potential to impact on community identity and values. Without mitigation, these factors could have high to major impacts.

Technical Appendix U found that construction has the potential to impact on the local economy and livelihoods of local people and businesses, including through reduced access to affordable housing, biosecurity impacts on agriculture and reduced wood flows from plantations. These would be offset to some extent by positive economic impacts from the Project, including increased employment opportunities and the construction workforce supporting local accommodation and other small businesses.

There is also the potential for the Project to impact on the availability of local emergency and health services, and on the safety of the local rural road network.

Social impacts during operations were assessed as lower, but impacts on agriculture and forestry from biosecurity and maintenance operations could be 'major' and 'high' respectively if unmitigated.

Technical Appendix U recommended a range of social impact EPRs to manage the Project's impacts, including implementation of:

- a social impact management plan (S01)
- a workforce and accommodation strategy (S02)
- a community and stakeholder engagement framework (S03)
- a community benefits sharing scheme (S04)
- an industry participation plan.

Other EPRs would reduce the potential for social impacts, including those relating to agriculture and forestry and marine resource use.

Following mitigation, most residual negative social impacts were reduced to moderate to low. The exception was the impact to housing affordability and availability during construction. Technical Appendix U noted this is a particular issue because the average income in the study area is 28 percent lower than the state average, which means households will be more sensitive to rental price increases.

Technical Appendix U concluded the Project would result in five high positive impacts:

- use of short-term accommodation by construction workers (although this could constrain the availability of tourism accommodation, which could lead to lower tourist numbers visiting the region)
- support for local businesses from construction workers
- the economic activity generated by the Project during operation will generate large taxation receipts for government
- opportunities for investments in community infrastructure, the potential for downward pressure on energy prices, and greater telecommunication security.

(iii) Evidence and submissions

Ms Sommerville's evidence was that Technical Appendix U adopted an appropriate methodology for assessing the social impacts of a Project of this nature and scale, consistent with the methodologies used on other social impact assessments.

She considered the approach to community consultation to inform Technical Appendix U was appropriate, with a broad range of opportunities offered to allow participation. She noted that only a small number of those invited to participate took up the opportunity. Nevertheless, she considered the feedback received through consultation to be broadly consistent with that received on other similar projects.

Ms Sommerville noted that:

- social impact assessments are inherently subjective in nature and must be based on professional judgement
- judgement in this case appeared to have been consistent with other assessments for similar projects
- the assessment was conservative in that it assumed impacts will be experienced as a worst case scenario.

She considered that Technical Appendix U assessed some of the impacts (both unmitigated and residual) as higher than she would have anticipated, in particular to residual construction noise and vibration impacts, temporary access changes, and the effects of construction on the road network. She considered that the higher than expected ratings may have resulted from:

- sensitivity ratings for social values mainly based on the outcomes of engagement and consultation, rather than other factors such as resilience to change, uniqueness, importance, and the availability of alternate services or places
- aggregating social values, with a 'worst case' scenario for one value being applied across the board (for example, while bushland and beach landscapes might be highly valued by the community, townships and disturbed environments could be expected to be less highly valued).

Ms Sommerville reviewed the relevant Supplementary Reports and noted that other than for agriculture and forestry, the revised timing of Stage 2 was not expected to increase impacts. Agriculture and forestry impacts would not be increased in magnitude, but the duration of impacts (with the longer gap between Stages 1 and 2) would be extended.

Ms Sommerville reviewed the proposed social impact EPRs, and considered them broadly consistent with other recent major projects in regional areas. However, she:

- questioned the need for a social impact management plan (EPR S01) given most of the construction impacts could or will be managed through the plans and strategies required under other EPRs
- considered EPR S02 should be clarified to require the workforce and accommodation strategy to be prepared prior to construction works starting
- suggested the community and stakeholder engagement framework required under EPR S03 should be prepared consistent with engagement principles and guidelines such as the International Association for Public Participation principles and the *National guidelines – Community engagement and benefits for electricity transmission projects*

- suggested the EPRs should include further detail regarding specific stakeholders, facilities or areas of importance to the community and issues identified as community concerns (such as EMI, construction noise and traffic impacts).

The Proponent's Day 1 EPRs included changes that were generally consistent with Ms Sommerville's recommendations.

Ms Sommerville reviewed the draft workforce and accommodation guidelines and a draft industry participation plan prepared by the Proponent, and considered them to be consistent with the requirements of EPRs S02 and S05.

She reviewed submissions relevant to social impacts, and considered the concerns raised were noted in Technical Assessment U and addressed in other relevant Technical Appendices. She accepted that there would be impacts on individual landholders, but these would be mitigated through other EPRs (for instance, the noise and vibration EPRs). Further, disruptions to land use resulting from the easement would be the subject of compensation.

Further, Ms Sommerville considered:

- the Project will support a range of direct and indirect employment opportunities during the construction phase
- because the cable will be undergrounded, operational impacts are much lower than those that would be associated with an overhead transmission line
- the Community Benefits Sharing Scheme required under EPR S04 should be developed prior to Project works starting, in consultation with communities and First Peoples in the local area
- consultation and communication with community members and stakeholder will be ongoing through the Project planning, construction, operation and decommissioning
- consultation with local communities near construction activities about the timing, duration, potential impacts and management of construction noise impacts would assist in avoiding or managing impacts on people sensitive to noise impacts
- the social impact EPRs would support and protect cultural heritage values including S03 (community and stakeholder engagement framework), S04 (community benefits sharing scheme) and S05 (industry participation plan).

Given the low ongoing social impacts of the Project on the community, the IAC questioned the need for a community benefit sharing scheme as required under EPR S04. The IAC put this to Ms Sommerville, who responded that:

- the community benefit sharing program would likely focus on the construction related impacts of the Project
- there may still be some advantage in a community benefit sharing program, which should be developed in consultation with Council and other stakeholders and might look at initiatives such as community sponsorship, investment in certain activities, or employment and training that is specific to the Project.

HVP sought several changes to the social impact EPRs. These are largely addressed in Chapter 17.5.

(iv) Discussion

The IAC is satisfied that Technical Appendix U adopted a standard industry accepted methodology for assessing social impacts of projects of this type. The results of the assessment are consistent with assessments of other similar projects in regional areas. While the consultation informing the social impact assessment was limited, the key stakeholders invited to participate were appropriately identified, and the opportunities to engage were suitably broad. The IAC is satisfied that the social impact assessment was appropriately informed by the feedback received through other consultation processes undertaken for the Project, including consultation with First Nations people.

As would be expected of a project of this nature, social impacts will be primarily felt through the construction phase. Construction will result in disruptions in the local area, including from the noise and visual impact of construction equipment, construction vehicles using the local road network and the like. Some of the highly valued facilities in the area such as the rail trails will be impacted to some degree by construction. Access to and the use of private properties will also be disrupted.

Construction impacts, although significant for some people, will be temporary. Impacts on individual landowners will be higher during both construction and (to a lesser extent) operations, but these impacts will be managed through the PMPs and reflected in the compensation payable in respect of the easement.

With the exception of the ongoing impacts to forestry activities, the impacts of the Project during the operational phase will generally be minimal. As discussed in other chapters of this Report, ongoing permanent impacts to the broader community, such as landscape and visual impacts, are rated as low and will be appropriately mitigated by the IAC's recommended EPRs.

The IAC acknowledges that there will be a high residual impact on housing availability and affordability in the region during construction. Impacts of this nature are difficult to avoid, particularly in regional areas where housing supply is often more limited than in major centres. Housing affordability is a broader problem, and there is little that any individual project can be expected to do in response to affordable housing issues other than to develop a worker and accommodation strategy as required under EPR S02.

The IAC considers that the remaining social impacts of the Project are manageable and will be appropriately avoided and minimised through the EPRs.

In light of the evidence of Ms Sommerville regarding the community benefit scheme, the IAC does not recommend the deletion of EPR SR04.

(v) Findings

The IAC finds:

- With the exception of impacts on housing availability and affordability, the Project's social impacts are minimal and can be appropriately managed through the EPRs.
- The requirement in EPR S02 to develop and implement a worker and accommodation strategy is an appropriate response to the Project's impacts on housing.
- No design modifications or changes to the EPRs are necessary to ensure acceptable outcomes in terms of social impacts.

18 Other matters

18.1 Contamination and acid sulfate soils

(i) Introduction

Contamination and ASS impacts are assessed in:

- EES Volume 4 Chapter 3 (Contaminated land and acid sulfate soils)
- Technical Appendix N (Contaminated Land and Acid Sulfate Soils Assessment).

A Supplementary Report to Technical Appendix N was prepared in relation to the revised timing for Stage 2 (D45j).

Bryden Tiddy of Tetra Tech Coffey was principal author of Technical Appendix N and provided evidence for the Proponent on contamination and ASS (D26). He appeared at the Hearing.

One other key document is:

- D66 – Letter from EPA to Proponent in response to revised EPRs.

(ii) The issues

The issues are whether:

- the Project's impacts on contamination and ASS have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved outcomes in terms of contamination and ASS.

(iii) What did the EES say?

A desktop review of public information, aerial photographs and a walk over of accessible parcels of land along the land cable alignment was used to identify areas of potential contamination or where ASS may be present. The study area was a 220 metre wide corridor along the 90 kilometre land cable route as well as the Waratah Road compound site and the Hazelwood converter station site.

The contaminated land and acid sulfate soils assessment identified five potential hazards with a low to moderate risk of causing impacts to the environment without the application of additional controls:

- localised wastes in vicinity of the proposed Project alignment
- management of excavated soils
- management of routine construction and operational impacts
- unexpected areas of contamination
- ASS.

Twenty five land parcels were identified as having a medium or high contamination potential based on aerial imagery. Ten of these were unable to be further assessed due to access constraints. These ten sites would be inspected and tested (if required) prior to construction to confirm the nature and extent of contamination (if any), and appropriate management or mitigation measures developed to address any potential impacts to the environment that may be present.

The assessment did not identify any areas of contamination that potentially represented a risk to human health or the environment. It concluded any risks could be managed through the application of standard construction measures and the EPRs.

All of the known sites that could potentially be contaminated with perfluoroalkyl and polyfluoroalkyl substances were outside of the study area, and not considered in the assessment. No landfills or former gas works were reported within 500 metres of the study area.

Broad area sampling was undertaken of the potato growing area around Thorpdale to assess the potential presence of pesticide residues. All sampling results were below the contamination screening criteria.

The construction phase will generate large volumes of surplus soils, including up to 250,000 cubic metres of gravels for temporary haul roads. This material would likely be classified as clean fill material in accordance with EPA Publication 1828.2. At completion of construction of each trench sector, the material in the haul roads would be removed and the surface rehabilitated with the original topsoil. The haul road materials would be provided to the landholders for their use, and alternative re-uses for the soil would be implemented where practicable. Waste soils would be disposed off-site to landfill.

The assessment found that the majority of the study area was unlikely to contain ASS. However, areas such as Waratah Bay and the Hazelwood Pondage (around Eel Hole Creek), and the mapped areas of shallow groundwater or stream crossings, were identified as a higher potential to contain ASS.

An unexpected finds protocol was included in the EPRs to provide guidance on the management of contaminated soil, ASS or other waste such as asbestos which may be found during construction works.

Cumulative impacts associated with contaminated land and ASS were not considered significant due to the temporary and localised nature of the contamination impacts of the Project.

The Supplementary Report (D45j) indicated the contamination and ASS EPRs would be sufficient to manage the potential impacts of separating the two stages and it would be unlikely to result in any additional impacts.

(iv) Relevant policy and guidelines

The IAC has had regard to relevant policy and guidelines, including:

- the EP Act and Environment Protection Regulations 2021
- EPA Publication 1968.1: Guide to Classifying Industrial Waste
- *Victorian Best Practice Guidelines for Assessing and Managing Coastal Acid Sulfate Soils*, October 2010.

(v) Evidence and submissions

Mr Tiddy adopted Technical Appendix N as his evidence. His opinion was that all identified contaminated land and ASS risks would be reduced to 'low' or 'very low' residual levels with the implementation of the contaminated land and ASS EPRs.

Mr Tiddy's evidence responded to the issues raised by the EPA (S18) by agreeing:

- wording of EPRs should be aligned to that used in the EP Act and related regulations

- a protocol should be included in the EPRs for ensuring all contaminated substances are handled, stored, used, or transported in accordance with EPA guidelines
- a requirement should be included for preparation of a waste tracking and documentation system
- references to EPA having a role in approving the Contaminated Land Management Plan should be removed
- specific references to EPA guidance documents for ASS management should be included.

Mr Tiddy did not support EPA's recommendation for a Spoil Management Plan as part of the Contaminated Land Management Plan. He considered EPR CL02 already included appropriate measures for the handling, transport, storage and disposal of waste spoil.

Mr Tiddy was asked questions by the IAC on the documentation requirements for the disposal of waste spoil. He identified that the preference would be to use any spoil on the property it was generated from rather than transporting it off-site. He stated there was no requirement to track the transport and disposal of fill material, and was not aware of instances where the transporter of fill material provided documentation to the receiver confirming the nature and source of the spoil, but he acknowledged it could happen.

(vi) Discussion

The IAC is generally satisfied that the potential for contamination and ASS has been appropriately assessed for this stage of the assessment process, and is sufficient to allow a finding that impacts from contamination and ASS can be managed to acceptable levels. As is the case for other areas where assessments were not complete due to access restrictions, pre-construction assessments will be important to fill the gaps in the assessments undertaken to date. This is provided for in EPR CL01.

The IAC generally supports Mr Tiddy's recommended changes to the Day 1 EPRs in response to the EPA's comments. In regard to the need for a specific spoil management plan, the IAC accepts the evidence of Mr Tiddy that EPR EM07 requires the waste management plan to addresses the handling, transport, storage and disposal of wastes. To include another plan to address the same requirements for spoil would be an unnecessary duplication.

The IAC notes that Volume 1 Chapter 6 - Project Description identifies (at section 6.6):

> The Project will maintain an inventory of all waste generated and managed on project sites, including the type of waste, the volumes, the disposal method and disposal location and/or contractor managing the disposal.

The Day 2 version of EPR EM07 requires the waste management plan to:

> Detail the approach to management of all types of waste including any safe handling, storage, transporting and disposal requirements and any permission, tracking and reporting requirements.

EM07 does not explicitly require documentation of how wastes have been managed, as indicated in Chapter 6 of the EES. Changes should be made to EM07 to clarify that an inventory should be maintained recording the details of the types and volume of waste, disposal method and location, and the contractor who transported the waste.

(vii) Finding and recommendation

The IAC finds:

- The risk from areas of potential contaminated land and ASS that would be disturbed by the Project alignment can be suitably managed through the implementation of the EPRs, with the changes made in response to the EPA's comments.
- EPR EM07 should be amended to require the waste management plan to provide for the documentation of details in relation to waste produced by the Project.
- With these changes, the impacts of the Project on contamination and ASS can be acceptably managed.

The IAC recommends:

If the Marinus Link Project proceeds, amend the Environmental Performance Requirements as shown in Appendix E:1:

a) Amend requirement EM07 to require the waste management plan to include an inventory recording the types and volume of waste generated in the construction of the Project, disposal method and location, and details of the contractor transporting the waste.

18.2 Traffic and transport

(i) Introduction

Traffic and transport impacts are assessed in:

- EES Volume 4 Chapter 8 (Traffic and transport)
- Technical Appendix W (Technical Report – Traffic & Transport).

A Supplementary Report was prepared to Technical Appendix W (D45r) in relation to the revised timing for Stage 2.

Simon Davies of Stantec provided evidence for the Proponent on traffic and transport effects (D41). He undertook a peer review of Technical Appendix W, which was prepared by another traffic engineer at Stantec. He appeared at the Hearing.

(ii) The issues

The issues are whether:

- the Project's traffic and transport impacts have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved traffic and transport outcomes.

(iii) What did the EES say?

Technical Appendix W identifies that the Project's transport impacts are largely limited to the construction phase, involving the movement of light vehicles and construction vehicles and machinery. This will include an over dimensional vehicle around 130 metres long and 650 tonnes that will transport the transformer from the Port of Melbourne to Hazelwood.

Technical Appendix W anticipated the highest vehicle movements during construction would be associated with the construction of the converter station, which could generate up to 400 daily

vehicle movements (including 200 peak hour movements), mainly from light vehicles accessing the site. The construction of the transition station at Waratah Road (if required) could generate up to 106 daily vehicle movements. Laydown areas could generate up to 216 daily vehicle movements. Vehicle movements generated by the shore crossing HDD works and cable trenching works were lower.

Technical Appendix W reported that during peak construction activities, local roads will experience a substantial uplift in traffic compared to existing traffic volumes. Where possible, heavy construction vehicles would travel to the different construction locations via the B-Double and Over Dimensional Route networks. Intersection upgrades may be required at key locations, but road pavements can generally adequately accommodate the proposed vehicle types and volumes. While localised impacts may be experienced by road users and local residents periodically within their immediate surrounds, residual impacts were low and the road network can physically accommodate the proposed construction vehicles and maintain safe operation.

The following proposed EPRs seek to avoid or minimise the traffic and transport impacts of the Project:

- EPR T01, requiring a Transport Management Plan to document how impacts on traffic, car parking, public transport, pedestrian and cycle movements will be managed during construction
- EPR T02, requiring transport infrastructure to be designed to maintain safety.

The Supplementary Report (D45r) concluded the changes to the timing of Stage 2 would not impact the impact conclusions or recommendations in Technical Appendix W.

(iv) Relevant policy and guidelines

The IAC has had regard to relevant policy and guidelines, including:

- the principles and objectives of the *Transport Integration Act 2010*
- the Planning Policy Framework of the Latrobe and South Gippsland and Planning Schemes.

(v) Evidence and submissions

Mr Davies adopted Technical Appendix W as his evidence, identifying the significant potential traffic and transport impacts related to:

- construction traffic on local roads (some of which are unsealed, gravel roads)
- transportation of oversized vehicles, in particular for the transformer
- the need for temporary traffic management for safety and maintenance of local roads during construction.

Mr Davies undertook traffic surveys of five local roads that were identified as part of the road network in Technical Appendix W but not surveyed at the time. These surveys identified that:

- Kerrs Road, Fish Creek was unsealed and would potentially be used as part of the B-Double route
- Acacia Way in Churchill, Frasers Road in Hazelwood, Darlimurla Road in Mirboo North and Neals Road in Buffalo would potentially be used to access construction tracks or works areas
- the traffic volumes on these roads (including heavy vehicle percentage use) were well within the indicative daily capacity of the relevant roads

- given the unconstructed nature of Kerrs Road, the majority of construction vehicles accessing the southern part of the Project alignment and Waratah Road would do so via the sealed road network through Fish Creek.

Mr Davies concluded:

- Technical Appendix W adequately addressed the traffic impacts and included appropriate recommendations which would be further developed within the Transport Management Plan and in the operational design provisions required by EPRs T01 and T02
- minor localised traffic impacts might be experienced by road users and local residents periodically during construction, but this was manageable and consistent with normal construction activity
- the Project was not expected to have broader impacts on the operation of the road network.

HVP's submission set out the classes of roads that it manages within its Thorpdale plantation which were all unsealed. It was concerned the traffic impact assessment had underestimated the potential impacts on forestry roads during intense periods of harvesting including log haulage trucks and the cumulative impact of Delburn Wind Farm construction traffic. It sought changes to:

- EPR T01 including requirements:
  - for the Transport Management Plan to be developed in consultation with the forestry operator and outline measures to coordinate activities on forestry operations
  - to provide 12 months' notice of impacts on forestry land impacts
  - for road closures to use signage and traffic controls to minimise interference between construction and forestry vehicles
- EPR TP02 to include details of how access and road closures are to be managed to consider forestry operations and impact on forestry roads and access tracks.

Mr Davies acknowledged construction traffic would need to be mindful of forestry operations and HVP's traffic management plans and procedures. He considered this could be coordinated through consultation and stakeholder engagement and preparation of the CEMP. He did not consider specific forestry references in EPR T01 were necessary. He acknowledged there would be some overlap with the Delburn Wind Farm project but this was anticipated. While some coordination would be required, the impacts were modest and could be managed through the Transport Management Plan.

Submission 11 was concerned about the cumulative impact of additional traffic on koalas. In response, Mr Davies was of the opinion:

- the cumulative traffic impacts of the Project and other relevant projects had been adequately considered
- large scale upgrades to transport infrastructure (which may require substantial clearing of native vegetation) were not required
- the preparation of the Transport Management Plan would include measures to manage impacts and activities with other major projects occurring at the same time.

(vi) Discussion

The assessment in Technical Appendix M of traffic generation, proposed construction access routes and transport network impacts of the Project has been thorough and robust. It was appropriately informed by discussions with the Latrobe and South Gippsland Councils, DTP (Heavy

Haulage Team, Regional Public Transport, Metro Public Transport Disruptions), the National Highway Regulator and through community engagement sessions.

While Mr Davies' evidence did not address concerns arising from the impacts of traffic on amenity (sleep, health, pollution and noise), submissions on air quality and noise were considered in the evidence of Mr Welchman and Mr Adcock. Based on traffic volumes during construction and with the implementation of the Transport Management Plan, these impacts are anticipated to be very low. Any impacts will be temporary as the Project construction progresses along the cable alignment route. Construction traffic impacts can be acceptably managed through implementation of the EPRs. Operational impacts on traffic volumes, road capacity and safety or amenity impacts from vehicle noise, dust or other emissions will be negligible with the implementation of the EPRs.

The IAC acknowledges that Project construction vehicles will interact with forestry vehicles and HVP has responsibility for the management and maintenance of some these roads. However, the additional level of detail sought by HVP in the traffic and transport EPRs is not necessary. EPRs T01 and T02 adequately provide for construction vehicle interactions with forestry vehicles and any overlap with the Delburn Wind Farm construction. The traffic EPRs will work in tandem with other EPRs that require PMPs, stakeholder engagement and preparation of the CEMP. The IAC notes that the Proponent has shown every intention of engaging meaningfully with HVP and Delburn Wind Farm through detailed design and construction management to minimise such impacts.

(vii) Findings

The IAC finds:

- The traffic and transport EPRs are suitable to avoid and minimise the Project's traffic impacts.
- No design modifications or changes to the EPRs are necessary to ensure acceptable traffic outcomes.

18.3 Landscape and visual impacts

(i) Introduction

Landscape and visual impacts are assessed in:

- EES Volume 4 Chapter 7 (Landscape and visual)
- Technical Appendix R (Landscape and Visual Impact Assessment).

Hayden Burge of Landform Architects was principal author of Technical Appendix R and provided evidence for the Proponent on landscape and visual effects (D31). He appeared at the Hearing.

(ii) The issues

The issues are whether:

- the Project's landscape and visual impacts have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved landscape and visual outcomes.

(iii) What did the EES say?

The landscape and visual impact assessment in Technical Appendix R identified six landscape character types in Project area and their values and sensitivity levels:

- Landscape Character 1: Coastal dunes and beaches (moderate to high)
- Landscape Character 2a: Townships (moderate)
- Landscape Character 2b: Rural residential (moderate to high)
- Landscape Character 3a: Cleared flat farmland (low)
- Landscape Character 3b: Cleared hilly farmland (low to moderate)
- Landscape Character 4: Plantations (low)
- Landscape Character 5: Waterbodies and waterways (moderate to high)
- Landscape Character 6 National parks, state parks and state forests (high).

The impact of the Project on these landscape character areas was examined through analysis of 17 viewpoints.

The assessment identified:

- the majority of the Project alignment is in agricultural areas, where the landscape has been modified
- protections in the Farming Zone for agricultural areas are not for amenity or aesthetic purposes
- areas within a Significant Landscape Overlay or Environmental Significance Overlay have a higher level of sensitivity to change
- the Project avoids areas of national park or state forest
- sensitive coastal landscapes and Significant Landscape Overlay areas are avoided, or impacts on those areas have been minimised, by trenchless construction methods which will minimise ground disturbance and vegetation removal.

The assessment concluded the Project's landscape and visual impacts will be low, due to the majority of the Project being underground, avoiding townships and communities or areas of residentially zoned land and minimising sections where the cable alignment runs parallel to major roads, highways, and tourist routes.

Cumulative visual impacts from projects such as the Delburn Wind Farm will be managed by:

- reducing visual clutter through structure placement and design where co-location of easements and infrastructure is to occur
- locating the converter station away from key viewing locations or dwellings and settled areas.

The landscape and visual EPRs include:

- EPR LV01, which requires the converter station buildings to be designed to minimise visual impacts
- EPR LV02, which requires a vegetative screen for public views of above ground components
- EPR LV03, which required the transition station (if required) to be designed to minimise visual impacts from public locations
- EPR LV04, which requires measures to manage potential visual impacts during operation as part of the OEMP, through monitoring and replacement of failed vegetation.

The relevant Supplementary Report (D45m) concluded the changes to the timing of Stage 2 would not impact the impact conclusions or recommendations in Technical Appendix R.

(iv) Relevant policy and guidelines

The IAC has had regard to relevant policy and guidelines, including:

- Latrobe and South Gippsland Planning Schemes
- *Coastal Landscape Assessment Study*, Planisphere 2006
- *Siting and Design Guidelines for Structures on the Victorian Coast*, May 2020.

(v) Evidence and submissions

Mr Burge adopted Technical Appendix R as his evidence in relation to landscape and visual impacts. His evidence set out the methodology for the landscape and visual impact assessment including the approach for preparing photomontages for the Waratah Road transition station site and the Hazelwood converter station site. In addition to the matters outlined in Technical Appendix R, Mr Burge's opinion was that the Project's visual impacts have been minimised because:

- the decision was made to underground the cables
- above ground infrastructure will be low level and located in farming areas, which have a low sensitivity to changes in views or the landscape
- the Hazelwood converter station will be located in cleared farming land, adjacent to existing above ground transmission lines and similar infrastructure.

He considered the landscape and visual EPRs were appropriate to minimise impact, including through the design and landscaping screening at the Waratah Road site.

Submitter 20 was sceptical about the use of photomontages to identify landscape and visual impacts. The submission considered the Project was inconsistent with the values, aims and strategies of the:

- *Cape Liptrap Coastal Park Management Plan*, Parks Victoria, February 2003
- *Gippsland Plains and Strelecki Ranges*, Parks Victoria, January 2021.

Submitter 25 sought an alternative renewable energy strategy that did not impact on, among other matters, "*beautiful landscapes*".

(vi) Discussion

The Project area extends through a range of different landscape characters of varying sensitivity. As identified in the South Gippsland Shire Council submission, these landscapes are characteristic of the region. The value of these landscapes is reflected in local planning policies and strategies such as the Gippsland Regional Growth Plan and planning controls including the Significant Landscape Overlay.

The landscape and visual impact assessment in Technical Appendix R adopted an appropriate methodology to identify and assess the affected landscapes and their values, and the impact of the Project on those landscapes. The 17 viewpoints used to assess the visual impact of the Project from the public realm are appropriate, and provide an appreciable understanding of the residual landscape impacts on the main above ground elements of the Project.

The use of HDD for coastal areas, key waterway crossings and significant vegetation is an appropriate response to highly visually sensitive locations, including areas identified through

planning policy and overlay controls, and will minimise landscape and vegetation disturbance in these locations. At Waratah Bay this approach is critical to minimise visual impacts on the visually significant coastal character of the dunes and beach.

The laydown areas and cable trenching works are generally located in the HVP plantations or areas some distance from main roads, which will limit their impact on the landscape and views. Impacts will be limited to the construction period, and ameliorated progressively through surface reinstatement.

Trenched construction will potentially have a greater visual impact than trenchless construction, but the impacts are temporary and localised and are not inconsistent with the landscape outcomes sought in both Planning Schemes, in particular:

- Clause 12.02-1S of the South Gippsland Planning Scheme which seeks to protect coastal landscape values, and associated policy documents such as the Coastal Spaces Landscape Assessment
- Clause 19.01-2L of the South Gippsland Planning Scheme, which discourages alternative energy production infrastructure (including tall structures) that detrimentally affect the character of the area.

The above ground infrastructure will be located in farming locations or coastal settings which have a low sensitivity to changes to views or landscape.

The relatively flat and open location of the convertor station at Hazelwood means that it will by highly visible. However, its co-location with existing transmission infrastructure minimises its visual prominence. The mitigation measures, in particular EPRs LV01 and LV02, will assist in reducing its visual impact to an acceptable level through the use of design, building materials and landscaping.

The Waratah Road site for the inspection and communications building (and transition building if required) is located in a relatively open farmed landscape setting. Views to it are however disrupted through changes in road alignment and roadside vegetation. The surrounding land is not pristine and includes a range of buildings and a telecommunications facility. While the proposed buildings will be visible, they will be low in scale and the EPRs for building design treatments, screening and landscaping will ensure residual visual impacts are minimal.

The IAC considers that the residual landscape and visual impacts of the Project are acceptable and consistent with Clause 12.02-1S and the *Siting and Design Guidelines for Structures on the Victorian Coast,* May 2020.

The Cape Liptrap Coastal Park Management Plan only applies to Crown land, so it does not apply to the Project. Nevertheless, the design approach for the Waratah Road compound is consistent with the aims and strategies of the Management Plan.

It is worth noting that EPRs LV01, LV02 and LV03 refer to the converter station and the transition station (if needed). They do not refer to the inspection and communications building. Mr Burge and the Proponent confirmed that it was intended these EPRs apply to the Waratah Road compound irrespective of whether the transition station is built. The Proponent's Day 2 changes to EPR LV02 appropriately addressed this issue, EPR LV03 should be amended to refer to the inspection and communications building (and potential transition station) to ensure it is clear the mitigation measures apply for all buildings.

(vii) Findings and recommendations

The IAC finds:

- The Project's landscape and visual impacts are acceptable.
- The landscape and visual EPRs are appropriate to avoid and minimise impacts, subject to minor changes to LV03 to make it clear that the EPR applies to the inspection and communications building (as well as the potential transition station).

The IAC recommends:

If the Marinus Link Project proceeds, amend the Environmental Performance Requirements as shown in Appendix E:1:

a) Amend requirement LV03 to ensure the measures to minimise visual impacts are applied to the whole of the Waratah Road compound (not just the potential transition station).

18.4 Bushfire

(i) Introduction

Bushfire impacts are assessed in:

- EES Volume 4 Chapter 12 (Bushfire)
- Technical Appendix M (Victorian Bushfire Impact Assessment).

A Supplementary Report was prepared for Technical Appendix M (D45i) in relation to the revised timing for Stage 2.

Nathan Kearnes of Eco Logical Australia was principal author of Technical Appendix M and provided evidence for the Proponent on bushfire effects (D37). He appeared at the Hearing.

(ii) The issues

The issues are whether:

- the Project's bushfire impacts have been appropriately avoided and minimised, and are acceptable
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved outcomes in terms of bushfire.

(iii) What did the EES say?

Technical Appendix M included a Bushfire Hazard Assessment and Bushfire Risk Assessment of the areas where above ground infrastructure may be located (Waratah Bay and Hazelwood).[36] It involved desktop assessment to identify potential bushfire impacts and analysis of the bushfire risk context for construction, operation and decommissioning of the Project.

The bushfire risk assessment identified a relatively low risk of a fire starting and spreading in a manner which could cause significant impact to life and assets. This was based on the nature, quantity and location of assets at risk, fuel types, terrain, fire weather, fire history, land use, available fire suppression resources (nearby CFA stations), and the low ignition potential. The

[36] The Bushire Assessment also included an assessment of Driffield, but the option of locating the converter station at Driffield is no longer being pursued

undergrounding of the land cable, and the fuel free nature of the converter station and communications inspection building sites, would minimise the risk of a bushfire starting and spreading.

The bushfire impact assessment concluded the level of initial (pre-mitigated) risk from the Project was minor or insignificant across all vulnerability risk criteria. The assessment of cumulative impact of other projects including the Delburn Wind Farm found the risk insignificant, with an extremely low risk of simultaneous fire propagation within the landscape given the mitigation measures for each project.

The bushfire EPRs include:

- EPR BF01, requiring measures to avoid and manage ignition of fires during construction through the preparation of a bushfire protocol as part of the CEMP
- EPR BF02, requiring onsite firefighting water capacity to be provided in high fire risk areas
- EPR BF03, requiring a Bushfire Emergency Management Plan as a subplan of the Emergency Response Plan
- EPR BF04, requiring measures to avoid and manage ignition risks during operation through the Emergency Response Plan.

The Supplementary Report (D45i) concluded the changes to the timing of Stage 2 would not impact the conclusions or recommendations in Technical Appendix M.

(iv) Relevant policy and guidelines

The IAC has had regard to relevant policy and guidelines, including:

- Clause 13.02-1S (Bushfire planning) of the Latrobe and South Gippsland Planning Schemes and provisions of the Bushfire Management Overlay
- AS/NZS 31000:2018 *Risk Management – Principles and Guidelines*.

(v) Evidence and submissions

Mr Kearnes adopted Technical Appendix M as his evidence in relation to bushfire risk and impacts. His evidence confirmed that the construction impacts on life and property due to bushfire would be minor to insignificant. He considered the EPRs adopt a risk avoidance approach and with these in place, the residual risk would be insignificant.

HVP submitted the forestry areas were a type 4 landscape which has a very high bushfire risk. The extreme fire danger of the area meant there was potential for extreme (catastrophic) fire behaviour around the HVP plantations. HVP submitted the Project heightened fire risk on forestry resources and operations, the health and safety of forestry personnel and the community, citing the impacts of the 2019 Delburn fire (referenced in the Bushfires Royal Commission report) and the 2014 Hernes Oak fire. It submitted Technical Appendix M downplayed the level of risk, noting it:

- did not include a landscape assessment
- did not reference relevant planning policies and overlay provisions
- did not identify bushfire hazards along the cable route alignment
- had not been informed by discussions with the CFA or HVP, which would have alerted Mr Kearnes to HVP's firefighting resources including water storage points, expertise, policies and procedures, including its Fire Management Plan.

HVP proposed changes to the bushfire EPRs to include specific requirements for forestry land including requirements to:

- adhere to the forestry operator's Fire Management Plan, policies and procedures
- ensure any additional firefighting capacity does not impact forestry land or operations
- notify the forestry operator of fire outbreaks
- prohibit high risk activities during Total Fire Ban Days
- manage fuel loads along the easement and access track to reduce bushfire risk.

Mr Kearnes did not consider the Project would present bushfire risks to forestry resources and personnel that would be any higher than for other areas. He considered there would be negligible bushfire risk during the operational phase, and fire risk during construction could be avoided entirely or significantly mitigated by applying the bushfire EPRs. He considered the bushfire risk during construction was 'temporally variable' based on the time of year. This meant avoiding activities with an ignition risk on days of elevated fire danger rating, for example. Mr Kearnes observed that construction would only occur in a small portion of the land cable alignment at any one time, which contained the fire risk associated with construction activity.

In cross-examination Mr Kearnes acknowledged the plantation areas were heavily forested, had some areas of steep terrain and HVP had its own fire management plans and protocols in place. He remained of the opinion that it was unnecessary to amend the bushfire EPRs as sought by HVP. He considered the outcomes sought by HVP were accommodated by the Day 1 EPRs and that consultation with HVP that would take place as part of the CEMP and PMP.

Submitter 22 considered the Project heightened the cumulative bushfire risk by feeding into high voltage transmission infrastructure, citing Victoria's high fire risk status and the findings of the Victorian Bushfires Royal Commission into the Black Saturday fires of 7 February 2009. Submitter 22 considered the Project represented an unacceptable bushfire risk to human lives, property and the safety of communities. The risk was potentially heightened if the Project's operation was inconsistent with municipal emergency management plans, or not informed by community input. Submitter 22 also identified potential for soil and groundwater contamination associated with the use of chemical based fire retardants needed to supress electrical fires.

Submitter 17 identified potential bushfire impacts on the Strzelecki koala which were compounded by vegetation loss and other cumulative impacts. Mr Kearnes responded that any fire start and escape caused by the Project (which was unlikely) would be confined and he did not think it would have a significant impact on the koala population.

In the lead up to the Hearing the Proponent sought to engage with the CFA on the exhibited and Day 1 bushfire EPRs. The Proponent provided advice from the CFA (D137) which stated:

- Technical Appendix M lacked an assessment of bushfire policy and appropriate responses
- the Bushfire Emergency Management Plan should be prepared in consultation with the CFA before works commence, and should be reviewed annually
- the Incorporated Document should be amended to address:
  - exposure risks for radiant heat exposure at the Hazelwood and Waratah Road sites and laydown areas
  - detailed vegetation management outcomes.

The Proponent's Part C submission and Day 2 changes included amendments to the bushfire EPRs to include:

- consultation with the relevant fire authority and any industry brigade

- specific reference to a Bushfire Management Plan and a Bushfire Emergency Plan which include:
  - systems, procedures and strategies for preparedness
  - radiant heat level exposures at appropriate locations
  - reference to forestry protocols.

The CFA provided a response to the Day 2 drafting changes (D150), which proposed:

- Technical Appendix M be amended to include a landscape bushfire assessment, alternative development locations, availability of safer areas, site based exposure, road layout and bushfire protection measures
- the bushfire EPRs be amended to require the Bushfire Management Plan to include the heat exposure requirements and provide details of defendable space management, static water locations and design details.

CFA considered the latter changes would avoid the need for changes to the Incorporated Document.

(vi) Discussion

A number of the recommendations of the Victorian Bushfire Royal Commission into the 2009 fires have been implemented into Victorian Planning Schemes including through Clause 13.02-1S, the Bushfire Management Overlay and identification of bushfire prone areas. The Project area extends through designated bushfire prone areas and land affected by the Bushfire Management Overlay.

The IAC acknowledges the potential for bushfire risk from construction, as well as potential impacts on Project infrastructure from bushfire. However, the Project does not require a permit under the Bushfire Management Overlay. Consequently it does not require a bushfire hazard site assessment, bushfire hazard landscape assessment or bushfire management statement under the Bushfire Management Overlay.

That said, Clause 13.02-1S applies to all planning and decision making relating to land within a bushfire prone area or that may create a bushfire hazard. The strategies of Clause 13.02-1S include identifying bushfire hazards and undertaking appropriate risk assessments, with the objective of strengthening the resilience of settlements and communities to bushfire and prioritising the protection of human life.

While Technical Appendix M did not include a bushfire hazard landscape assessment, the IAC considers it applied an appropriate methodology and analysis of risk associated with the Project's construction, operation and decommissioning. It may not specifically mention planning policy and overlay provisions, but the level of bushfire hazard identification and assessment is adequate and broadly consistent with Clause 13.02-1. In particular, the assessment records higher bushfire hazard types and the higher incidence of wildfire in plantations, identifies the impact on assets including plantations and proposes EPRs aimed at ignition avoidance and fire suppression.

Based on Mr Kearnes' evidence, the IAC is satisfied the bushfire risks from construction will be low to minimal. Large parts of the land cable alignment are through generally flat to undulating terrain and open landscape conditions within farming areas. The alignment does extend through forested areas and steeper terrain where the existing landscape hazard risk levels are high. However, the IAC is satisfied the risk of ignition resulting from construction activity through plantation areas is low, and can be appropriately avoided or managed with the Day 2 bushfire EPRs in place.

The risks of the Project starting a bushfire during operation are limited to the Hazelwood and Waratah Road sites. These sites are in open farmland, away from forested areas. The application of radiant heat exposure levels as suggested by the CFA is appropriate for these sites.

Regarding Submitter 22's concerns, there is no evidence to suggest that the Project will heighten the risk of bushfire from the existing 500 kilovolt transmission infrastructure it proposes to connect into.

The CFA were not consulted in the preparation of Technical Appendix M. They were not a member of the Technical Reference Group. While the bushfire risks from the Project are considered low, given the location of the Project in bushfire prone areas and in areas which have a high fire risk and been previously impacted by fire, it would have been helpful if the CFA had been directly engaged in the preparation of Technical Appendix M and the bushfire EPRs.

While the IAC acknowledges the CFA's criticisms of Technical Appendix M, there is nothing gained by a detailed review and rewrite of Technical Appendix M at this stage of the EES process. The focus should instead be on the adequacy of the EPRs and ensuring that bushfire management protocols and plans developed under the EPRs respond appropriately to the bushfire risks.

The IAC supports the Proponent's Day 2 changes to the bushfire EPRs, including requirements to:

- engage with the CFA in preparing bushfire plans and protocols
- consult with industry brigades
- refer to bushfire management protocols for forestry properties
- clarify the requirement to prepare a Bushfire Emergency Management Plan.

Other EPRs will further assist in reducing fire risk, including:

- climate change EPR CC01, which requires the CEMP to include a response to extreme and chronic weather events including bushfire
- social impact EPR S01, which requires consultation with local emergency response providers.

The CFA sought the inclusion of detailed design requirements in the EPRs. Consistent with the principles outlined in Chapter 8, the IAC considers these are best dealt with in the plans and protocols developed under the EPRs, rather than the EPRs themselves. For example, the Bushfire Management Plan should focus measures such as radiant heat levels, protocols for managing fuel levels, defendable spaces and water supply arrangements and emergency procedures.

The objectives sought to be achieved by HVP's proposed changes to the bushfire EPRs are broadly accommodated in the Proponent's Day 2 version. That said, the EPRs could be more clearly expressed, and should:

- require consideration of forest operator bushfire management plans (BF01)
- ensure the firefighting capacity (water access) of other landholders is not impacted (BF02)
- require landholder communication protocols in the event of an outbreak of fire (BF03)
- ensure vehicle access for industry brigades is maintained (BF04).

The IAC also considers it appropriate for the EPRs to acknowledge the relevant council municipal emergency management plans which provide for coordinated management approaches between agencies. The appropriate location to reference these plans and related council engagement is in social impact EPR S06 (emergency response plan engagement).

(vii) Findings and recommendations

The IAC finds:

- While parts of the Project alignment are located within high risk bushfire prone areas (particularly within forestry plantations), the bushfire risks of the Project are acceptable.
- The Day 2 bushfire EPRs are suitable to avoid and minimise bushfire risks, subject to changes to:
  - require consideration of forest operator bushfire management plans
  - ensure the firefighting capacity of landholders is not impacted
  - require communication with landholders in the event of an outbreak of fire
  - require vehicle access for industry brigades to be maintained.
- Social impact EPR S06 should be revised consistent with the changes to the bushfire EPRs, and to include engagement with relevant councils in relation to municipal emergency management plans.

The IAC recommends:

If the Marinus Link Project proceeds, amend the Environmental Performance Requirements as shown in Appendix E:1:

a) Amend requirements BF01, BF02, BF03 and BF04 to:
- **require consideration of forest operator bushfire management plans**
- **ensure the firefighting capacity of landholders is not impacted**
- **require communication with landholders in the event of an outbreak of fire**
- **require vehicle access for industry brigades to be maintained.**

b) Amend requirement S06 to provide for engagement with relevant councils in relation to Municipal Emergency Management Plans.

18.5 Greenhouse gases and climate change impacts

(i) Introduction

Climate change impacts and greenhouse gas (GHG) impacts are assessed in:

- EES Volume 1 Chapter 9 (Sustainability, climate change and greenhouse gas emissions)
- Technical Appendix C (Climate and Climate Change Assessment)
- Technical Appendix D (Greenhouse Gas Assessment).

Supplementary Reports were prepared to Technical Appendix C (D45c) and Technical Appendix D (D45d) in relation to the revised timing for Stage 2.

Craig Miller of Katestone Environmental Pty Ltd was principal author of Technical Appendices C and D and provided evidence for the Proponent on climate change and greenhouse gas effects (D28). He appeared at the Hearing.

One other key document is:

- D110 – Proponent Response to IAC's questions.

(ii) The issues

The issues are whether:

- the Project's GHG impacts have been appropriately avoided and minimised, and are acceptable
- the Project has been appropriately designed to be resilient to the impacts of climate change
- feasible modifications to the design or management of the Project, or changes to the EPRs, would provide improved outcomes in terms of GHG impacts or climate resilience.

(iii) What did the EES say?

Greenhouse gas impacts

The Greenhouse Gas Assessment (Technical Appendix D) estimates that the Project will contribute to a reduction of at least 140 million tonnes of GHG emissions each year by 2050 due to facilitating increased renewable energy across the NEM. The assessment states:

> Commissioning of Marinus Link unlocks the achievement of the 200% Tasmanian Renewable Energy Target of 10,500 MWh of additional renewable generation. This has been independently verified by the Tasmanian and Commonwealth Governments and is reflected in the Commonwealth-Tasmanian Bilateral Energy and Emissions Reduction Agreement.

Technical Appendix D calculated the Project's GHG emissions at:[37]

- just under 216,000 tonnes of carbon dioxide equivalent ($tCO_{2\text{-}e}$) over the construction phase (2025 to 2030)
- maximum annual GHG emissions of just over 235,000 $tCO_{2\text{-}e}$ during operations.

Operational emissions from the Project are expected to amount to 0.05 percent of national annual GHG emissions, and up to 0.24 percent of Victorian annual GHG emissions over the life of the Project.

Most of the construction emissions are Scope 1 (direct) emissions attributable to the clearing of vegetation, and Scope 3 (indirect) emissions embedded in construction materials used for the Project such as concrete and steel.

Most of the Project's operational emissions are attributable to transmission losses, which result mainly from electrical resistance (the generation of heat when electric current passes through a conductor). They are influenced by the electrical infrastructure used, electrical throughput and atmospheric conditions (transmission losses are higher in higher temperatures).

Another key source of GHG emissions is sulphur hexafluoride (SF_6) gas, which is used to insulate high performance transformers. SF_6 is a potent GHG with extremely high warming potential.[38] Emissions of SF_6 can occur during the manufacture and filling of electrical switchgear, and from leakage during operation and maintenance of equipment. SF_6 may be used in the Waratah Bay transition station (if required). Technical Appendix D explained that commercially viable and practicable alternatives to SF_6 are not currently available, but recommended alternatives be used should they become available.

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[37] These are gross calculations that do not reflect the anticipated GHG abatement attributable to the Project (140 million tonnes per year by 2050).

[38] SF_6 has a global warming potential of 23,500 compared to 1 for carbon dioxide.

The Project's GHG impacts are proposed to be minimised by the GHG EPRs:

- EPR GHG01 requires construction emissions to be minimised by, for example:
  - purchasing green energy, maintaining equipment and vehicles and using low carbon concrete
  - measures to avoid SF_6 leakage
- EPR GHG02 requires operational emissions to be minimised by, for example:
  - maintenance of SF_6 insulated equipment
  - use of low emissions fuel and green energy and regular maintenance of vehicles and equipment.

GHG02 also requires annual reporting of Scope 1 and 2 emissions throughout the life of the Project.

Other EPRs will contribute to minimising the Project's GHG emissions, for example:

- EPR EM07 requires a waste management plan to be developed and implemented, including identifying how wastes will be monitored and reported (the EP Act defines GHG as waste)
- rehabilitation requirements in various EPRs, including revegetation (examples are A04, AW01 and SW05).

Technical Appendix D recommended considering offsetting the Project's GHG emissions through purchasing carbon credits and revegetating the construction footprint or other degraded land.

The relevant Supplementary Report (D45d) indicated no change to GHG impacts as a result of the revised timing of Stage 2.

Climate change resilience

Climate change is resulting in increased extreme weather events such as storms and storm surges, longer, hotter and drier summers and bushfire seasons, increased soil and sea temperatures and sea level rise and increased coastal erosion. The Climate and Climate Change Assessment (Technical Appendix C) states:

> Interacting weather events or conditions [resulting from climate change] pose a material risk to the structural and functional integrity of Marinus Link infrastructure, with potentially cascading consequences, affecting the delivery of essential services.

This could lead to a range of risks to the environment and community, including:

- interruptions in transmission of electricity
- overheating of transmission lines that the Project connects into, leading to ignition of bushfires.

Technical Appendix C indicated some risks to Project infrastructure may be mitigated through improved design measures such as increased engineering tolerances and inbuilt redundancy. It also recommended the potential impact of extreme or chronic weather events on the operation of the Project be evaluated through scenario analysis as part of the design process. Table 13 of the assessment set out various potential risk control measures.

EPR CC01 requires measures to be implemented to address the impacts of climate change on Project infrastructure, for example:

- designing for increased ambient temperatures, sea level rise and coastal erosion
- including measures in the environmental management plans (the CEMP and OEMP) to address extreme or chronic weather events such as bushfires.

Other EPRs will assist in addressing climate related risks, such as:

- EPRs BF01 to BF04, requiring various measures to avoid or minimise bushfire risks
- EPR SW02, requiring the Project to be designed to mitigate flood risks to the Project
- EPR SW03, requiring a flood risk management plan to demonstrate how the Project will be constructed to avoid flood risks to the surrounding community
- EPR S06, requiring a Project emergency response plan.

The relevant Supplementary Report (D45c) indicated no change to climate risks as a result of the revised timing of Stage 2.

(iv) Relevant policy and guidelines

The IAC has had regard to relevant policy and guidelines, including:

- the *Climate Change Act 2017* and *Victoria's Climate Change Strategy* 2021
- State and Commonwealth Government emissions reduction targets
- the EP Act, including the GED
- the Protocol for Environmental Management: Greenhouse Gas Emissions and Energy Efficiency in Industry
- EPA Publication 2048: *Guideline for managing greenhouse gas emissions*, EPA, 2022 (EPA Publication 2048).

(v) Evidence and submissions

Mr Miller adopted Technical Appendices C and D as his evidence in relation to GHG impacts and climate risks.

His evidence responded to concerns about GHG impacts and climate risks raised in submissions, including:

- the EPA (S18), which noted the GED requires operators to identify, assess and minimise risks from their GHG emissions
- Submitter 4, who submitted the Project raises significant concerns about climate change, environmental degradation and pollution which threaten terrestrial and marine ecosystems
- Submitters 12 and 13, who raised the possibility of extreme drought leading to water shortages for Tasmanian hydro projects, raising questions about the need and rationale for the Project.

Mr Miller responded that the Greenhouse Gas Assessment and GHG EPRs apply current best practice under both Victorian and Commonwealth regulatory regimes for assessing, avoiding and minimising GHG emissions. In relation to climate risks, Mr Miller agreed that both the existing climate, and climate change, pose risks to the safe and successful construction and operation of the Project. He noted the EPRs require design and governance measures to be implemented to address the potential impacts of climate change on the Project.

Mr Miller acknowledged an increased likelihood of extreme or extended drought conditions in Tasmania under climate change, which is likely to affect water availability in Tasmanian storages. He considered this poses a material risk to Hydro Tasmania's operations, but is not relevant to the construction or operation of the Project.

Mr Miller noted that no submissions were made in relation to the impacts of climate change on Project infrastructure, and no submissions sought changes to the GHG or climate change EPRs. Mr

Miller considered the Day 1 GHG and climate change EPRs (which included no changes from the exhibited version) to be appropriate.

In her verbal submissions to the IAC, Submitter 12 queried the claim in the EES that the Project would deliver a substantial amount of GHG abatement. Her view was that the Project would not remove a single tonne of CO_2-e from the atmosphere, but would remove trees which sequester and store atmospheric carbon. She submitted the Project seems to be encouraging greater use of electricity rather than less. She submitted the Project does not address climate change resilience, creating more complex and centralised electricity supply systems which, if interrupted, have a significant impact on the community.

(vi) Discussion

Greenhouse gas impacts

GHG emissions are considered waste and pollution under the EP Act, and subject to the duties under the Act to identify, assess, avoid and minimise emissions by developing and implementing controls. GHG emissions can also cause harm, by contributing to climate change. They are therefore subject to the GED.

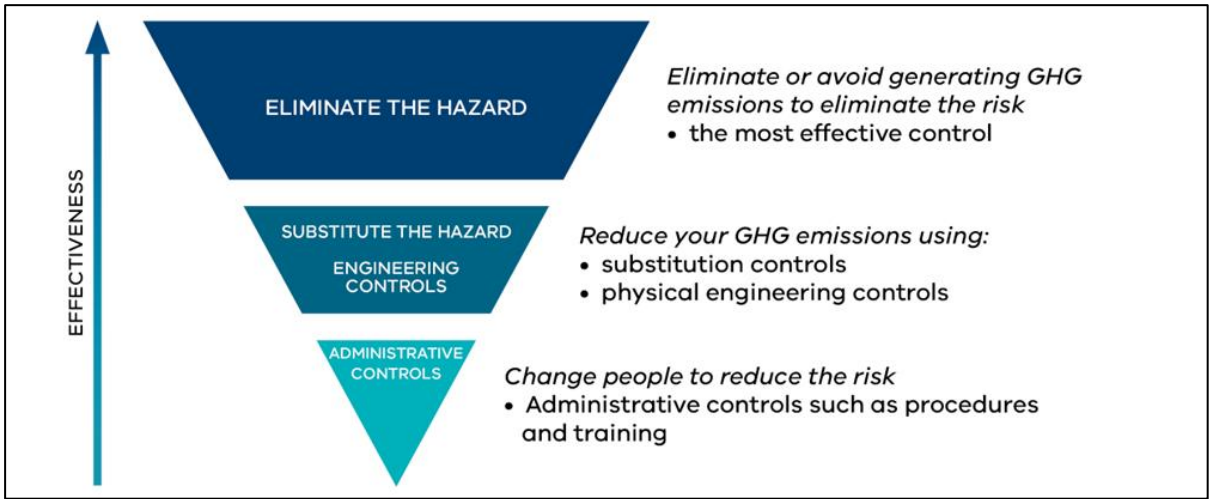
EPA Publication 2048 provides guidance to businesses on complying with the GED and how they can identify, assess and minimise risks from their GHG emissions. It states:

> Doing what is reasonably practicable means putting in proportionate controls to understand and minimise the risk of harm from GHG emissions. Being proportionate means the greater the risk of harm (for example, the type and quantity of your GHG emissions), the greater the expectation for you to minimise it.

The IAC is satisfied the methodology used in the Greenhouse Gas Assessment broadly complies with the preferred methodology outlined in Publication 2048. The assessment documented the Project's various emissions sources, and calculated the Project's Scope 1, 2 and 3 emissions using emissions rates from the National Greenhouse Accounts as required by EPA Publication 2048.

The GHG EPRs generally reflect the preferred hierarchy of controlling hazards and risks set out in EPA Publication 2048 (see Figure 9). GHG01 and GHG02 generally focus on substituting or eliminating the hazard, including measures such as minimising vegetation clearance, maintenance of vehicles and equipment including SF_6 insulated equipment, and minimising SF_6 leakage.

Figure 9 Hierarchy of controlling hazards and risks



Source: Publication 2048

Managing the Project's GHG emissions is not a 'set and forget' exercise. As EPA Publication 2048 points out:

> Application of the control hierarchy and assessment of risk controls is a dynamic process. It should be done regularly to identify whether control measures continue to minimise risk so far as reasonably practicable.
>
> A key consideration when reviewing risks is whether you can improve current risk controls by adopting controls that are higher on the control hierarchy…

EPR GHG02 requires identification of opportunities to reduce operational Scope 1 and Scope 2 emissions before commencement of operation. Consistent with EPA Publication 2048, this should be an ongoing obligation throughout the 40 year operational life of the Project. This, combined with the requirements to report on the Project's Scope 1 and 2 GHG emissions annually (GHG02) and audit compliance with EPRs during operation (EM04), will allow the Project's emissions to be progressively monitored and reduced as new technologies and management techniques become available.

The single biggest source of the Project's Scope 1 emissions during construction is vegetation clearance. The IAC's recommendations in Chapter 9 to continue to avoid and minimise vegetation loss as the detailed design of the Project is finalised will assist in reducing this source of GHG emissions. Further, several EPRs require rehabilitation and revegetation of the construction corridor once construction is complete, which will assist in mitigating the emissions attributable to vegetation clearing.

The biggest source of GHG emissions during the Project's operational phase are Scope 2 emissions arising from transmission losses. The IAC asked the Proponent how transmission losses had been or could be minimised. The Proponent explained in its Part A submission that transmission losses have been or will be minimised through:

- the selection of HVDC technology for the Project (HVDC offers a 30 to 40 per cent advantage over high voltage alternating current in terms of transmission losses)
- the procurement of cables and other Project elements having regard to manufacturer specifications and performance of particular components.

The Proponent pointed out that transmission losses will be increasingly unrelated to GHG emissions as the power transmitted through the cables is increasingly generated from renewable (zero emission) sources.

Mr Miller's evidence supported the Proponent's submission that transmission losses will be primarily minimised though the use of HVDC and cable and equipment selection. In response to a question from the IAC, he pointed out that undergrounding the cables minimises transmission losses induced by high ambient temperatures.

SF_6 leakage is a significant single source of potential Scope 1 emissions during the operational phase of the Project. Technical Appendix D recommended the use of SF_6 alternatives should they become reasonably practicable and commercially available. In response to a question from the IAC, Mr Miller indicated that alternatives could be retrofitted. The Day 1 EPRs do not require the use of SF_6 alternatives. The IAC considers they should be amended to reflect the recommendations in Technical Appendix D and Mr Miller's evidence.

It is worth noting that the emissions calculations in Technical Appendix D are gross GHG emissions that do not take account of the Project's potential contribution to GHG abatement. Technical Appendix D estimates abatement of up to 140 million tonnes of CO_2-e per year by 2050, which would (if realised) offset the Project's annual emissions by a very substantial margin.

The IAC asked Mr Miller how the abatement figure (140 million tonnes per year) was calculated. The Proponent provided an answer in D110. It results from "*high-level calculations carried out internally by the Proponent several years ago and is based on a number of assumptions*". The IAC has not given much weight to the Project's estimated contribution to GHG abatement, given their high level nature. That said, the IAC accepts that the Project could, in theory, have a net positive impact on Victoria's GHG emissions by facilitating a greater proportion of renewable generated power in the NEM.

The IAC is satisfied that the Project's impacts from GHG emissions will be acceptable, and may in fact result in some overall benefits although these have not been reliably quantified.

For completeness:

- the assertions from Submitter 4 that the Project raises significant concerns about climate change were broad in nature and it was not clear to the IAC what aspects of the Project the submitter has concerns about
- the IAC agrees with Mr Miller and the Proponent that while climate change may lead to water shortages for Tasmanian hydro projects, this is not a question that relates to the impacts of the Project on the Victorian environment.

Climate change resilience

Mr Miller acknowledged that both the existing climate and climate change pose risks to the safe and successful construction and operation of the Project. He acknowledged that if Project infrastructure is rendered non-operational by climate related extreme weather events, this could have significant impacts for the community in terms of power disruptions.

The EPRs require design and governance measures to be implemented to address the potential impacts of climate change on the Project and ensure its resilience to climate related impacts. EPRs SW02 and SW03 require the Project to be designed and constructed to mitigate flood risk. Undergrounding the cables will provide significant protection against storm related damage (particularly wind), as well as extreme heat and bushfire. Backfilling the land cable trench with permeable material should limit the risk of the cable being affected by flooding or excessive build up of water, as discussed in Chapter 12.3.

The IAC is satisfied that the Project design and the EPRs adequately respond to the risks posed by climate induced events, and the Project has been (and will be) designed with appropriate regard to the need for climate change resilience.

(vii) Findings and recommendations

Regarding GHG emissions, the IAC finds:

- The climate change impacts of the Project's GHG emissions will be acceptable. The Project may in fact result in some overall climate change benefits, although these have not been reliably quantified.
- To deliver improved GHG outcomes, the GHG EPRs should be strengthened to:
  - reflect the recommendation in Technical Appendix D that SF_6 alternatives be used where reasonably practicable and commercially viable
  - require ongoing consideration of ways in which to reduce the Project's operational GHG emissions.
- The Proponent should consider offsetting emissions through purchasing carbon credits and revegetating degraded land in the vicinity of the Project, as suggested by Technical

Appendix D. The IAC does not consider a formal recommendation to this effect is warranted.

Regarding climate change resilience, the IAC finds:

- The Project has been designed with appropriate regard for the need for climate change resilience.
- The Proponent should consider the potential climate related hazards and risk control measures in Table 13 of Technical Appendix C when finalising the detailed design of the Project.

The IAC recommends:

If the Marinus Link Project proceeds, amend the Environmental Performance Requirements as shown in Appendix E:1:

a) Amend requirements GHG01 and GHG02 to require the use of sulphur hexafluoride alternatives should they become reasonably practicable and commercially available.

b) Amend requirement GHG02 to require ongoing review and identification of opportunities to reduce the Project's Scope 1 and 2 emissions.

PART C: INTEGRATED ASSESSMENT

19 Integrated assessment

19.1 Introduction

In accordance with Clause 42(b) of the IAC's Terms of Reference, this chapter brings together the IAC's position on whether acceptable environmental outcomes can be achieved, having regard to legislation, policy, best practice, and the principles and objectives of ecologically sustainable development.

19.2 Key principles

One of the key overarching legislative and policy requirements under the PE Act is whether the Project can deliver net community benefit. Net community benefit is relevant for assessing whether the Project should receive planning approval (whether the draft PSA should be adopted). It is also a form of integrated assessment of the Project's environmental, social and economic impacts, which is required under the IAC's Terms of Reference.

Clause 71.02-3 (Integrated decision making) of the Latrobe and South Gippsland Planning Schemes provides:

> Society has various needs and expectations such as land for settlement, protection of the environment, economic wellbeing, various social needs, proper management of resources and infrastructure.
>
> Planning aims to meet these needs and expectations by addressing aspects of economic, environmental and social wellbeing affected by land use and development. Planning and responsible authorities should endeavour to integrate the range of planning policies relevant to the issues to be determined and balance conflicting objectives in favour of net community benefit and sustainable development for the benefit of present and future generations. However, in bushfire affected areas, planning and responsible authorities must prioritise the protection of human life over all other policy considerations.

The principles of ecologically sustainable development include (among other things):

- the principle of sustainable use
- the principle of integration
- the precautionary principle
- inter-generational and intra-generational equity
- conservation of biological diversity and ecological integrity.

19.3 Discussion

An integrated assessment requires a careful balance between the environmental, social and economic impacts of the Project. Short, medium and long term impacts must all be considered, including the need to preserve intergenerational equity and safeguard the welfare of future generations.

Under Clause 35 of its Terms of Reference, the IAC has carefully considered the EES and draft PSA, all submissions and evidence provided to the IAC, the views of Traditional Owners to the extent known, and all other information provided by the Proponent and parties listed in Appendix D.

While not all assessments underpinning the EES are complete, the assessments are generally appropriate for this stage of the assessment process, and allow a finding to be reached that the Project will deliver acceptable environmental, social and economic outcomes.

The selection of the subsea and land cable alignments had appropriate regard to terrain and geomorphic characteristics, and the route selection appropriately sought to avoid and minimise harm. While these were not the only considerations influencing the initial design of the Project, the IAC is satisfied that avoidance and minimisation of environmental impacts has been appropriately balanced with other criteria such as cost, land availability, constructability and the like.

The selection of an HVDC cable is a key design decision that will minimise EMI impacts on both the marine and terrestrial environments. Other key design decisions included undergrounding the land cables and constructing the shore crossing and sensitive waterway crossings using trenchless methods. These decisions have minimised the Project's landscape and visual impacts and the vulnerability of Project infrastructure to bushfire and storm damage, and have significantly reduced the environmental impacts of the Project.

The Project will deliver benefits to the Victorian community, including a more secure supply of electricity and facilitating the transition to net zero. BassLink is reaching capacity, and a new connection is required to allow current and future renewable energy projects in Tasmania to boost the supply of renewable generated electricity in Victoria and in the NEM. The Project will deliver a boost to the Victorian economy, through investment and by increasing job numbers. It may place downward pressure on electricity prices, although there is no clear evidence base demonstrating this.

The benefits of the Project need to be balanced against its impacts. While the environmental, social and economic impacts of the Project will broadly be acceptable, some modifications are required to the design or management of the Project to deliver improved environmental outcomes. These can be implemented through changes to the EPRs.

The IAC's recommended changes to the EPRs have been informed by the principles of ecologically sustainable design and the principles for well crafted EPRs outlined in Chapter 8. The changes seek to ensure:

- the survey and assessment of native vegetation that could be impacted by the Project is completed before construction starts, including in areas that support koala habitat and biolinks and offset sites on forestry property
- the assessment of suitable habitat for threatened flora and fauna species is completed before construction starts, and final design avoids and minimises impacts on threatened species and their habitat including the critically endangered Bog Gum
- measures are implemented to limit the spread of Chytrid fungus, which can impact amphibians including the vulnerable Growling Gass Frog
- the undersea cable alignment avoids seagrass to the extent practicable
- the marine fauna management plan includes strengthened requirements to protect marine species from underwater noise and vessel collisions
- the marine fauna management plan (and other marine species specific plans) apply both during construction and inspection, maintenance and repair of the subsea cable
- a plan is developed to monitor and address cumulative impacts of the Project and other projects on the marine environment
- strengthened geomorphological and surface water EPRs, where the IAC has recommended adding requirements to:

  - ensure proper assessments of waterway values and aquatic habitats are undertaken before trenched waterway crossings are constructed, and that these inform the construction method selected for the crossing
  - ensure the design and construction method for waterway crossings has regard to geomorphological conditions and ensures waterway stability
  - further investigate the property at 380 Darlimurla Road
  - test for sodic and dispersive soils
  - limit the risk of frac-out at the shore crossing
  - consider the Code of Practice for Timber Production in forestry areas
- heat impacts of the land cables (as well as EMI) are considered in the design and construction of the Project
- noise impacts on natural outdoor areas are considered and minimised
- low frequency noise is considered in the design and operation of the converter station
- the bushfire EPRs are streamlined and clarified, and the bushfire plans are developed in consultation with the CFA.

Minor changes are also required to the Incorporated Document to clarify and strengthen offset requirements for native vegetation removal.

19.4 Assessment against evaluation objectives

Table 11 summarises the IAC's assessment of the Project with regard to the evaluation objectives.

Table 11 IAC's assessment against the evaluation objectives

Environmental value	IAC's assessment against evaluation objective
Biodiversity and ecological values	
Evaluation objective: Avoid, and where avoidance is not possible, minimise adverse effects on terrestrial, aquatic and marine biodiversity and ecology, including native vegetation, listed threatened species and ecological communities, other protected species and habitat for these species, and to address offset requirements consistent with state policies.	
Native vegetation, threatened flora species and threatened ecological communities	The Project can meet the evaluation objective, provided native vegetation surveys and assessments are completed before construction starts, and the further assessments inform the detailed design and construction methods so that they avoid and minimise impacts on native vegetation. The further surveys need to include areas that support koala habitat and biolinks and offset sites on forestry property. Detailed design and construction techniques may need to include micro siting the land cable alignment or constructing parts of the trenches using trenchless construction methods to avoid patches of high quality native vegetation or individual specimens of threatened flora including Bog Gum trees.
Threatened and protected fauna species including aquatic fauna	The Project can meet the evaluation objective, provided habitat surveys and assessments are completed before construction starts, and the further assessments inform the detailed design and construction methods so that they avoid and minimise impacts on habitat. Further assessment will be required of the unsurveyed parts of the land cable alignment and all waterway crossings that are proposed to be trenched. They will need to include surveys for habitat for both ground-dwelling fauna species and aquatic species.
Koalas	The Project can meet the evaluation objective, subject to further assessment of koala habitat in the Project area, and the selection of a final design and construction methods

Environmental value	IAC's assessment against evaluation objective
	that avoid and minimise impacts on koala habitat. This is provided for the in IAC's recommended EPRs.
Offset requirements	The Project meets the evaluation objective subject to minor modifications to Clause 5.6.2 of the Incorporated Document to clarify offset requirements.
Marine and catchment values	
Evaluation objective: Avoid and, where avoidance is not possible, minimise adverse effects on land and water (including groundwater, surface water, waterway, wetland, and marine) quality, movement and availability	
Surface water	The Project can meet the evaluation objective, provided proper assessments of waterway values and aquatic habitats are undertaken before trenched waterway crossings are constructed, and waterway crossings are designed and constructed having regard to geomorphological conditions, processes and risks and to ensure waterway stability. Sixteen waterways, including the eight major waterways (including the Little Morwell River), are proposed to be crossed using trenchless construction methods. While trenchless construction methods will not necessarily deliver improved environmental outcomes (compared to trenched crossings) in all cases, the technical studies have determined that trenchless construction will reduce impacts on these waterways compared to trenched construction methods. The further assessments may identify other crossings that need to be constructed using trenchless methods. The IAC's recommended EPRs put in place a process to ensure the appropriate assessments are undertaken, and crossings are appropriately designed and constructed to manage impacts to waterways. This includes locating HDD drill pads away from waterways, and giving consideration to the Code of Practice for Timber Production when project works are undertaken near waterways in forestry areas.
Groundwater	The Project meets the evaluation objective. No changes are required to the groundwater EPRs to deliver improved environmental outcomes.
Marine	The Project can meet the evaluation objective, subject to the IAC's recommended additional requirements in the EPRs to ensure: - the undersea cable alignment avoids seagrass to the extent practicable - the marine fauna management plan includes strengthened requirements to protect marine species from underwater noise and vessel collisions - the marine fauna management plan (and other marine species specific plans) apply both during construction and inspection, maintenance and repair of the subsea cable - a plan is developed to monitor and address cumulative impacts of the Project and other projects on the marine environment. These requirements are included in the IAC's recommended changes to the EPRs.
Geomorphology and soils	The Project can meet the evaluation objective, subject to the IAC's recommended additional requirements in the EPRs to ensure: - the design and construction methods for waterway crossings has regard to geomorphological conditions and waterway stability - the geomorphological conditions at 380 Darlimurla Road are investigated in more detail - testing is undertaken for sodic and dispersive soils - the risk of frac-out at the shore crossing is managed - the Code of Practice for Timber Production is considered in relation to works in forestry areas - heat impacts of the land cables (as well as EMI) are considered in the design and

Environmental value	IAC's assessment against evaluation objective
	construction of the Project.
Contamination and ASS	The Project can meet the evaluation objective subject to the IAC's recommended changes to EPR EM07 to include an additional waste management plan requirement for an inventory of the types and volume of waste, disposal method and location and contractor transporting the waste to be maintained.
Cultural heritage	
Evaluation objective: Protect, avoid and where avoidance is not possible, minimise adverse effects on historic heritage values, and tangible and intangible Aboriginal cultural heritage values, in partnership with Traditional Owners	
Aboriginal and non-Aboriginal cultural heritage	The Project meets the evaluation objective. No changes are required to the cultural heritage or underwater cultural heritage EPRs to deliver improved environmental outcomes.
Agriculture, land use and socioeconomic	
Evaluation objective: Avoid and, where avoidance is not possible, minimise adverse effects on agriculture, forestry and other land uses, social fabric of communities, and local infrastructure, businesses and tourism.	
Forestry	The Project can meet the evaluation objective if the Day 2 changes to the agriculture and forestry EPRs are included (in addition to other minor changes recommended by the IAC). A substantial portion of the land cable alignment extends through HVP's plantations. The Project has the potential to impact HVP's operations at these locations, primarily though the permanent loss of production within the easement. The Day 2 EPRs are substantially more detailed in addressing forestry impacts than the exhibited EPRs. With minor further additions recommended by the IAC, the EPRs will manage forestry impacts to an acceptable level. Impacts on HVP's business will be compensated through the process to acquire the easement.
Agriculture	The Project can meet the evaluation objective subject to minor changes to the agriculture and forestry EPRs. The main tool for managing impacts on individual agricultural operations will be the PMPs. Provided these are negotiated in good faith, implemented and regularly reviewed, impacts will be acceptable. While individual businesses will be impacted by the easement, the Project will have no impact on the regional availability of land for agricultural production or overall agricultural productivity.
Land use	The Project meets the evaluation objective. No changes are required to the Day 2 land use and planning EPRs to deliver improved environmental outcomes.
Economic	The Project meets the evaluation objective. No changes are required to the Day 2 EPRs to deliver improved environmental outcomes.
Social	The Project meets the evaluation objective. No changes are required to the Day 2 EPRs to deliver improved environmental outcomes.
Amenity, health, safety and transport	
Evaluation objective: Avoid and, where avoidance is not possible, minimise adverse effects on community amenity, health and safety, with regard to noise, vibration, air quality including dust, the transport network, greenhouse gas emissions, fire risk and electromagnetic fields.	
Noise and vibration	The Project can meet the evaluation objective subject to the IAC's proposed changes to the noise and vibration EPRs to ensure noise impacts on natural outdoor areas are considered and minimised, and low frequency noise is considered in the design and operation of the converter station.

Environmental value	IAC's assessment against evaluation objective
Air quality	The Project meets the evaluation objective subject to the IAC's recommended minor changes to air quality EPR AQ01 to include continuous improvement in the Construction Dust Management Plan.
Transport network	The Project meets the evaluation objective. No changes are required to the traffic and transport EPRs to achieve improved outcomes.
Greenhouse gas emissions	The Project meets the evaluation objective subject to the IAC's recommended minor changes to the greenhouse gas EPRs requiring the use of sulphur hexafluoride alternatives should they become reasonably practicable and commercially available, and ongoing review and identification of opportunities to reduce the Project's Scope 1 and Scope 2 emissions.
Bushfire impacts	The Project can meet the evaluation objective, subject to changes to the bushfire EPRs to include appropriate consideration of forestry landholder firefighting practices and access requirements, and to ensure local Councils are consulted in relation to the emergency management plans. The IAC's recommended EPRs include these changes.
Electromagnetic fields and heat impacts	The Project meets the evaluation objective subject to the IAC's recommended changes to EPR EMF01 to include specific reference to the consideration of thermal impacts in the Project design.
Landscape and visual	
Evaluation objective: Avoid and, where avoidance is not possible, minimise potential adverse effects on landscape and visual amenity.	
Landscape and visual impacts	The Project meets the evaluation objective, although minor changes are needed to EPR LV03 to ensure it applies to the whole of the Waratah Road compound (not just the transition station if needed). The IAC's recommended EPRs include these changes.

19.5 Primary finding

The IAC finds:

With the changes to the Environmental Performance Requirements recommended by the Inquiry and Advisory Committee in Appendix E:1, and the changes recommended to the Marinus Link Project Incorporated Document in Appendix E:2, the effects of the Marinus Link Project on the Victorian environment can be managed to an acceptable level.

PART D: IMPLEMENTATION

20 Draft Planning Scheme Amendment

20.1 Introduction

Clause 5 of the Terms of Reference requires the IAC to review the draft PSA, consider any related submissions and recommend any changes that it considers necessary.

20.2 Evidence and submissions

The evidence of Ms Boag was the draft PSA:

- was prepared in accordance with Ministerial Direction 11 (Strategic Assessment of Amendments) and Ministerial Directions in relation to potentially contaminated land (Mr Tiddy agreed on the latter)
- had considered and balanced the relevant state and local planning policies
- utilised the appropriate Victoria Planning Provisions that reflect the scale and importance of the Project and the EES assessment process.

Her evidence was that the proposed controls would be enforceable, to ensure the environmental impacts of the Project would be acceptably managed.

Ms Boag considered the Incorporated Document:

- contained an appropriate framework for the approval of plans (including Alignment Plans and Development Plans) and implementation of the EMF, CEMP and sub-plans
- provided flexibility to allow for realignment in certain circumstances
- contained appropriate conditions relating to the removal and off-setting of native vegetation, consistent with the requirements of Clause 52.17 of the Planning Schemes.

Ms Boag considered the Strategic Assessment Report which supports the draft PSA could be updated to reflect the revised Victorian Energy Targets of 65 per cent by 2030 and 95 per cent by 2035.

Mr Darras gave evidence that the requirements of EPRs GM01 and GM02 broadly encompassed the level of geotechnical assessment required by the Environment Management Overlay following Amendment C119sgip.

Submission 25 considered that the Minister for Planning being the responsible authority meant Council would not have a say on matters such as emergency management. Mr Boag considered it appropriate to make the Minister the responsibly authority as this would avoid the need for planning approval from two Councils, ensuring process efficiency and consistency.

Submitter 20 questioned whether the Amendment had considered South Gippsland Planning Scheme Amendment C119sgip relating to changes to the Erosion Management Overlay or Latrobe Planning Scheme Amendment C131latr which proposes application of flood controls. Ms Boag responded that the recently gazetted Amendment C119sgip meant that a planning permit is now required for a broader range of buildings and works, and previous exemptions for powerlines no longer apply. Ms Boag did not consider this necessitated any changes to the draft PSA.

DEECA's submission sought changes to the draft PSA relating to native vegetation removal, to ensure the Special Controls Overlay boundary incorporates all areas where native vegetation might need to be removed, including impacted tree protection zones and roadsides where lopping is required for access, so that further planning approvals are not required.

HVP sought changes to the Incorporated Document to (among other things):

- ensure the consent of landholders is received before approval of Alignment Plans and Development Plans
- include landholders as stakeholders to be consulted in relation to any application to amend Alignment Plans or Development Plans
- require the EMF to operate until decommissioning rather than 2 years after the commencement date.

20.3 Discussion

The development of the Project (including its construction, staging, operation and decommissioning) requires approval under both the Latrobe and South Gippsland Planning Schemes. The Project would ordinarily require planning permits from both the Latrobe and South Gippsland Councils, separate referrals to a range of agencies, and public notice.

In the context of a complex layering of planning controls, planning polices and two responsible authorities, the IAC considers the application of the Special Control Overlay with the Minister as the responsible authority to be appropriate. The controls will provide for:

- a simpler approvals process which will reduce administrative and cost burdens on the two Councils, government agencies and the Proponent
- a more efficient, integrated and consistent assessment process including the consideration of secondary consents across two planning schemes
- consistency with the EMF and relevant EPRs to achieve consistent environmental outcomes along the entire Project
- greater transparency for the community and stakeholders
- flexibility for micro siting to respond to particular landholder requirements or to further minimise environmental impacts.

Making the Minister responsible authority for the Project recognises the Project's State and regional significance and the role of the Minister for Planning as responsible authority for electricity utility installations of one megawatt or greater under Clause 72.01-1.

The role of the Minister as responsible authority does not exclude the two Councils from further involvement with the Project's approval, given a number of EPRs require stakeholder engagement including with the Councils. Further, as noted in Chapter 18.4, the IAC has recommended amending EPR S06 to reference the relevant municipal emergency management plans to ensure a coordinated response to bushfires (among other emergencies).

The IAC is satisfied that the extent of the SCO3 has been applied to minimise impacts by:

- largely following the Project survey area except for some minor variations to provide for a simpler, straighter boundary rather than a curve alignment
- aligning with property boundaries where possible
- excluding areas where no works are proposed
- avoiding crossing infrastructure where possible
- including direct and indirect vegetation to be removed, with any subsequent vegetation impacted in the Additional Land area to be assessed under the Incorporated Document.

Any vegetation impacted outside the SCO3 would require further approval. This provides an incentive to minimise the extent of vegetation removal outside the overlay extent.

The IAC notes the intention is to reduce the extent of the SCO3 once easement arrangements have been finalised. This is appropriate.

The IAC is satisfied that appropriate consideration has been given to the following in preparing the draft PSA:

- balancing the policy considerations in the Planning Policy Framework and relevant Municipal Planning Strategies of the Latrobe and South Gippsland Planning Schemes
- the risk of bushfire consistent with Clause 13.02-1S
- the potential for contamination including from ASS consistent with Clause 13.04-1S, and Ministerial Directions and Planning Practice Notes relating to potentially contaminated land
- the protection of significant infrastructure including energy production and transmission infrastructure and coal resources
- other relevant Ministerial Directions and Planning Practice Notes
- other planning scheme amendments to both Planning Schemes which were identified in Technical Appendix S, including:
  - the two amendments raised by Submitter 20 (C119sgip and C131latr)
  - Amendment C127latr which seeks to implement the draft Municipal Bushfire Risk Assessment.[39]

The IAC is satisfied that the structure and content of the Incorporated Document:

- has considered the relevant permit triggers, purposes and requirements of the zones and overlays that apply across the Project area
- provides appropriate exemptions for preparatory work and ancillary activities
- includes appropriate conditions providing for:
  - Alignment Plans
  - implementation of the EMF including EPRs, CEMP and other documents
  - identifying an appropriate approach to management of native vegetation impacts and offsets (with the inclusion of additional Native vegetation Guideline requirements as discussed in Chapter 9.3)
- contains a reasonable commencement and completion timeframe.

Further, land use planning EPR LUP01 requires any material land use strategies and planning policy changes to be considered when finalising Alignment Plans. This appropriately allows for the consideration of any amendments or strategic planning work that might be finalised or substantially advanced as the final Project alignment is being determined. This could include strategic work undertaken on the Strzelecki-Alpine Biolink.

The IAC is satisfied that both Latrobe City Council and South Gippsland Shire Council were appropriately consulted in the preparation of the draft PSA. Both Councils were part of the Project's Gippsland Stakeholder Liaison Group and the EES Technical Reference Group. Technical Appendix S (the land use planning assessment) indicates both Councils were consulted by the authors regarding the proposed planning approval pathway, relevant planning policies and strategies and any current strategic work underway. The IAC is satisfied both Councils understand and are comfortable with the changes proposed by the draft PSA, including the Minister for Planning being the responsible authority for the Project.

[39] This amendment is pending a Council decision following a Panel's recommendations for further work.

The Proponent's Day 2 version of the Incorporated Document is appropriate. However, some minor drafting changes should be made to ensure the intent is achieved and to improve readability. These are included in the IAC's preferred version in Appendix E:2. They are straightforward and self-explanatory and do not require any commentary.

For completeness, Ms Boag identified minor changes to the Explanatory Report. The IAC makes no recommendations in relation to these changes. They are a matter of administrative detail for the final amendment approval which would also include changes to the date of the final version of the Incorporated Document and references to 'Proposed SCO3 area' on each of the Attachment 1 SCO3 figures.

20.4 Findings and recommendation

The IAC finds:

- The planning controls proposed in the draft PSA constitute an appropriate mechanism to facilitate the Project.
- The Day 2 Version of the Incorporated Document (D141) is supported with further minor drafting changes shown in Appendix E:2.

The IAC recommends:

If the Marinus Link Project proceeds:

a) Update the exhibited draft Amendment GC217 to include the changes to the exhibited Incorporated Document as shown in Appendix E:2.

21 Environmental Management Framework

21.1 The Scoping Requirements

The Terms of Reference at Clause 42(f) require the IAC's report to identify:

> … recommendations about the structure and content of the proposed environmental management framework, including with respect to monitoring of environmental effects and contingency plans;

The Scoping Requirements indicate the EMF:

> … should describe a transparent governance framework with clear accountabilities for complying with approvals and managing and monitoring the environmental effects and risks associated with the design, construction and operational phases.

21.2 Key elements

The EMF is the primary mechanism through which the Project's environmental impacts are minimised and managed. It must set out an approach to environmental risk assessment and management, and include a register of environmental risks to be maintained during Project implementation.

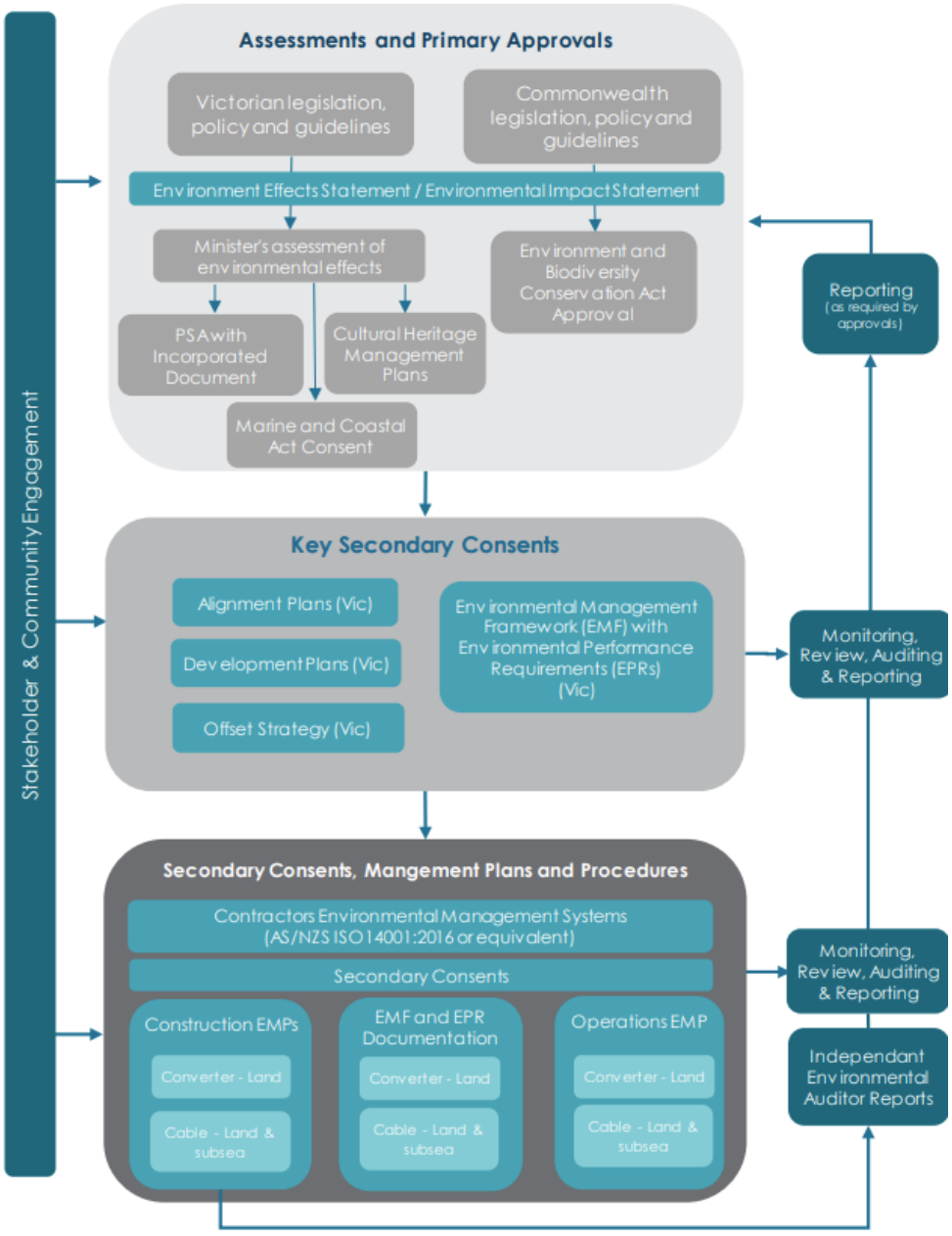
Key elements of the EMF are:

- the EPRs
- an Environmental Management System (see Figure 10), including a proposed monitoring program
- a CEMP and an OEMP
- land and marine commissioning management plans
- a waste management plan.

It must also contain:

- a strategy for ongoing engagement with First Peoples in Victoria
- management of baseline and monitoring data, to ensure transparency and accountability and to contribute to the improvement of environmental knowledge
- responsibilities and accountabilities for environmental management
- responsibilities and arrangements for stakeholder engagement and communication
- processes for complaints recording and resolution, environmental incident management and auditing and public reporting
- review of the effectiveness of EPRs and continuous improvement.

Figure 10 Marinus Link Environmental Management System



Source: EES Volume 5 Page 2-3

21.3 Discussion

(i) Environmental Management Framework

The EMF is included in EES Volume 5 Chapter 2. It forms part of the governance framework for delivery of the Project and sets outs the requirements and accountability of the Proponent and its principal contractors for environmental compliance throughout the Project phases.

The EMF includes a clear and logical set of identified roles and responsibilities to ensure the effective management and monitoring of the environmental effects and risks, including:

- the Proponent's responsibilities to:
  - obtain the necessary approvals and prepare relevant plans

  - monitor contractor compliance
  - appoint an independent environmental auditor to report on environmental performance and compliance prior to and during construction
- the role of Commonwealth and State agencies in the development, review, approval and compliance auditing of relevant plans and documents
- relevant Ministers in the review of audit outcomes, including:
  - the Minister for Planning in reviewing and approving the EMF (including the EPRs, the CEMP, the OEMP and other sub plans) and administering and enforcing the Incorporated Document
  - the Minister for Environment in considering MAC Act consents.

The EMF sets out in detail the key environmental documents that need to be prepared, including a description of the documents and the responsibility for the preparation, review and consultation for each document.

The EMF clearly identifies processes for EPR monitoring, auditing, reporting and inspection (by the independent environmental auditor, Proponent and principal contractor) including identification of audit frequency.

The draft PSA provides an appropriate framework for the implementation of the EMF.

The EMF makes it clear that any changes to the Project alignment must comply with the EPRs, and any changes to the Project Land or Additional Land identified in the Incorporated Document requires the approval of the Minister for Planning.

The EMF clearly sets out how any revisions of documents and management plans will be managed, including:

- assessment by contractors or the Proponent of compliance with the EPRs
- review by the independent environmental auditor
- engagement with key agencies and stakeholders
- regulator approval.

The IAC is satisfied overall that the structure and content of the EMF is appropriate. Subject to changes to the EPRs, the EMF provides a transparent governance framework:

- with clear accountabilities for complying with approvals
- to protect environmental values and managing environmental impacts
- for monitoring environmental effects and dealing with any contingencies
- that provides certainty and confidence for stakeholders.

(ii) The Environmental Performance Requirements

The proposed EPRs are a crucial element of the EMF. The EPRs have a clear relationship to the extensive technical studies that comprise the EES. The EPRs were refined through the IAC process in response to submissions and expert evidence. In Part B of this Report the IAC has recommended several further changes to the EPRs to ensure that, should the Project proceed, impacts are appropriately minimised and the evaluation objectives are met.

The IAC found some of the EPRs overly complex, lacked clarity or were repetitive. Some EPRs merged several separate concepts together, including survey, assessment and mitigation steps.

Chapter 8 sets out principles for drafting EPRs. The IAC has applied these to its redrafting of EPR EC01, dealing with native vegetation. For added legibility, the IAC version separates the EPR into its separate components:

- EPR EC01A provides for undertaking further surveys and assessments to fully identify the Project's impacts
- EPR EC01B identifies the mitigation measures and outcomes that should apply to manage those impacts
- EPR EC01C explains how offsets are to be managed.

The IAC has not had the opportunity to undertake this level of drafting analysis for all 94 EPRs. The Proponent should review the EPRs in the first instance using the guidance in Chapter 8 and the approach applied by the IAC in EPR EC01. This would:

- make the EPRs clearer (for the Proponent, contractors, assessors and auditors as well as the community)
- potentially consolidate and streamline the EPRs which contain significant amounts of duplication.

21.4 Findings and recommendations

The IAC finds, subject to its recommendations:

- The structure and content EMF is appropriate.
- The EMF provides a transparent governance framework with clear accountabilities for complying with approvals and managing and monitoring environmental effects and any contingencies.
- The Proponent should undertake a drafting review of the EPRs to apply the principles in Chapter 8 and guidance provided by the IAC's redrafting of EPR EC01.

The IAC recommends:

If the Marinus Link Project proceeds:

a) Further review the Environmental Performance Requirements to ensure they are drafted consistent with the principles outlined in Chapter 8 of this Report.

22 Other statutory approvals

Clause 42(e) of the Terms of Reference require the IAC's report to include:

> … recommendations for any appropriate conditions that may be lawfully imposed on any approval for the project.

The Proponent is responsible for obtaining the approvals for the Project including:

- approval of the controlled action under the EPBC Act
- a transmission and infrastructure license under the *Offshore Electricity infrastructure Act 2012* (Cth)
- consent under the MAC Act for the shore crossing
- approval of the two Cultural Heritage Management Plans under the *Aboriginal Heritage Act 2006*.

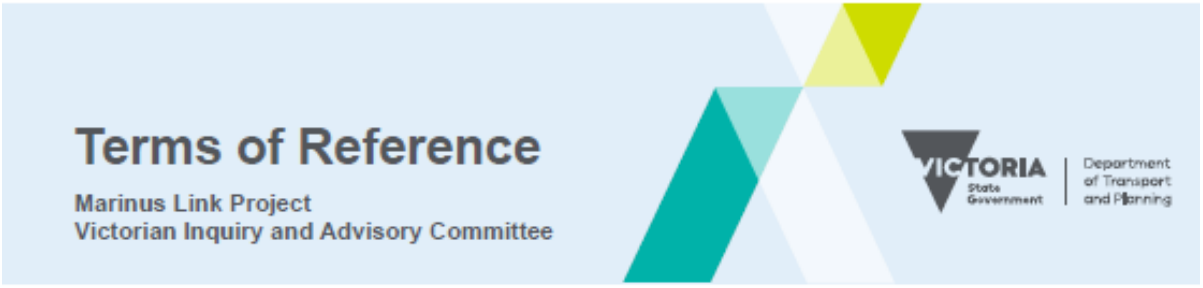
Other consents will be obtained by principal contractors and their sub-contractors prior to commencing Project works. These are anticipated to include approvals under:

- the *Water Act 1989* (permits or licences for waterways crossings and potentially to extract groundwater)
- the *Heritage Act 2017* (consent to disturb registered heritage sites)
- the FFG Act (permit for the removal of listed flora from public land or from freehold land where that land is managed by a public authority)
- *the Wildlife Act 1975* (permit to relocate or handle wildlife)
- the *Road Management Act 2004* (consents to undertake road upgrades)
- the *Building Act 1993* (building permits for the converter station building, the fibreoptic cable inspections building and the transition station building (if required)).

The IAC has not identified any particular conditions that should be included in the Project approvals. Rather, conditions on approvals should be guided by and be consistent with the IAC's recommended EPRs.

As Chapters 9 and 10 note, permits will likely be required under the FFG Act to remove listed flora, including for the removal of Bog Gum and Tasman Grass-wrack. In some cases, compensation may be required for the removal of threatened flora species. This should be provided for in the FFG Act permits where appropriate.

Appendix A Terms of Reference



Version: May 2024

The Marinus Link Project Victorian Inquiry and Advisory Committee (IAC) is appointed to inquire into, and report on, the proposed Marinus Link Project (the project) and its environmental effects in accordance with these terms of reference.

The IAC is appointed pursuant to:

- section 9(1) of the *Environment Effects Act 1978* (EE Act) as an inquiry; and
- part 7, section 151(1) of *the Planning and Environment Act 1987* (P&E Act) as an advisory committee.

Name

1. The IAC is to be known as the 'Marinus Link Victorian IAC'.

Skills

2. The IAC should consist of members with expertise in:
   a. utility infrastructure planning and delivery, in particular relevant best practice environmental management;
   b. marine ecology and coastal processes;
   c. aboriginal cultural heritage;
   d. terrestrial ecology;
   e. regional land-use planning, agriculture and socioeconomics.
3. The IAC will comprise an appointed Chair (IAC Chair), a Deputy Chair and other appropriately qualified members.

Purpose of the IAC

4. The IAC is appointed by the Minister for Planning (the Minister) under section 9(1) of the EE Act to hold an inquiry into and report on the environmental effects of the project in Victoria. The IAC is to:
   a. review and consider the Victorian related aspects of the environmental impact statement (EIS) and environment effects statement (EES) together with the associated technical appendices, other exhibited documents and submissions received in relation to the project;
   b. consider and report on the significance and acceptability of likely environmental effects of the project, having regard to relevant policy and legislation and relevant evaluation objectives in the EES scoping requirements;
   c. identify any project modifications or additional measures the IAC considers necessary and effective to avoid, mitigate or manage significant environmental effects of the project consistent with relevant policy and legislation; and
   d. advise on how these modifications and measures should be implemented through the necessary approvals and consents for the project.
5. The IAC is also appointed as an advisory committee under section 151(1) of the P&E Act to:
   a. review draft Amendment GC217 to the Latrobe and South Gippsland Planning Schemes (PSA), which is proposed to facilitate the project;
   b. consider any relevant issues raised in public submissions received in relation to the draft PSA; and
   c. recommend any changes to the draft PSA and incorporated document that it considers necessary.
6. The IAC is to assess the effects of the project components and works on the Victorian environment as set out in clause 11 of these terms of reference. It is not the role of the IAC to make findings on impacts to the Tasmanian environment, Commonwealth marine areas, or findings on impacts on other matters (whether located in Victoria or elsewhere) related to the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). However, the IAC is to consider and report on any interactions, overlaps or the combined effects of the works in Victoria and works outside of Victoria,

including environmental values that are protected and relevant to both Victoria and the Commonwealth, and where there is potential for cumulative effects as a result of the project.

7. The IAC is to produce a report of its findings and recommendations to the Minister for Planning to inform the Minister's assessment under the EE Act, which will be considered by statutory decision makers for the project.

Background

Project outline

8. The Marinus Link project proposes to construct and operate a 1500 megawatt (MW) high voltage direct current (HVDC) electricity interconnector between Tasmania and Victoria. The project is located between Heybridge in northwest Tasmania and the Latrobe Valley in Victoria.

9. In Victoria, the project would involve the construction and operation of subsea cables (from the three nautical mile limit in Victorian waters) to a shore crossing at Waratah Bay, a potential transition station and a communications building near Waratah Bay, underground cables continuing approximately 90km northwards to the Latrobe Valley and a convertor station in the greater Hazelwood area.

10. Marinus Link will be constructed in two 750 MW stages. Each stage will have three cables bundled together in Bass Strait and laid in a single trench on land. For the land cables, the trench conduits and horizontal directional drilling (HDD) ducts for both 750 MW circuits will be installed as part of stage one to reduce disturbance to properties, land use and farming activities.

11. The key components of the project inside the Victorian jurisdiction include:
    a. subsea cables in Victorian waters reaching land near Waratah Bay, approximately 3 km west of Sandy Point, in Victoria;
    b. shore crossing at Waratah Bay;
    c. land-sea cable joint or transition station where the subsea cables will connect to the land cables in Victoria;
    d. a communications building (fibre optic cable inspection and test hut) adjacent to Waratah Bay (a transition station may also be required at Waratah Bay);
    e. land cables in Victoria from the land-sea joint to the converter station site adjacent to Hazelwood terminal station; and
    f. high voltage alternating current (HVAC) switching station and HVAC-HVDC convertor stations at Hazelwood, and extension of Hazelwood terminal station, where the project will connect to the existing Victorian transmission network.

12. The project's proponent is Marinus Link Pty Ltd, who is responsible for preparing technical studies, consulting with the public and stakeholders and preparing the EES and draft PSA.

Statutory assessment process

13. In response to a referral under the EE Act from the proponent, the then Minister for Planning determined on 12 December 2021 that an EES was required for the project and issued his decision with procedures and requirements for the preparation of the EES (**Attachment 1**).

14. Because of its likely significant impacts on matters of national environmental significance, the project was determined to be a controlled action requiring assessment and approval under the EPBC Act on 4 November 2021. The relevant controlling provisions under the EPBC Act relate to listed threatened species and communities (sections 18 and 18A) listed migratory species (sections 20 & 20A); and Commonwealth marine areas (sections 23 & 24A).

15. As the project is not located wholly within Victoria, the Commonwealth cannot accredit the EES process as the sole means for assessing EPBC Act matters. As such, the Commonwealth Minister for the Environment's delegate determined the project will be assessed under the EPBC Act by an environmental impact statement (EIS).

16. The project also requires assessment under the Tasmanian *Environmental Management and Pollution Control Act 1994*.

17. The Victorian Department of Transport and Planning (DTP), the Commonwealth Department of Climate Change, Energy, Environment and Water (DCCEEW) and the Tasmanian Environment Protection Authority agreed to coordinate the three assessment processes and align stages of the processes wherever possible.

18. Further to this, the proponent has produced a single package of assessment documents, i.e. combined Commonwealth EIS and Victorian EES (EIS-EES), to address assessment requirements of Commonwealth and Victorian legislation.

19. The proponent has also conducted technical studies that encompass matters in Tasmania. Where applicable, these studies also form part of the EIS-EES as well as the separate Tasmanian EIS documents required under Tasmanian legislation.

20. The combined EIS-EES was prepared by the proponent in response to the EES scoping requirements issued by the Minister for Planning in February 2023 and the EIS guidelines issued by the Commonwealth in 2021.

21. The combined EIS-EES, together with the draft PSA, will be placed on public exhibition for at least thirty (30) business days.

22. This public comment process is in accordance with the procedures and requirements issued for this EES by the Minister for Planning. Marinus Link Pty Ltd is responsible for public notice of EIS-EES exhibition.

Planning approval process

23. The IAC is to consider and provide advice on draft PSA GC217 which proposes planning controls and provisions that will allow for, and facilitate, the use and development of the project.

24. The PSA is proposed to apply a Specific Controls Overlay to areas where the on-shore cable alignment and project infrastructure could be located, and to regulate the use and development of the project in accordance with an incorporated document to be included in the Latrobe and South Gippsland Planning Schemes. The incorporated document is also proposed to include a requirement for the development of a framework to manage environmental effects associated with the construction, operational and decommissioning phases of the project.

Other approvals

25. The project will require other statutory approvals and/or consents under Victorian legislation, as outlined in the EIS-EES, including:
    a. approved cultural heritage management plans under the *Aboriginal Heritage Act 2006*;
    b. consent for development and use of marine and coastal Crown land under the *Marine and Coastal Act 2018;*
    c. a permit to remove listed flora and fauna under the *Flora and Fauna Guarantee Act 1988*;
    d. an authority to take or disturb wildlife under the *Wildlife Act 1975*;
    e. a licence for works on or over waterways under the *Water Act 1989*; and
    f. permits for road opening, closure, or traffic diversion under the *Road Management Act 2004*.

Process

Stage 1 – Submissions

26. All submissions on the combined EIS-EES and draft PSA are to be provided in writing on or before the close of submissions. All submissions on the combined EIS-EES and draft PSA will be collected by the office of Planning Panels Victoria (PPV) through the Engage Victoria Platform. All submissions must state the name and address of the person making the submission. Submissions on the EIS-EES and draft PSA will be collected and managed in accordance with the '*Guide to Privacy at PPV*'.

27. Petition responses on the EIS-EES and draft PSA will be treated as a single submission and only the first name from a petition submission will be registered and contacted.

28. Pro-forma submitters on the EIS-EES and draft PSA will be registered and contacted individually if they provide their contact details. However, the IAC should encourage pro-forma submitters who want to be heard at the hearing to present as a group, given their submissions raise the same issues.

29. All written submissions collected on the EIS-EES and draft PSA, and all further submissions and other supporting documentation or evidence received through the course of the IAC process will be published on the Engage Victoria website, unless the IAC specifically directs that the material is to remain confidential in whole or part. Requests for submissions or other material to be kept confidential must be clearly stated in writing to the IAC through PPV, consistent with the process outlined in the IAC's Privacy Collection Statement. The IAC will review these and base its decision to maintain confidentially on whether it would be fair to the proponent and other parties to the hearing, including relevant agencies. It is common practice that confidential submissions must be shared with the proponent to ensure issues raised can be appropriately considered and dealt with. In these instances, confidential submissions will be allocated a submission number but will not be made publicly available or only published in part depending on the IAC's decision.

30. PPV must provide electronic copies of each submission on the EIS-EES and draft PSA to the proponent, DTP, DCCEEW, Tasmania Environment Protection Authority, Gunaikurnai Land and Waters Aboriginal Corporation, First Peoples – State Relations as well as Latrobe City and South Gippsland Shire Councils.

31. PPV must retain any written submissions and other documentation provided to the IAC for a period of five years after the time of its appointment.

Stage 2 – Public hearing

32. The IAC must hold a public hearing and may make other such enquiries as are relevant to undertaking its role. The hearing will consider effects of the project on Victorian matters only, consistent with these terms of reference.

33. When it conducts a public hearing, the IAC has all the powers of an advisory committee that are specified in section 152(2) of the P&E Act.

34. Prior to the commencement of the public hearing, the IAC must hold a directions hearing to make directions it considers necessary or appropriate as to the conduct, scope or scheduling of the public hearing.

35. The IAC may inform itself in any way it sees fit, but must review and consider:
    a. the exhibited EIS-EES and draft PSA;
    b. all submissions and evidence provided to the IAC by the proponent, agencies, local councils and submitters;
    c. the views of Traditional Owners and Registered Aboriginal Parties (if known);
    d. any information provided by the proponent and parties that respond to submissions or directions of the IAC; and
    e. any other relevant information that is provided to, or obtained by, the IAC.

36. The IAC must conduct its process in accordance with the following principles:
    a. the public hearing will be conducted in an open, orderly and equitable manner, in accordance with the principles of natural justice;
    b. the public hearing will be conducted with a minimum of formality and without legal representation being necessary for parties to be effective participants; and
    c. the IAC process and hearing are to be exploratory and constructive, with adversarial behaviour discouraged and with cross-examination/questioning to be regulated by the IAC.

37. The IAC may limit the time of parties appearing before it.

38. The IAC may direct that a submission or evidence is confidential in nature and the hearing be closed to the public for the purposes of receiving that submission or evidence.

39. The IAC may conduct a public hearing when there is a quorum of at least two of its members present or participating through electronic means, one of whom must be an IAC Chair or Deputy Chair.

40. If directed by the IAC, an audio recording of the hearing must be undertaken by the proponent. If recorded, the audio recording will be provided to PPV as a weblink and would be made publicly available as soon as practicable after the conclusion of each day of the hearing, or otherwise as directed by the IAC.

41. Any other recording of the hearing by any other person or organisation may only occur with the prior consent of, and strictly in accordance with, the directions of the IAC.

Stage 3 – Report

42. The IAC must produce a written report for the Minister for Planning containing its:
    a. analysis and conclusions with respect to the environmental effects of the project on Victorian matters and their significance and acceptability;
    b. findings on whether acceptable environmental outcomes can be achieved, having regard to legislation, policy, best practice, and the principles and objectives of ecologically sustainable development;
    c. recommendations and/or specific measures that it considers necessary and appropriate to prevent, mitigate or offset adverse significant environmental effects;
    d. recommendations relating to any feasible modifications to the design or management of the project that would offer improved environmental outcomes, particularly in relation to reducing/ mitigating significant environmental effects;
    e. recommendations for any appropriate conditions that may be lawfully imposed on any approval for the project;
    f. recommendations about the structure and content of the proposed environmental management framework, including with respect to monitoring of environmental effects and contingency plans;
    g. recommendations with respect to the merits, structure and content of the draft PSA; and
    h. findings on the predicted impacts on matters of national environmental significance only to the extent that they overlap with Victorian matters.

43. The report should include:
    a. information and analysis in support of the IAC's findings and recommendations;
    b. a list of all recommendations, including cross-references to relevant discussions in the report;
    c. a description of the public hearing conducted by the IAC, and a list of those persons consulted with or heard;
    d. a list of all submitters in response to the exhibited EIS-EES, noting those submissions that are relevant to Victorian matters; and
    e. a list of the documents tabled during the proceedings.

Timing

44. The IAC should hold a directions hearing no later than 20 business days from the final date of the exhibition period.

45. The IAC should commence the hearing no later than 50 business days from the final date of the exhibition period.

46. The IAC must submit its report in writing to the Minister within 40 business days from its last day of its proceedings, unless the report writing period spans the Christmas-New Year period, in which case 50 business days will apply.

47. The DTP's Impact Assessment Unit needs to liaise with PPV to agree on the directions hearing and hearing dates, which are to be included on all public notices.

Minister's assessment

48. The Minister for Planning will make an assessment of the environmental effects of the project after considering the IAC's report as well as the EIS-EES, submissions and any other relevant matters.

49. PPV must notify submitters of the release of the Minister's assessment and IAC report.

Fee

50. The fees for the members of the IAC will be set at the current rate for a panel appointed under part 8 of the P&E Act.

51. All costs of the IAC, including the costs of obtaining any expert advice, technical administration and legal support, venue hire, accommodation, recording proceedings and other costs must be met by the proponent.

Miscellaneous

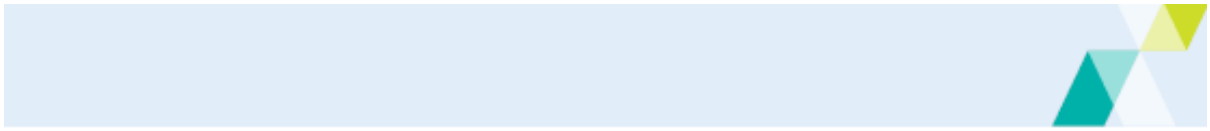
52. The IAC may apply to the Minister for Planning to vary these terms of reference in writing, at any time prior to submission of its report. This includes to seek variation to the required reporting timeframe.

53. The IAC may retain specialist expert advice, additional technical support and/or legal counsel to assist if considered necessary.

54. PPV is to provide any necessary administrative support to the IAC. In addition, the proponent is to provide any necessary administrative or technical support to the IAC in relation to the conduct of the hearing (if required).

Sonya Kilkenny MP
Minister for Planning

Date: 03/06/2024



The following information does not form part the Terms of Reference.

Project Management

1. For matters regarding the IAC process, please contact Planning Panels Victoria, by phone (03) 8624 5712 or email Planning.Panels@delwp.vic.gov.au.
2. For matters regarding the EES process, please contact the Impact Assessment Unit in DTP by phone (03) 8508 2276 or email environment.assessment@delwp.vic.gov.au.

Attachment 1

Procedures and requirements issued under section 8B(5) of the *Environment Effects Act 1978* for the Marinus Link EES.

The procedures and requirements applying to the EES process, in accordance with both section 8B(5) of the Act and the *Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978* (Ministerial Guidelines), are as follows:

(i) The EES is to investigate and document the potential environmental effects (direct and/or indirect) of the proposed project, including for any relevant alternatives, as well as associated environmental avoidance, mitigation and management measures. In particular, the EES needs to address:

a. effects on biodiversity and ecological values within and near the project area including native vegetation, listed threatened communities and species (flora and fauna) under the Flora and Fauna Guarantee Act 1988 and Environment Protection and Biodiversity Conservation Act 1999, such as through clearance, degradation or fragmentation of habitat;

b. effects on freshwater and marine environments and related environmental values, including any changes to stream flows, water quality or sedimentation due to waterway crossings or installation of subsea cables;

c. effects on Aboriginal cultural heritage values;

d. effects on the socioeconomic environment including land use, at local and regional scales; and

e. effects on existing landscape values.

(ii) The matters to be investigated and documented in the EES will be set out more fully in scoping requirements prepared by the Department of Environment, Land, Water and Planning (DELWP). Draft scoping requirements will be exhibited for 15 business days for public comment, before final scoping requirements are issued by the Minister for Planning.

(iii) The proponent is to prepare and submit to DELWP a draft EES study program adequate to inform the preparation of scoping requirements.

(iv) The level of detail of investigation for the EES studies should be consistent with the scoping requirements and be adequate to inform an assessment of the significance and acceptability of environmental effects of the proposal and any relevant alternatives, in the context of the Ministerial Guidelines.

(v) DELWP will convene an inter-agency technical reference group (TRG) to advise DEL WP and the proponent, as appropriate, during the preparation of the EES on the scoping requirements, the design and adequacy of the EES studies, and coordination with statutory approval processes.

(vi) The proponent is to prepare and submit to DELWP its proposed EES consultation plan for engaging with the public and stakeholders during the preparation of the EES. Once completed to the satisfaction of DELWP, the EES consultation plan is to be implemented by the proponent, having regard to advice from DELWP and the TRG.

(vii) The proponent is also to prepare and submit to DELWP its proposed schedule for the completion of studies, preparation and exhibition of the EES, following confirmation of scoping requirements. This schedule is intended to facilitate the alignment of the proponent's and DELWP's timeframes, including for TRG review of EES technical studies and main report.

(viii) The proponent is to apply appropriate peer review and quality management procedures to enable the completion of EES studies and documentation to a satisfactory standard.

(ix) The EES is to be exhibited for a period of no less than 30 business days for public comment, unless the exhibition period spans the Christmas–New Year period, in which case 40 business days will apply.

(x) An inquiry will be appointed under the *Environment Effects Act 1978* to consider and report on the environmental effects of the proposal.

Appendix B Submitters to the EES

No	Submitter
1	Juby George
2	Tom Holman
3	Nas A
4	Rosemary Race
5	Henry Leggett
6	Koalalivesmatter
7	Rick Bowron
8	Seafood Industry Victoria
9	Save Our Surroundings (SOS)
10	South Gippsland Shire Council
11	Friends of the Koalas Inc.
12	Catherine McDonald
13	No Turbine Action Group Inc
14	Paola Torti
15	Latrobe Valley Field Naturalists Club Inc.
16	Consult Australia
17	West Gippsland Catchment Management Authority
18	Environment Protection Authority Victoria (EPA)
19	Delburn Wind Farm Pty Ltd
20	Maurice Schinkel
21	Department of Energy Environment and Climate Action (DEECA)
22	Carol-Ann Fletcher
23	Rainforest Reserves Australia
24	Michael Seebeck
25	Save Our Surroundings Riverina
26	Eku Energy
27	Hancock Victorian Plantations Pty Limited (HVP)

Appendix C Parties to the IAC Hearing

Submitter	Represented by
Marinus Link Pty Ltd (Proponent)	Chris Townshend KC and Robert Forrester of Counsel instructed by Heidi Asten of Herbert Smith Freehills, who called expert evidence on: - aboriginal and non-Indigenous cultural heritage from Michael Green of Eco Logical Australia - agriculture and forestry from John Gallienne of John Gallienne & Co - air quality from Simon Welchman of Katestone - benthic ecology from Scott Chidgey of CEE Pty Ltd - bushfire from Nathan Kearnes of Eco Logical Australia - climate change and greenhouse gas emissions from Craig Miller of Katestone - contaminated land and acid sulfate soils from Bryden Tiddy of Tetra Tech Coffey - electromagnetic interference from Dr Rodney Urban of Jacobs - economics from David Schwartz of SGS Economics & Planning - economics (peer review) from Craig Mickle of Ernst & Young - geomorphology and geology from Jules Darras of Tetra Tech Coffey - geomorphology and geology from Neville Rosengren of Environmental GeoSurveys Pty Ltd - groundwater from John Sweeney of Tetra Tech Coffey - land use and planning from Alisanne Boag of Beveridge Williams - landscape and visual from Hayden Burge of Landform Architects - marine ecology and marine resource use from David Balloch of EnviroGulf - noise and vibration from Justin Adcock of Marshall Day Acoustics - social impacts from Nicole Somerville of Tetra Tech Coffey - surface water from Stuart Cleven of Alluvium - terrestrial ecology from James Garden of Eco Logical Australia/Ecology Systems - traffic and transport from Simon Davies of Santec - underwater cultural heritage from Cosmos Coroneos of Cosmos Archaeology
Hancock Victorian Plantations Pty Limited (HVP)	Serena Armstrong of Counsel instructed by Tom Crompton and Emily Heffernan of King & Wood Mallesons, who called expert evidence on: - forestry from Andrew Morton of Indufor Asia Pacific (Australia)
Department of Transport and Planning Impact Assessment Unit	Jess Cooke and Geoff Ralphs

Submitter	Represented by
Department of Energy Environment and Climate Action (DEECA)	Carmel Henderson and Kristin Campbell
Catherine McDonald	
Carol-Ann Fletcher	Carol-Ann Fletcher and Daniel Wild, Director of Research from Institute of Public Affairs
Delburn Wind Farm Pty Ltd	Peter Marriott
Friends of the Koalas Inc.	Patricia Hunt and Maurice Schinkel
Maurice Schinkel	
Save Our Surroundings Riverina	Grant Piper of National Rational Energy Network (NREN) and Daniel Wild, Director of Research from Institute of Public Affairs

Appendix D Document list

No	Date	Description	Presented by
1	26 June 2024	Letter to Gunaikurnai Land and Waters Aboriginal Corporation – invitation to participate	Planning Panels Victoria (PPV)
2	26 June 2024	Letter to Bunurong Land Council Aboriginal Corporation (BLCAC) – invitation to participate	PPV
3	26 June 2024	Letter to Boonwurrung Land and Sea Council Aboriginal Corporation – invitation to participate	PPV
4	16 July 2024	Letter from BLCAC to IAC - Comments and recommendations	BLCAC
5	16 July 2024	BLCAC - Marinus Link Aboriginal Cultural Values Assessment Recommendations	BLCAC
6	18 July 2024	Directions Hearing notice	PPV
7	30 July 2024	Letter from Proponent to IAC – Proponents case and procedural matters	Marinus Link Pty Ltd (Proponent)
8	30 July 2024	Marinus Link Project - Requests to be heard and key issues	PPV
9	1 Aug 2024	Email to IAC – Procedural matters	Mr Schinkel
10	5 Aug 2024	Letter to IAC – Procedural matter	Hancock Victorian Plantations Pty Ltd (HVP)
11	5 Aug 2024	Email to IAC – Appearance at Hearing	Eku Energy
12	5 Aug 2024	Emails to IAC – Appearance procedural matters	Save Our Surroundings Riverina
13	12 Aug 2024	Directions and Distribution List (v1)	PPV
14	15 Aug 2024	Document share instructions – Google Drive (Direction 5)	Proponent
15	16 Aug 2024	Letter to IAC – Alternative Alignment route and site inspection arrangements (Direction 16)	HVP
16	16 Aug 2024	HVP - 2423 - Alternative Routes (Direction 16)	HVP
17	16 Aug 2024	HVP - Search Titles and Plan of Subdivision for Neighbouring Properties	HVP
18	16 Aug 2024	Letter to IAC – Confidentiality arrangements	HVP
19	20 Aug 2024	Record of second Directions Hearing	PPV
20	20 Aug 2024	Hearing Timetable (v1)	PPV
21	21 Aug 2024	Letter to IAC – Request to change Part A Direction 17 timing	Proponent
22	22 Aug 2024	Email to Proponent – Response to Part A Direction 17 timing request	PPV
23	27 Aug 2024	Marinus Link Project IAC - Site inspection arrangements	PPV

No	Date	Description	Presented by
24	28 Aug 2024	Letter to IAC - Expert Reports (Direction 18) and comments on timetable	Proponent
25	28 Aug 2024	Proponent - Expert Witness Statement of Alisanne Boag (land use and planning)	Proponent
26	28 Aug 2024	Proponent - Expert Witness Statement of Bryden Tiddy (contaminated land and acid sulfate soils)	Proponent
27	28 Aug 2024	Proponent - Expert Witness Statement of Cosmos Coroneos (underwater cultural heritage)	Proponent
28	28 Aug 2024	Proponent - Expert Witness Statement of Craig Miller (climate change and GHG)	Proponent
29	28 Aug 2024	Proponent - Expert Witness Statement of David Balloch (marine ecology and resource use)	Proponent
30	28 Aug 2024	Proponent - Expert Witness Statement of David Schwartz (economics)	Proponent
31	28 Aug 2024	Proponent - Expert Witness Statement of Hayden Burge (landscape and visual)	Proponent
32	28 Aug 2024	Proponent - Expert Witness Statement of James Garden (terrestrial ecology)	Proponent
33	28 Aug 2024	Proponent - Expert Witness Statement of John Sweeney (groundwater)	Proponent
34	28 Aug 2024	Proponent - Expert Witness Statement of Jules Darras (geology landslip)	Proponent
35	28 Aug 2024	Proponent - Expert Witness Statement of Justin Adcock (noise and vibration)	Proponent
36	28 Aug 2024	Proponent - Expert Witness Statement of Michael Green (Aboriginal and historical cultural heritage)	Proponent
37	28 Aug 2024	Proponent - Expert Witness Statement of Nathan Kearnes (bushfire)	Proponent
38	28 Aug 2024	Proponent - Expert Witness Statement of Neville Rosengren (geomorphology and geology)	Proponent
39	28 Aug 2024	Proponent - Expert Witness Statement of Nicole Sommerville (social)	Proponent
40	28 Aug 2024	Proponent - Expert Witness Statement of Scott Chidgey (benthic ecology)	Proponent
41	28 Aug 2024	Proponent - Expert Witness Statement of Simon Davies (traffic and transport)	Proponent
42	28 Aug 2024	Proponent - Expert Witness Statement of Simon Welchman (air quality)	Proponent
43	28 Aug 2024	Proponent - Expert Witness Statement of Stuart Cleven (surface water)	Proponent

No	Date	Description	Presented by
44	28 Aug 2024	Proponent - Expert Witness Statement of Rodney Urban (electromagnetic fields)	Proponent
45	28 Aug 2024	Proponent - Supplementary Reports: a. Information Update 2 - Supplementary technical reports addressing timing of Stage 2 Marinus Link b. Electromagnetic Fields – June 2024 c. Climate Change – 25 June 2024 d. Greenhouse Gas Emissions – 25 June 2024 e. Marine Ecology and Resource Use – 26 June 2024 f. Underwater Cultural Heritage and Archaeology – 26 June 2024 g. Aboriginal and Historical Cultural Heritage – 4 July 2024 h. Air Quality – 26 June 2024 i. Bushfire – 27 June 2024 j. Contaminated Land and Acid Sulfate Soils – 27 June 2024 k. Geomorphology and Geology – 27 June 2024 l. Surface Water – 28 June 2024 m. Landscape and Visual – 26 June 2024 n. Land Use and Planning – 27 June 2024 o. Noise and Vibration – 28 June 2024 p. Heybridge Terrestrial Ecology – 3 July 2024 q. Terrestrial Ecology – 28 June 2024 r. Traffic and Transport – 27 June 2024 s. Agriculture & Forestry – 9 July 2024 t. Groundwater – 10 July 2024 u. Economics – August 2024	Proponent
46	29 Aug 2024	Part A Submission (Direction 17)	Proponent
47	29 Aug 2024	Appendix to Document 46 - Response to submissions	Proponent
48	29 Aug 2024	**[CONFIDENTIAL]** Appendix to Document 46 - response to submission 26 Eku Energy	Proponent
49	29 Aug 2024	Email from IAC to Parties - Proponent late expert evidence	PPV
50	29 Aug 2024	Proponent - Expert Witness Statement of Craig Mickle (Economics)	Proponent
51	29 Aug 2024	Proponent - Expert Witness Statement of John Gallienne (Agriculture and Forestry)	Proponent
52	2 Sep 2024	Letter to IAC - Route alignment and extension of time (Direction18b)	HVP
53	3 Sep 2024	Email from IAC to HVP - position on route alignment and decision on extension	PPV

No	Date	Description	Presented by
54	5 Sep 2024	Letter to Proponent regarding geology evidence	PPV
55	5 Sep 2024	Letter to IAC - Summary of detailed site visit itinerary	Proponent
56	6 Sep 2024	HVP - Expert Witness Statement of Andrew Morton (forestry)	HVP
57	9 Sep 2024	Letter to Parties regarding expert conclaves	PPV
58	10 Sep 2024	Email to IAC – Lay evidence and expert conclaves	HVP
59	12 Sep 2024	Hearing Timetable (v2)	PPV
60	13 Sep 2024	Email to IAC - Confirmation on questioning of experts	Mr Schinkel
61	13 Sep 2024	Letter to IAC - Confirmation on questioning of experts and confidentiality arrangements	HVP
62	16 Sep 2024	Letter to IAC - Day 1 versions (Dir 24) and update on correspondence with EPA, CFA and West Gippsland CMA	Proponent
63	16 Sep 2024	Day 1 version – Incorporated Document	Proponent
64	16 Sep 2024	Day 1 version – Environmental Management Framework (EMF) (no EPRs)	Proponent
65	16 Sep 2024	Day 1 version – Environmental Performance Requirements (EPRs)	Proponent
66	16 Sep 2024	Letter from EPA to Proponent in response to revised EPRs and recommendations in submission - dated 30 August 2024	Proponent
67	17 Sep 2024	Letter to Proponent regarding questions for Mr Rosengren	PPV
68	17 Sep 2024	Submission - Overview of the EES process for Marinus Link Project	DTP Impact Assessment Unit
69	18 Sep 2024	Email to IAC – Request for extension for conclave statement	Proponent
70	18 Sep 2024	Letter to IAC - Opening materials and supplementary geology evidence	Proponent
71	18 Sep 2024	Proponent - Part B Submission	Proponent
72	18 Sep 2024	Project overview presentation	Proponent
73	18 Sep 2024	Proponent - Joint Statement of Neville Rosengren and Jules Darras	Proponent
74	18 Sep 2024	Proponent - Supplementary Expert Witness Statement Jules Darras (geology landslip)	Proponent
75	19 Sep 2024	HVP - Plans of offsets, biolinks and habitats *Note Document 75 has been updated and replaced with Document 148 on 15 October 2024*	HVP
76	20 Sep 2024	Expert Witness presentation of John Sweeney (groundwater)	Proponent
77	20 Sep 2024	Expert Witness presentation of Stuart Cleven (surface water)	Proponent

No	Date	Description	Presented by
78	20 Sep 2024	Expert Witness presentation of Bryden Tiddy (contaminated land and acid sulfate soils)	Proponent
79	20 Sep 2024	Day 1 Amended Geomorphology and Soils EPRs	HVP
80	23 Sep 2024	Expert Witness Presentation of Jules Darras (geomorphology and geology)	Proponent
81	23 Sep 2024	Expert Witness Presentation of James Garden (terrestrial ecology)	Proponent
82	23 Sep 2024	Proponent and HVP - Joint expert statement of J Gallienne, J Darras and A Morton – dated 21 and 22 September 2024	Proponent
83	23 Sep 2024	Email to IAC – Joint response and response from Mr Rosengren	Proponent
84	23 Sep 2024	Proponent - Neville Rosengren and Jules Darras Response to IAC's questions	Proponent
85	23 Sep 2024	Letter to IAC – HVPs Day 1 EPRs	HVP
86	25 Sep 2024	HVP Day 1 EPRs – revised 25 September 2024 *Revised as noted in Tabled Document 92*	HVP
87	24 Sep 2024	Expert Witness Presentation of David Balloch (marine ecology and resource use)	Proponent
88	25 Sep 2024	Expert Witness Presentation of John Gallienne (agriculture and forestry)	Proponent
89	25 Sep 2024	Expert Witness Presentation of Simon Davies (traffic and transport)	Proponent
90	25 Sep 2024	Expert Witness Presentation of Nicole Sommerville (social)	Proponent
91	25 Sep 2024	Expert Witness Presentation of Craig Mickle (economics)	Proponent
92	25 Sep 2024	Letter to IAC – revised HVPs Day 1 EPRs	HVP
93	26 Sep 2024	Questions for Ms Sommerville (social)	Mr Schinkel
94	26 Sep 2024	Question for Mr Mickle (economics)	Mr Schinkel
95	26 Sep 2024	Expert Witness Presentation of Dr Rodney Urban (electromagnetic interference)	Proponent
96	26 Sep 2024	Expert Witness Presentation of Alisanne Boag (land use and planning)	Proponent
97	26 Sep 2024	Expert Witness Presentation of Hayden Burge (landscape and visual)	Proponent
98	26 Sep 2024	Expert Witness Presentation of Nathan Kearnes (bushfire)	Proponent
99	30 Sep 2024	Question for Ms Boag (land use and planning)	Mr Schinkel
100	30 Sep 2024	Expert Witness Presentation of Michael Green (terrestrial cultural heritage)	Proponent

No	Date	Description	Presented by
101	30 Sep 2024	Expert Witness Presentation of Cosmos Coroneos (underwater cultural heritage)	Proponent
102	30 Sep 2024	Expert Witness Presentation of Craig Miller (climate change and greenhouse gas) Expert	Proponent
103	30 Sep 2024	Expert Witness Presentation of Justin Adcock (noise and vibration)	Proponent
104	30 Sep 2024	Hearing Timetable (v3)	PPV
105	2 Oct 2024	Letter to IAC – Provision of presentation and EPR documents with Morton comments	HVP
106	2 Oct 2024	HVP - Day 1 EPRs (with A Morton edits) - 2 October 2024	HVP
107	2 Oct 2024	HVP - Day 1 EPRs with A Morton comments isolated	HVP
108	2 Oct 2024	Expert Witness Presentation of Andrew Morton (forestry)	HVP
109	2 Oct 2024	Email to IAC - Responses to IAC questions taken on notice and put to witnesses in writing	Proponent
110	2 Oct 2024	Responses to IAC's questions 2 October 2024	Proponent
111	3 Oct 2024	Letter to IAC - Written submission and attachments	HVP
112	3 Oct 2024	HVP submissions - 2 October 2024	HVP
113	3 Oct 2024	Document 112 Attachment 1. Intro to HVP (1 pager)	HVP
114	3 Oct 2024	Document 112 Attachment 2. HVP website brochure July 2024	HVP
115	3 Oct 2024	Document 112 Attachment 3. Fire Management (HVP website)	HVP
116	3 Oct 2024	Document 112 Attachment 4. Map of HVP land with cable alignment	HVP
117	3 Oct 2024	Document 112 Attachment 5. HVP Design Principles for Linear Infrastructure	HVP
118	3 Oct 2024	Document 112 Attachment 6. National guidelines - Community Engagement Benefits Electricity Transmission Projects	HVP
119	3 Oct 2024	Document 112 Attachment 7. The Delburn Fires, Chapter 3 (Vol 1) of Victorian Bushfires Royal Commission	HVP
120	3 Oct 2024	Document 112 a. Attachment 8(a). Beaufort Bypass (EES) Report [2022] PPV 63 b. Attachment 8(b). Delburn Wind Farm Permit Panel Report c. Attachment 8(c). WORM Pipeline (EES) Report [2021] PPV 102	HVP
121	3 Oct 2024	Email to Parties – Code of Practice for Timber Production	HVP

No	Date	Description	Presented by
122	3 Oct 2024	Code of Practice Timber Production 2014 (amended 2022)	HVP
123	3 Oct 2024	Documents for Hearing presentation - 4 Oct 2024	Ms Fletcher
124	3 Oct 2024	Document 123 supporting documents: a. Definitions and further information on Victoria's bushfire risk management report 2021 to 2022 b. Victoria Converter Station Factsheet Marinus Link c. Fire and High Voltage Transmission Line Safety (Powerlink Queensland Information Sheet) d. Article - *Wind Watch - Wind turbine fire safety spark urgent call for Allan government to step in*, 29 Sept 2024 e. Website - Safer Together Victoria f. Website - FireRescue1 - How safe is firefighting foam g. Article - Remembering Black Saturday 15th anniversary h. Victorian Bushfires Royal Commission 2009 - Summary Royal Commission Victoria Report i. Article - Lawyer slams Central Highland's approval of the Patrick's Plains wind farm as unlawful	Ms Fletcher
125	4 Oct 2024	Submitters 22 and 25 - Institute of Public Affairs – Working Paper Series – No. 01/24 – April 2024	Mr Wild
126	4 Oct 2024	Department of Energy, Environment and Climate Action (DEECA) Hearing Presentation	DEECA
127	7 Oct 2024	Email to IAC - Legislative Council Economy and Infrastructure Committee Inquiry into the Victorian electrical transmission grid	Mr Schinkel
128	7 Oct 2024	National Rational Energy Network (NREN) Hearing Submission (Submitter 25)	Mr Piper
129	7 Oct 2024	Document 128 supporting documents: a. Paper - The Non-Effect of Greenhouse Gases on Earth's Atmosphere-1 (revised 22 Aug 2023) b. Article - Tasmania faces energy supply 'crisis' as state walks from Marinus Link deal - The Australian c. Presentation Alan Moran - Climate Change & Energy Solutions Symposium Oberon, 24 August 2024 d. Analysis Paper 67 - CIS - The Six Flaws Underpinning the Energy Transition – May 2024 e. Diagram - The Price and Politics of Australia's Electricity Crisis - 230630	Mr Piper
130	7 Oct 2024	Hearing submission	Ms Hunt

No	Date	Description	Presented by
131	7 Oct 2024	Document 130 supporting documents: a. Cape Liptrap Coastal Park Management Plan 2003 b. Gippsland Plains and Strzelecki Region Conservation Action Plan c. Gippsland Plains and Strzelecki Region Conservation Action Plan Overview d. VRET 2023/09609 Statement of Reasons - VRET Hastings e. Cethana Pumped Hydro Energy Storage Project EPBC Act Referral 2023/09613 f. Gippsland Offshore Wind Farm Marine Survey Investigations EPBC Act 2023/09682 Referral decision g. Image - Turbulence from Leonardo Da Vinci h. Victorian Energy Jobs Plan Consultation Paper i. Decommissioning of the Minerva Pipeline decision EPBC 2024/09879 - Referral-Decision	Mr Schinkel
132	8 Oct 2024	Hearing Submission	Mr Schinkel
133	9 Oct 2024	Document 132 supporting documents: a. Farm gate b. Boundaries - Google Earth map c. McDonald Concerns - Initial Feedback (240823) d. Email to Submitter 12 from DEECA - Landownership e. Contours - Google Earth map f. Basalt rocks on property (Image 1) g. Basalt rocks on property (Image 2) h. Erosion Hancock Property i. Little Morwell River j. Highlighted extracts of Tabled Document 33 Expert witness statement of John Sweeney (Groundwater) k. Farm forest l. Paper - Vertebrate fauna of South Gippsland Victoria, No 40, July 1979 (tall forest) m. Cray n. Storm damage (Im1age 1) o. Storm damage (Image 2) p. HVP - Plans of offsets, biolinks and habitats (*Tabled Document 75*) q. Submitter 12 - Stony Creek	Ms McDonald
134	9 Oct 2024	Friends of the Koalas Winter 2024 newsletter Edition 127	Mr Schinkel

No	Date	Description	Presented by
135	9 Oct 2024	EPCE Final Report Future Use and Management of Mirboo North and Strathbogie Ranges IPAs	Ms Hunt
136	9 Oct 2024	Email to IAC - Comments on Incorporated Document	CFA
137	9 Oct 2024	Letter from CFA to Proponent – Comments on Planning Scheme Amendment - 3 Oct 2024	CFA
138	9 Oct 2024	Email to Parties - Marinus Forestry EPR workshop	PPV
139	9 Oct 2024	Part C Submission	Proponent
140	9 Oct 2024	Appendices to Document 139: a. Updated Table 4-1 b. Updated submissions summary table c. Attachment to updated summary submissions table - item 1.2(a)1 - species listings	Proponent
141	9 Oct 2024	Day 2 version – Incorporated Document	Proponent
142	9 Oct 2024	Day 2 version – Environmental Management Framework (EMF) (no EPRs)	Proponent
143	9 Oct 2024	Day 2 version - Environmental Performance Requirements (EPRs)	Proponent
144	9 Oct 2024	Letter from West Gippsland Catchment Management Authority to Proponent – Comments on Environmental Performance Requirements - 4 October 2024	Proponent
145	9 Oct 2024	Advertised Delburn Wind Farm Biodiversity Assessment-Extracted Figures (Figures 1-3 only) (Ecology & Heritage Partners, December 2020)	Proponent
146	10 Oct 2024	Email to IAC - Port Welshpool in Proponent documentation	Proponent
147	15 Oct 2024	Letter from HVP to IAC –clarification on native vegetation offsets, biolinks projects and habitats mapping	HVP
148	15 Oct 2024	HVP - Plans of offsets, biolinks and habitats (October 2024) *Note Document 148 has been updated and replaces Document 75*	HVP
149	16 Oct 2024	Email to IAC - Comments on the EPRs	Mr Schinkel
150	16 Oct 2024	Letter to IAC - Comments on the EPRs	CFA
151	16 Oct 2024	Email to IAC - Comments on the EPRs	Ms Hunt
152	17 Oct 2024	Letter to IAC - Comments on final project documentation	HVP
153	17 Oct 2024	Day 2 Incorporated Document - HVP mark-up - 17 Oct 2024	HVP
154	17 Oct 2024	Day 2 EMF (no EPRs) - HVP mark-up - 17 Oct 2024	HVP
155	17 Oct 2024	Day 2 EPRs - HVP and A Morton mark-up	HVP
156	17 Oct 2024	HVP - Updated Table 4-1 - A Morton comments	HVP

No	Date	Description	Presented by
157	17 Oct 2024	HVP - Email from A Morton	HVP

Appendix E Recommended project documentation

E:1 Recommended Environmental Performance Requirements

The following EPRs include the IAC's recommended changes based on the Proponent's Day 2 version (D143).

Only EPRs where specific changes are recommended are included below.

The Proponent should further review all the EPRs to ensure they are drafted consistent with the principles in Chapter 8 and the IAC's drafting approach in EPR EC01.

Tracked Added

~~Tracked Deleted~~

EPR ID	Environmental Performance Requirements
	Environmental management
EM03	**Operate the project in accordance with management plans** Develop an Operation Environmental Management Plan (OEMP) prior to the commencement of operation of the project. The OEMP must: • Be developed in consultation with relevant stakeholders as listed in the Environmental Management Framework or as required by project approvals, legislation or guidelines. • Address the management of extreme or chronic weather events (EPR CC01). • Include the plans prepared under EPRs MERU06, MERU07, MERU08, MERU09 and MERU11. • Consider the management plans implemented during construction and if any measures are relevant for operation. The OEMP must outline the framework for ongoing engagement with stakeholders and landholders during operation of the project. The OEMP must be implemented during operation.
EM07	**Develop and implement a waste management plan** Prior to commencement of project works prepare a waste management plan. The waste management plan must detail measures to apply the waste management hierarchy to construction and operation of the project and comply with the requirements of the Victorian Environment Protection Authority (EPA Victoria) as well as the project approvals. The WMP must: • Identify the sources and types of waste through all stages of construction and operation including controlled and priority waste and/or reportable priority waste expected to be produced during construction and operation. • Classify waste under the Environment Protection Regulations. • Outline how the waste management hierarchy of avoidance, reuse, recycling and disposal has been applied to the management of wastes during construction and operation. • Identify environmental risks with the waste expected to be generated and how they will be managed, reused, recycled or disposed of. • Detail the approach to management of all types of waste including any safe handling, storage, transporting and disposal requirements and any permission, tracking and reporting requirements. • Require an inventory to be maintained recording the types and volume of waste, disposal method and location and contractor transporting the waste to be maintained. • Outline how wastes will be monitored and reported.

EPR ID	Environmental Performance Requirements
	The waste management plan must be implemented during construction, operation and decommissioning.
	Agriculture and forestry
A01	**Complete property condition surveys prior to construction** Prior to commencing project works, complete property condition surveys for each property to be disturbed during construction to document existing conditions. The property condition surveys should document all key activities on the property and infrastructure that could be directly or indirectly impacted, whether within or adjacent to the construction corridor, and must be informed by consultation with the landholder. For each property as relevant, this could include, but not be limited to: • Existing pasture or current crop or plantation coupes, including age classes. • Existing ground profile including levels and slope. • Existing drainage and surface water management. • The type and condition of fencing, gates and other farm or forestry infrastructure including but not limited to stockyards, stock water troughs, water supply systems and water points, temporary and permanent farm buildings and structures, fire breaks, and (as relevant to forestry) log storage areas and log landings. • The type (tree species), age and condition of plantation coupes, shelter belts and windbreak plantings. • The type and condition of access tracks and laneways including surface material, roads and road classifications (if applicable) and culverts and bridges. The property condition survey should be supported by a photographic or video record. A property condition report must be prepared and a copy provided to the landholder.
A02	**Develop and implement property management plans to avoid or minimise impacts on agricultural and forestry properties** Prior to commencing project works on each agricultural or forestry property, develop a property management plan. The property management plan must outline property specific measures to avoid or minimise disruption to farm or forestry infrastructure, practices and operations and to prevent reducing the carrying capacity of the property or its yield during construction and in operation. The property management plan must be informed by the property condition survey (EPR A01) and be prepared in consultation with the landholder. A property management plan may include as relevant for each property: • Summary of existing farming or forestry practices (as applicable) and farm development plans and forestry management plans relevant to project works.

EPR ID	Environmental Performance Requirements
	• Controls to minimise disturbance to farm or forestry infrastructure, farming or forestry practices, property operations and maintenance, activities that must occur seasonally for farming practices and plantations, forestry activities and practices. This must include consideration of: ○ Impacts on grazing and crop growing practices ○ Impacts on livestock management ○ Impacts on f~~F~~orestry infrastructure and operations, such as log landings, log storage areas and the nature and timing of plantation crop activities. ○ Communication protocol reflecting preferences advised by the landholder, to be utilised by MLPL, contractors and any other relevant parties through construction of the project. • The communication protocol must include: ○ Provision of a program of works for the property to the landholder as early as practicable, and at least one month prior to activities commencing on that property. ○ If the program of works is not continuous, the arrangements to manage and maintain worksites between staged construction activities will also be communicated. ○ Notification timeframes and nominate MLPL and principal contractor representatives responsible for managing access and responding to landholder issues and complaints. The nominated person must be available to respond to landholder issues daily. • Details of access arrangements including: ○ property entry and exit points for all construction, operation and maintenance vehicles ○ no go areas ○ maintenance of landholder access to farm or forestry operation areas and farm or forestry infrastructure ○ maintenance of stock, landholder access to water points and supplies including water for fire fighting purposes (or alternatives provided) ○ limits on timing and duration of access to a property. • Location, construction method, material type (including materials to avoid damage or injury to stock), duration of use (i.e. temporary or permanent), maintenance responsibilities and requirements, and requirements for removal of temporary access tracks. • Measures to avoid, so far as reasonably practicable, impacts on land capability outside the construction corridor, laydown areas and access tracks during construction. • Type and location of fences or barriers to demarcate the construction corridor and associated workspace, provide stock crossings and restrict stock access. • Water supply arrangements during construction including temporary diversion or realignment of water supply infrastructure or alternative

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	water supply arrangements.
	• Measures to avoid impacts on tree protection zones including for plantations, isolated trees and stands, shelter belts and windbreak plantings.
	• Measures to avoid impacts to farm infrastructure, including services, sheds, feed store locations and other facilities, or to forestry infrastructure.
	• Biosecurity controls to be implemented to prevent the introduction and spread of animal and plant pathogens, pests and weeds, including soil borne pathogens. Controls should be informed by a risk assessment for each property, comply with the requirements of the *Catchment and Land Protection Act 1994* (Vic), and be developed in consultation with Agriculture Victoria.
	• Controls during wet weather to avoid damaging access tracks, infrastructure (including drainage infrastructure), plantations and paddocks.
	• Controls to minimise dust impacts on farmhouses and farm worker accommodation, farm water supplies fed by water collected from roofs, animal nurseries, animal handling facilities including stockyards and dairies, farm orchards and vegetable patches, crops and pasture, and solar panels. Controls to minimise and manage these impacts must be included in the construction dust management plan required by EPR AQ01.
	• For forestry properties, bushfire management protocols having regard to existing bushfire management arrangements and policies or procedures.
	• Requirements for progressive reinstatement and rehabilitation including:
	  ○ Reinstatement of infrastructure (including but not limited to roads, access tracks, water points and water supply and drainage infrastructure) removed or altered in the course of construction or to facilitate construction, to the same or better standard as outlined in the property condition report (EPR A01) or to a condition agreed with the landholder.
	  ○ Rehabilitation of soils and rehabilitation of land to the same gradient, drainage and condition as prior to construction and outlined in the property condition report (EPR A01) prior to construction or to a condition agreed with the landholder. Rehabilitation requirements must include details of seed, lime, gypsum and fertiliser type; mix of plants for revegetation, and consideration of cropping, plantation and grazing cycles, where relevant.
	• Process for review and revision of property management plans and property condition reports in response to changes identified during construction.
	The property management plans must be implemented during construction.

A04	**Develop and implement a rehabilitation strategy to avoid or minimise impacts on agricultural and forestry properties** Prior to commencement of project works, develop a strategy for progressive rehabilitation of disturbed areas not being used for permanent

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	infrastructure. The rehabilitation strategy must include: • Requirements for rehabilitation of soil, surface contours and drains damaged or temporarily diverted during construction. • Requirements for use of appropriate seeds and fertilisers for revegetation and with respect to forestry properties, requirements for plantation crop genetic selection and propagation. • Criteria for successful reinstatement and rehabilitation, and revegetation including soil capacity, pasture or crop health, plantation health and lifecycle and weed type and density. • Details of an inspection program to be completed for a minimum of two years after completion of rehabilitation, to determine the success of rehabilitation. Inspections are required quarterly in the first year, twice in the second year after the completion of rehabilitation, and within two weeks of storm events. • A procedure to manage locations where the success criteria has not been met and where additional work is required. The rehabilitation strategy must be implemented until the rehabilitation criteria are achieved for all properties where construction activities disturb ground.
A06	**Develop and implement measures to avoid or minimise impacts on agricultural and forestry properties during operation** As part of the OEMP, develop measures to avoid or minimise impacts on agricultural and forestry properties. These measures must consider the property management plans and include: • Communication protocols with landholders to facilitate site access for inspection and maintenance activities. • Biosecurity protocols to prevent the introduction and spread of animal and plant pathogens, pests and weeds. • Protocols for accessing certified organic farms and plantations. • Measures for soil management and land reinstatement and rehabilitation in the event that excavations are required for maintenance. • Measures to avoid impacts to farming and forestry infrastructure, practices and operations during operation activities. • Bushfire management protocols.
	Air quality
AQ01	**Develop and implement a construction dust management plan** Prior to commencement of project works, develop a construction dust management plan that documents measures to avoid, minimise and mitigate dust emissions. The construction dust management plan must: • Identify sources of dust and airborne pollutants, including diffuse sources and the location of sensitive receptors in accordance with EPA

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	Victoria *Publication 1943 – Guideline for assessing nuisance dust*.
	• Describe dust management measures to be adopted in construction considering:
	  ○ Earthworks, exposed areas and stockpiles
	  ○ Access tracks and haul routes
	  ○ Construction vehicles and equipment
	  ○ Construction materials, transport, handling and storage
	  ○ Waste management transport, handling and storage
	• Describe measures to avoid and, where avoidance is not practicable, reduce the risk of harm from air emissions so far as reasonably practicable to minimise impacts on health, safety or amenity in accordance with EPA Victoria *Publication 1820.1 – Guide to preventing harm to people and the environment*.
	• Describe processes to ensure the measures are implemented appropriately, are regularly assessed for effectiveness, including regular inspection requirements in construction areas, and are subject to continuous improvement.
	• Define roles and responsibilities of the contractors, and how implementation of dust management measures will be communicated.
	• Outline a process to address complaints related to dust and dust events and identify opportunities for continual improvement of air quality impacts from construction.
	• Outline a process for review and improvement of dust and emission reduction and management measures.
	• Consider the mitigation measures presented in the Air Quality impact assessment prepared for the Marinus Link EIS/EES including mitigation for cumulative impacts.

	Bushfire
BF01	**Develop and implement measures to avoid and manage ignition of fires during construction** Prior to commencement of project works and in consultation with the relevant fire authority and, as relevant, any industry brigade, develop a bushfire protocol as part of the CEMP to: • Avoid and minimise high risk activities on Total Fire Ban Days. • Maintain fuels to low levels within the sites prior to and during the bushfire danger periods. • Maintain vehicles, plant and machinery in accordance with specifications to prevent fire ignition from their operation. • Mitigate ignition risks from electrical faults. • Establish and maintain vehicle access to the site and surrounds for fire suppression activities by fire fighting authorities and brigades.

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	• Consider the forestry operators fire management plan.
BF02	**Provide onsite firefighting water capacity in high fire risk areas** Prior to commencement of project works, develop a protocol for the provision of dedicated onsite water supply tanks or alternative water sources for firefighting in high fire risk areas. The protocol must include: • Provision of mobile water carts along the cable route to supplement emergency water supply for onsite personnel and emergency services. • For the fixed sites, use tank(s) that are non-combustible and incorporate appropriate fire fighting fittings, for emergency services to access the water supply. • Maintaining clear access to tanks or water sources for fire fighting vehicles. • Providing sufficient water capacity to undertake adequate fire suppression. • Provision of trained personnel and equipment. • Measures to ensure the fire fighting capacity of landholders is not impacted. High fire risk areas are areas in the natural landscape that are located in a Bushfire Prone Area and/or the Bushfire Management Overlay. This protocol should be referenced in the Bushfire Emergency Management Plan prepared in accordance with EPR BF03.
BF03	**Prepare and implement a Bushfire Emergency Management Plan (BEMP)** Prior to commencement of project works, prepare a Bushfire Emergency Management Plan (BEMP) to the satisfaction of the relevant fire authority. The BEMP must document arrangements, systems, strategies, roles and procedures relating to the preparedness, prevention, response and recovery of bushfire emergencies, and must include, but not be limited to: • Description of the site facility • Provide details of all emergency procedures, including closure triggers • Emergency preparedness arrangements • Details of all shelter in place and offsite evacuation procedures • Landholder communication protocols in the event of any outbreak of fire from construction or operations. • Site based exposure requirements for work sites at Hazelwood, Waratah Bay and all laydown areas (including in respect of management of vegetation) to ensure radiant heat exposure of no greater than 12.5 kW/m2. The BEMP must be informed by consultation with the relevant fire authority and, as relevant, any industry brigade, and must have regard to any

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	relevant bushfire management protocols for forestry properties. The BEMP must be implemented during project works, and be reviewed annually in consultation with the relevant fire authority.
BF04	**Develop and implement measures to avoid and manage ignition risks ~~during operation~~** In consultation with the relevant fire authority, develop a protocol for: • Avoiding high risk activities on Total Fire Ban Days. • Maintenance of converter station infrastructure. • Maintenance of fire fighting systems and water tank capacity at the converter station. • Site based exposure requirements for above ground infrastructure sites (including in respect of management of vegetation) to ensure radiant heat exposure of no greater than 12.5 kW/m2. • Maintaining vehicle access to the site and surrounds for fire suppression activities by fire fighting authorities and industry brigades. • Operation of electrical infrastructure to minimise ignition risk and maintain monitoring and management systems (emergencies, fault management, system monitoring, fire detection and suppression). • Provision of trained personnel and equipment. This protocol should be referenced in the project's emergency response plan required under EPR S06 and implemented during construction and operation.
	Electromagnetic fields
EMF01	**Design the project to reduce EMF/EMI emissions and heating impacts** Design and construct the project to reduce electric and magnetic fields (EMF) and electromagnetic interference (EMI) for the project alignment onshore to below the reference levels or as low as reasonably practicable to avoid and minimise impacts. The applicable reference levels are defined in EIS/EES Technical Appendix A: Electromagnetic Fields Section 7 of the EMI impact assessment prepared for the EIS/EES. The design must be informed by a project wide EMF and EMI assessment for all the proposed infrastructure, identifying existing sensitive receptors and committed future developments within the study area. The assessment must be documented in a management plan that includes, but is not limited to: • Outcomes of the project wide EMF and EMI assessment and details of the areas assessed. • The location of all sensitive receptors including beehives within 5 m of the infrastructure. The location of beehives must also be documented in the property management plans (EPR A02).

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	• Where at-receiver mitigation works to sensitive equipment are required to avoid or minimise adverse impacts. • The land cable design and installation to minimise heating effects and account for other potential heat sources. • A pre- and post-construction testing strategy to verify design calculations, impacts on sensitive equipment and the efficacy of any specified mitigation measures. • Remedial action to be undertaken if EMF and EMI limits are not met during the construction, testing, and commissioning. The EMF and EMI management plan must be prepared to inform the design and commissioning of the project. EMF and EMI emissions of the subsea cable are addressed in EPR MERU 12.
	Geomorphology and soils
GM01	**Investigate ground and groundwater conditions over the alignment, identify and assess landslide and other hazards to inform design and construction methods that reduce environmental and operational risk to tolerable levels (under AGS2007)** Prior to commencement of project works, complete targeted surveys and site assessments along the project alignment, converter station, shore crossing and inspection and communications building (and potential transition station) to assess ground and groundwater conditions to inform the design and site-specific construction methods for the project components including above ground infrastructure, buildings, access roads, underground cables, joint bays, and laydown areas. The survey locations should include 380 Darlimurla Road, Darlimurla. The surveys and site assessments must be undertaken by a suitably qualified person and include, but not be limited to the following (as appropriate having regard to the ground conditions of the particular site): • Desktop review of LiDAR, geological maps and any other relevant information to identify possible landslides or areas of potential instability. • Develop preliminary ground models incorporating LiDAR ground profiles, available geological / geotechnical information and knowledge of geological processes. • Undertake targeted site investigation along the alignment and surrounding area as relevant, including surface mapping and intrusive investigation (such as test pits / boreholes, geophysical investigation and materials testing) to confirm soil, rock and groundwater conditions including confirmation of the depth and extent of possible landslides. • Update ground models based on findings of the site investigations. • Run appropriate slope stability analysis using the updated ground models to assess the factor(s) of safety of the current conditions and the stability conditions following installation of the infrastructure, including sensitivity analysis, to confirm tolerable level of risk at potentially unstable locations. In this EPR 'tolerable' adopts the meaning under Australian Geomechanics Society, Volume 42, No 1, March 2001 (AGS2007).

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	• Testing for sodic/dispersive soils. • Install ground monitoring system, if appropriate, to confirm whether or not identified instability features may be creeping and / or to establish a base line for future monitoring during the construction and operational phases. This could include survey monuments, inclinometers, piezometers, extensometers, or iterative detailed photogrammetry. • Use the findings of the investigation(s) as inputs to landslide hazard and risk assessment with reference to AGS2007.

GM02	**Develop designs and construction methodology that minimise construction induced ground movement**
	Prior to commencement of project works, develop a design for below and above ground infrastructure that ameliorates risk from identified instability hazards.
	• Where risk from landslide or slope instability is shown to be above tolerable levels in GM01, use the ground models developed in GM01 as the basis for design of preliminary mitigation options that are aimed at reducing risk to elements at risk (both environmental and operational) by reducing one or both of the following:
	  ○ The likelihood of occurrence
	  ○ The consequences to the elements at risk.
	• Liaise with stakeholders whom MLPL identifies as relevant and undergo optioneering / cost benefit analysis to identify the preferred mitigation option to manage risk.
	• Understand serviceability requirements for the proposed infrastructure i.e., what are tolerable ground movements (both lateral and vertical) within the design of cable joints and couplings and any surface infrastructure.
	• Develop the preferred mitigation option(s) to the detailed design stage with consideration to serviceability constraints, constructability, stability of temporary works as well as long term stability.
	• For forestry properties consider the *Code of Practice for Timber Production 2014* (as amended 2022) and the impacts of forestry equipment, log storage and loading, plant and vehicles that will use the land during operation.
	• Demonstrate the mitigation measures bring risk to a tolerable level with reference to procedures outlined in AGS2007.
	• Continue monitoring established in GM01, if applicable, through to construction and operations stages.
	• Establish a Trigger Action Response Plan (TARP) that clearly sets out criteria that would require a response during construction or operation, what the levels of response(s) would be, and who will be responsible to carry it (them) out.
	• Employ standard construction techniques to minimise potential for slope / trench instability including limiting the length and duration of unsupported temporary excavations.

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GM05	**Develop and implement methods for trenchless construction (HDD) that have considered ground conditions** Prior to commencement of project works, develop measures where trenchless construction methods will be implemented that addresses site conditions as determined through the assessments completed to comply with EPR GM01. These methods must be specific to the location, geology, terrain, geomorphological processes and surrounding landscape stability, including at shore crossings. HDD method must minimise the risk of frac-out, including at the Waratah Bay shore crossing. The locations for HDD drill pads should avoid encroachment into designated waterways unless it can be demonstrated this can be done without adverse impacts on waterway stability and other waterway values, including aquatic ecosystems. These measures must be documented in a sub plan to the CEMP and implemented during construction.
GM09	**Develop and implement a waterway crossing plan** Prior to commencement of project works, develop a waterway crossing plan for crossing of all waterways identified in Figure 52 and Table 31 in the EIS/EES Technical Appendix Q: Victorian Surface Water Impact Assessment, that confirms the construction methodology to be adopted and documents the measures to be applied to avoid and minimise impacts to geomorphology at waterways. The plan must include: a) A consistent waterway referencing system for all 82 designated waterway crossings. b) High level geomorphological and stability assessments of each of the waterways that are proposed to be trenched, including targeted site assessments as necessary, to inform waterway crossing design. This assessment is to include consideration of existing geomorphological processes and threats to enable potential conflicts to be identified and avoided. c) Consideration of the *Code of Practice for Timber Production 2014* (as amended 2022) for forestry properties. d) The selection of a construction methodology for each crossing that ensures waterway stability and has regard to geomorphological processes (including channel migration, headward erosion and avulsion) that could lead to future conflicts with Project infrastructure. e) Assessment of relevant waterways where trenchless construction is preferred 1) For the following waterways, outline relevant outcomes of further design, geotechnical and other investigations, landholder consultation, and outcomes of existing conditions assessment under EPR EC01, EC03, SW01 and GM01, to confirm that trenchless construction remains the preferred methodology: Morwell River, Tarwin River East Branch, Tributary of Tarwin River East Branch (northern), Tributary of the Tarwin River East Branch (southern), Stony Creek, Buffalo Creek, Fish Creek and Little Morwell River. f) Trenchless construction 1) Where trenchless construction will be utilised, identify any measures required in addition to EPR SW01, GM05, GW03 and EC03 to

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	avoid or minimise impacts to fluvial geomorphology. g) Trenched construction 1) Where trenched construction will be utilised, identify any measures required in addition to EPR SW01, GM05 GM06 and EC03 to avoid or minimise impacts to fluvial geomorphology. 2) For trenched construction of unnamed waterway crossings at KP66.6 and KP67.0 in the EIS/EES Technical Appendix V: Terrestrial Ecology, measures to maximise utilisation of existing track at the crossing location and having regard to EPR EC03. The waterway crossing plan must be a sub plan to the CEMP and implemented during construction.
GM10	**Develop and implement measures to manage potential impacts to and from ground stability in operation** As part of the OEMP, include a stability management plan to set out measures to manage any residual ground stability risk to the constructed infrastructure and the land along the easement. The measure should include a periodic monitoring regime and a TARP to identify trigger levels, the action required to be taken for each trigger level, and who is responsible for the action. The stability management plan must consider the *Code of Practice for Timber Production 2014* (as amended 2022) for forestry properties, and the impacts of forestry equipment, log storage and loading, plant and vehicles that will use the land (including roads on plantations) during operation. The stability management plan must be a sub plan to the OEMP and implemented during operation.
	Greenhouse gas emissions
GHG01	**Minimise greenhouse gas emissions in construction** Prior to commencement of project works, identify opportunities to reduce Scope 1 and Scope 2 greenhouse gas emissions (as defined in the National Greenhouse and Energy Reporting ~~NGER~~ Act), so far as reasonably practicable. Measures must be consistent with the Marinus Link Sustainability Framework and include consideration of: • Use of low emission fuels • Maintenance of equipment and vehicles • Minimising vegetation clearance • Purchase of green energy • Procurement of energy efficient machinery • Use of low carbon emission concrete

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	• Use of recycled materials. The design must include measures to avoid SF_6 leakage so far as reasonably practicable and facilitate the substitution of SF6 with commercially viable alternatives with lower warming potential where reasonably practicable. Scope 1 and Scope 2 GHG emissions during construction must be reported annually on the Marinus Link website.
GHG02	**Report on GHG emissions in operation** Prior to commencement of operation and throughout the life of the Project, identify opportunities to reduce operational Scope 1 and Scope 2 greenhouse gas emissions (as defined in the NGER Act) so far as reasonably practicable. Measures must be consistent with the Marinus Link Sustainability Framework and include consideration of: • Management and maintenance of SF6 insulated equipment in accordance with Australian Standard *IEC 62271.4: 2015 – high-voltage switchgear and controlgear – Part 4: Handling procedures for sulphur hexafluoride (SF6) and its mixtures* and the Energy Network Australia Industry Guideline for SF_6 Management (Document 022-2008) and prevention of release of SF6 by using a closed cycle during installation, maintenance and decommissioning of equipment where practicable. • Substitution of SF_6 with commercially viable alternatives with lower warming potential where reasonably practicable. • Use of low emission fuels. • Maintenance of equipment and vehicles. • Purchase of green energy. • Procurement of energy efficient machinery. Measures should be subject to ongoing review to identify opportunities to reduce the Project's Scope 1 and Scope 2 emissions. Scope 1 and Scope 2 emissions from operation must be reported annually on the Marinus Link website.
	Landscape and visual
LV03	**Design inspection and communication building (and potential transition station) to minimise visual impacts from public locations** During the design of above ground infrastructure at the location of the inspection and communications building (and potential transition station), develop measures to provide screening from Waratah Road that is similar to, or better than that which is provided by existing vegetation and landforms. Strategies to achieve this may include, but not be limited to: • Retaining existing vegetation within the site. • Including vegetation or landscaping within the site boundaries to screen or filter views of project features using endemic species. • Locating perimeter fencing behind landscape plantings or landforms.

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	Marine ecology and resource use
MERU02	**Placement of final subsea project alignment to avoid or minimise impacts on benthic habitats** The subsea project alignment, should be located, to the extent reasonably practicable: • Within the sand-filled paleochannels and gutters in nearshore Tasmania and within the sandy seabed of Waratah Bay, in nearshore Victoria. • Away from nearshore areas of higher biological productivity (e.g., low- and high-profile reefs). • To avoid obstacles such as rocks and relocated to areas of soft-sediment seabed. • To avoid areas with moderate or dense cover of seagrass. The final subsea project alignment must be informed by geophysical surveys and geotechnical investigations, and seabed sampling.
MERU07	**Develop and implement a marine fauna management plan** Prior to commencement of marine construction, develop a marine fauna management plan to avoid or minimise impacts to marine fauna. The management plan should outline the approach to: • Managing interactions with marine fauna where there is not a specific species management plan required under EPR MERU08 and MERU09. • Reporting and collation of information about siting of and interactions with marine fauna, including those covered by species specific management plans. • Protocols for incident management and reporting. • Protocols for managing injured seabird or coastal bird if discovered on a lit vessel. • Ensure underwater noise does not exceed 185 dB re 1 µPa at 1 metre at source, to the extent reasonably practicable. • Include species specific management plans as sub-plans. The measures in the plan must be developed in accordance with relevant guidelines including the *Wildlife (Marine Mammals) Regulations 2019* and *A guide to boating and swimming around whales, dolphins and seals* (DELWP 2022). The measures in the plan must be consistent with the objectives of relevant EPBC Act recovery plans including: • *Recovery Plan for Marine Turtles in Australia* (DoEE 2017c) • *National Recovery Plan for threatened Albatrosses and Giant Petrels 2011-2016* (DSEWPaC 2011c) • *Recovery Plan for the White Shark (Carcharodon carcharias)* (DSEWPaC 2013a) • *Sub-Antarctic Fur Seal and Southern Elephant Seal Recovery Plan* (DEH 2004)

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	• *Recovery Plan for the Australian Sea Lion (Neophoca cinerea)* (DSEWPaC 2013b). The marine fauna management plan must be implemented during construction.
MERU08	**Develop and implement a cetacean interaction management plan** Prior to commencement of marine construction, develop cetacean interaction management plan to avoid or minimise impacts to cetaceans during construction. The cetacean interaction management plan must: • Be developed in accordance with relevant guidelines including: • EPBC Act *Policy Statement 2.1 – Interaction between Offshore Seismic Exploration and Whales: Industry Guidelines* (DEWHA 2008e) • *Wildlife (Marine Mammals) Regulations 2019* • *A guide to boating and swimming around whales, dolphins and seals* (DELWP 2022) • *Wildlife Management. Whale and dolphin viewing guidelines* (DNRE 2019) • Define the area for visual monitoring for cetaceans that is appropriate for cable laying works. • Define precaution zones for maintaining a separation distance of cable laying works from cetacean and the distance at which works should be suspended when cetaceans approach, including consideration of underwater noise. • Require vessels to power down their thrusters to minimum necessary to maintain dynamic positioning for safety when to allow HF cetaceans to pass when HF cetaceans (Pygmy Sperm Whale and Pygmy Right Whale) are within a distance of the vessel where noise levels exceed the onset of permanent threshold shift. • Outline vessel-cetacean strike avoidance measures to minimise the potential for collision. • Include a procedure for marine mammal observations which may include the role of Marine Mammal Observers (MMOs) on construction vessels at or around active construction locations. The measures under the plan should be consistent with the goals of the EPBC Act *Conservation Management Plan for the Blue Whale* (DoE 2015a) and *Conservation Management Plan for the Southern Right Whale* (DSEWPaC 2012). The cetacean interaction management plan should be a sub-plan to the marine fauna management plan (EPR MERU07) and be implemented during construction.
MERU14	**Managing impacts on the marine environment during inspections, maintenance and repair** Activities for the inspection, maintenance and repair of the subsea cables must meet the following requirements: • Inspection, maintenance and repair of the subsea cable must seek to avoid and minimise impacts on seagrass where practicable.

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	• The marine species management plans developed under EPRs MERU07, MERU08 and MERU09 must be implemented. • The plan to manage impacts of artificial lighting developed under EPR MERU10 must be implemented. • The ballast water management plan and biofouling management requirements developed under EPR MERU11 must be implemented. • If a replacement cable is required to be installed for rectification of major faults, EPRs MERU02, MERU03, MERU05, MERU06 and MERU13 apply with necessary modifications to the location and installation of the replacement cable.
	Terrestrial noise and vibration
NV02	**Develop and implement a construction noise and vibration management plan** Prior to commencement of project works, develop a construction noise and vibration management plan for onshore construction including the shore crossing. The construction noise and vibration management plan must describe the measures to be implemented during the onshore project works in Victoria to minimise the risk of harm from construction noise and vibration, so far as reasonably practicable, in accordance with the general environmental duty under the *Environmental Protection Act 2017* (Vic) (EP Act). The plan must document: • A description of all noise generating construction activities and their locations. This must include a schedule of equipment types and numbers for each activity and location. • A description of the proposed construction program including timing and duration of construction activities. This must include confirmation that the works will adhere to normal working hours specified in EPA Victoria *Publication 1834.1 Civil construction, building and demolition guide*, other than unavoidable works, low-noise works, or managed-impact works, that must occur outside normal working hours. • The results of additional background noise monitoring conducted under EPR NV01. • Details of the location, duration and type of unavoidable works, and details of any low-noise or managed-impact works, which may need to occur outside of normal working hours and the protocols that will apply for the management of these works outside normal working hours. These protocols must include a process for the justification and approval of any unavoidable works, managed-impact works, or low noise impact works that may be planned to occur outside the normal working hours, consistent with EPA Publication 1834.1 • The locations of the most sensitive working areas along the project alignment, including the extent of areas around unavoidable works where noise and vibration sensitive areas (receivers) need to be identified where risk controls for noise and vibration are most important, based on the predicted construction noise levels. • A systematic evaluation of noise control options to minimise the risk of harm from operation noise so far as reasonably practicable.

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	• A framework for the selection and implementation of risk controls that are proportionate to the risk of harm from noise, informed by factors including the noise level, noise character, work timing, and work duration. The existing noise environment and the number of affected receivers may also be relevant factors at some sites.
	• Details of all reasonable and practicable measures that are proposed to minimise the risk of harm as a result of noise and vibration associated with both on- site and off-site sources of construction activities (including heavy vehicle movements on local roads), including:
	  ○ Requirement for the selection of major plant items with low noise emissions, characterised by sound power levels that are equivalent to, or lower than, the values/ranges indicated in *AS 2436, Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites* (Reconfirmed 2016), unless it can be demonstrated that adhering to these values would not be reasonably practicable.
	  ○ Measures for the control of potentially annoying characteristics such as tonality, impulsive and low frequency noise (accounting for frequency spectrum as a prescribed characteristic where applicable).
	  ○ A requirement that each HDD rig associated with the shore crossing (including ancillary plant) to achieve a total sound power level of 110 dB LWA or lower, unless it can be demonstrated that adhering to this value would not be reasonably practicable or would increase the duration of exposure.
	  ○ Scheduling protocols for minimising the potential disruption caused by high noise levels as a result of transient construction activities which occur near to receivers for brief periods.
	  ○ Details of any locations where temporary screens or enclosures are identified as a reasonably practicable control measure, informed by updated construction noise modelling.
	• Requirements to minimise the risk of noise impacts on the environmental value of 'human tranquillity and enjoyment outdoors in natural areas', in accordance with the Category V indicator and objectives of the Environment Reference Standard, having regard to the frequency spectrum of both the pre-existing noise and the noise from the Project, their potential character, and their variability.
	• Details of any low-noise or managed-impact works which may need to occur outside of normal working hours and the protocols that will apply to the management of these works outside of normal working hours.
	• Requirements for monitoring noise and vibration of construction works, including unavoidable works.
	• The protocol for preparing detailed noise and vibration impact assessments (EPR NV03) including when they are required, format, timing and process for review. The protocol must address all project works and specifically:
	  ○ The shore crossing.
	  ○ Locations where there is prolonged unavoidable works, managed-impact works, or low noise impact works outside of normal working hours.
	  ○ The converter station.

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	• Vibration controls and monitoring requirements, including details of the locations and circumstances in which vibration noise monitoring would be conducted, for heritage structures including the cistern structure identified in Moores Road, Buffalo. • Communication protocols for notifying landholders in advance of the works occurring. • Noise complaint handling and response protocols, in accordance with the broader process for managing and responding to complaints received during construction (prepared under EPR S03). • Protocols for continual improvement of the construction noise and vibration mitigation measures, informed by data sources including but not limited to audit findings, the community and stakeholder engagement framework (prepared under EPR S03), complaint reviews, noise modelling (e.g. as part of preparing detailed noise and vibration impact assessments under EPR NV03), and monitoring. The construction noise and vibration management plan must address the requirements and guidance of: • The general environmental duty under the EP Act. • EPA Victoria Publication 1834.1. • *Australian Standard AS 2436 - 2010*. • EPA Victoria *Publication 1996 Noise guideline – assessing low frequency noise* Both the construction noise and vibration management plan and the IEA review report of the plan must be made available to EPA Victoria on request. The construction noise and vibration management plan must be a sub plan to the CEMP and implemented during construction.
NV04	**Design the converter station to minimise the risk of harm from noise so far as reasonably practicable** In accordance with the general environmental duty under the *Environmental Protection Act* (EP Act), the design process for the converter station must include a systematic evaluation of noise control options to minimise the risk of harm from operation noise so far as reasonably practicable. The evaluation must: • Consider site layout, equipment selection, and built form to control noise. • Address both the level and character of the noise, accounting for the assessable characteristics defined in the EPA Noise Protocol and prescribed characteristics under the EP Act. • Address normal operation and routine equipment testing. Prior to installing the converter station plant and any enclosing structures, prepare a design noise assessment report for the final converter station design. The report must: • Document the systematic evaluation of noise control options.

EPR ID	Environmental Performance Requirements
	• Describe the measures to be implemented to control environmental noise levels, demonstrating that all reasonable and practicable measures will be implemented to minimise the risk of harm as a result of noise, as required by the general environmental duty under the EP Act. • Confirm the applicable noise limits (normal operation and routine equipment testing) determined in accordance with the ~~EPA Victoria Publication 1826.4 Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues (~~EPA Noise Protocol~~)~~, accounting for the background monitoring data obtained for EPR NV01 and cumulative noise considerations. • Provide details of the noise frequency characteristics of key items of plant such as the transformers and valve coolers, and assessment of whether character adjustments are warranted. • Present predicted noise levels at noise sensitive locations (receivers) from operation of the converter station. • Demonstrate that operational noise levels for the final design and equipment selections are predicted to comply with noise limits determined in accordance with the EPA Noise Protocol. • Present an assessment of the potential for prescribed characteristics under the EP Act, including low frequency noise characteristics as described in EPA Victoria Publication *1996 Noise guideline – assessing low frequency noise*. The design noise assessment report must be reviewed by the independent environmental auditor (IEA). Both the design noise assessment report and the IEAs review report must be made available to EPA Victoria on request.
NV05	**Develop an operation noise management plan for the converter station and transition station sites** As part of the Operation Environmental Management Plan (OEMP), develop an operation noise management plan for the converter station and transition station (if required) sites. The operation noise management plan must document: • The noise mitigation and management measures developed in design (EPR NV04) that apply to the operation and maintenance of the converter station. • The confirmed applicable noise limits determined in accordance with the EPA Noise Protocol and EPA Victoria Publication *1996 Noise guideline – assessing low frequency noise*, including for routine testing of plant that is used solely for emergencies (i.e. standby generators for the converter station and the transition station), determined under EPR NV04. • Procedures for, and timing of, noise monitoring to be carried out to assess compliance with the applicable noise limits when the converter station and transition station commences operation. • Details and timing of a noise compliance reporting to be submitted to EPA Victoria. • Details of any maintenance and monitoring measures that are required to maintain ongoing compliance with the *Environmental Protection*

EPR ID	Environmental Performance Requirements
	Act 2017 (Vic) (EP Act) including the general environmental duty. • Procedures for routine testing of plant that is used solely for emergencies (e.g. regularity, days, and times of testing). • Procedures to investigate noise complaints or suspected noise compliance issues. • Protocols for continual improvement of the operation noise management plan, informed by data sources including but not limited to audit findings, complaint reviews and monitoring. The operation noise management plan must be made available to EPA Victoria on request. The operation noise management plan must be a sub plan to the OEMP and implemented during operation.
	Social
S06	**Engagement to be reflected in the project's emergency response plan and procedures** Prior to commencement of project works, engage with local emergency service providers and local Councils in the preparation, planning, monitoring and review of the project's emergency response plan and procedures. The project's emergency response plan must outline protocols for: • Ongoing engagement with emergency services about changes to local access and project activities that have potential to cause delay or disruption to emergency response. • Engaging with local Councils to ensure the project's emergency response plan and protocols are consistent with the relevant Municipal Emergency Management Plans. • Engaging with the community and managing social impacts during an emergency incident. The protocols must form part of the project's emergency response plan and must be implemented during construction.
	Surface water
SW01	**Develop and implement an erosion and surface water management plan** Prior to commencement of project works, develop a plan to manage erosion and surface water. The plan must: • Be developed in consultation with West Gippsland Catchment Management Authority • Document the existing condition (including habitat and aquatic habitat) of all waterways potentially affected by construction (including their immediate surrounds) to establish baseline conditions and inform development of measures to manage potential impacts. • Describe sediment and erosion controls and monitoring requirements in accordance with EPA Victoria *Publication 1834.1 Civil construction,*

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	building and demolition guide, and with reference to the *IECA Best Practice Erosion and Sediment Control Guidelines 2008*.
	• Identify controls to:
	  ○ Maintain the key hydrologic and hydraulic functionality and reliability of existing waterways.
	  ○ Retain existing flow characteristics to maintain waterway stability downstream of construction.
	  ○ Minimise impacts to fluvial geomorphology, erosion and acceleration of stream processes (including bank erosion, channel adjustment, avulsion and incision) to protect bank and bed stability of waterways that could be directly or indirectly affected by construction activities, in accordance with West Gippsland Catchment Management Authority requirements and having regard to EPR GM09.
	  ○ Manage surface water flow to minimise site runoff and avoid and/or minimise impacts to ground and slope stability having regard to EPR GM08 as appropriate.
	  ○ Detail measures for revegetation and reinstatement of the beds and banks of waterways in accordance with West Gippsland Catchment Management Authority requirements. The measures should be appropriate for the different categories of waterways considering if they are subject to shear stress that exceeds the boundary material resistance thresholds, and the extent of existing native vegetation and aquatic habitats in and around the waterway that will be impacted.
	• Detail the location for storage of contaminated material, hazardous substances or stockpiled soil outside an appropriate flood level and to the requirements of EPA Victoria and the relevant drainage authority.
	• Detail the protocol for scheduling of works to minimise or avoid flood related risks (see EPR SW03).
	• Detail the stormwater drainage system and spills containment measures for construction areas to manage the risk of hazardous spills and runoff to waterways from paved or trafficable surfaces. This must include requirements for bunding of excavations including joint pits to avoid contamination of stormwater.
	• Detail measures for minimising, the handling, classifying, treating, disposing and otherwise managing wastewater. Wastewater from the site may be subject to approval by the relevant authority prior to discharges occurring and subject to classification under the Environment Reference Standard requirements in accordance with the EP Act.
	• Detail emergency response protocol for flooding events and frac out during HDD construction under waterways. Methods for HDD drilling to prevent frac out and the use of non-toxic drilling fluids are described in EPR GW03.
	• Consider the *Code of Practice for Timber Production 2014* (as amended 2022) in the design and construction of roads and works on or near waterways within forestry properties.
	• Review and update of the plan annually to address the outcomes of water quality monitoring as required by EPR SW04.
	• Consider the timing and duration of mitigation measures for any proposed interim periods between construction staging.

EPR ID	Environmental Performance Requirements
	The plan must be a sub plan to the CEMP and implemented during construction.
	Terrestrial ecology
EC01A	**Avoid or minimise native vegetation and habitat loss and degradation - additional assessments to inform detailed design** Prior to finalising the detailed design: ~~commencement of project works and to inform the design:~~ • Complete vegetation surveys ~~quality assessments~~ at locations that could be impacted by the areas of disturbance ~~of the final design to and require further assessment~~ to confirm vegetation type and extent. Areas to be surveyed~~, if impacted,~~ include: ○ those shown in Figure 6 of Technical Appendix V: Terrestrial Ecology Assessment as 'Native vegetation (unassessed)' ○ biolinks and identified future offset sites located on forestry properties ○ any other areas that were not surveyed but are at risk of being impacted or disturbed by the Project. • Complete vegetation quality assessments in areas where native vegetation is found. • Complete habitat assessments and targeted surveys at locations that could be impacted by the areas of disturbance ~~of the final design~~ and ~~have not yet been surveyed~~ require further assessment to determine habitat suitability and/or presence/absence of threatened species. Areas to be assessed and surveyed, if impacted, include: ○ those shown in Figure 5 of EIS/EES Technical Appendix V as 'Priority habitats' ○ those shown in Figure 6 of EIS/EES Technical Appendix V as 'Native vegetation (unassessed)' ○ all potential habitat for Bog Gum, the Forest Red Gum Grassy Woodland community, the Waratah Bay woodland flora functional group and River swamp wallaby grass ○ all potential habitat for species in the ground-dwelling fauna functional group ○ areas of potential koala habitat identified in Technical Appendix V and any additional koala habitat areas identified by forestry landholders. • Complete fauna utilisation surveys of all impacted hollow-bearing trees within areas of priority habitats shown in Figure 5 of EIS/EES Technical Appendix V, to identify nesting sites and minimise removal of hollow bearing trees. ~~○ Use of trenchless technologies such as HDD.~~ ~~• Develop and implement construction methods that avoid impacts to the Gippsland Red Gum (Eucalyptus tereticornis subsp. mediana) Grassy Woodland and Associated Native Grassland Threatened Ecological Community including the related FFG Act listed Threatened Ecological Community located along McFarlane Road, Hazelwood as shown in Figure 5.42 of EIS/EES Technical Appendix V.~~ ~~• Prior to construction and to inform detailed design, complete an arboriculture assessment of trees impacted due to consequential losses and encroachment of tree protection zones, as shown in Figure 6 of EIS/EES Technical Appendix V. Inspections by qualified~~

EPR ID	Environmental Performance Requirements
	~~arborists must be undertaken to inform measures which may minimise the likelihood of trees being lost.~~ • ~~Obtain native vegetation offsets in accordance with the Guidelines for removal, destruction or lopping of native vegetation (DELWP 2017) for the native vegetation to be removed based on the detailed design.~~
EC01B	**Avoid or minimise native vegetation and habitat loss and degradation – detailed design and construction** The detailed design should seek to avoid and minimise native vegetation, priority habitat areas and hollow-bearing trees identified through the further surveys and assessments referred to above to the extent practicable. Measures will include: • Minor realignment of the Area of Disturbance. • Reducing the width of the Area of Disturbance. • Trenchless construction methods such as HDD. Develop and implement appropriate construction methods including trenchless technologies such as HDD where feasible to avoid and minimise impacts on: • Native vegetation, priority habitat or hollow bearing trees identified in the EES or by the further surveys and assessments conducted under EC01A, including Bog Gum. • Gippsland Red Gum (*Eucalyptus tereticornis* subsp. mediana) Grassy Woodland and Associated Native Grassland Threatened Ecological Community including the related FFG Act listed Threatened Ecological Community. Trenchless construction is the preferred methodology for avoiding and minimising impacts on this community located along McFarlane Road, Hazelwood as shown in Figure 5.42 of EIS/EES Technical Appendix V. Complete an arboriculture assessment of trees impacted due to consequential losses and encroachment of tree protection zones, as shown in Figure 6 of EIS/EES Technical Appendix V and any other trees identified through the further survey and assessment work conducted under EPR EC01A. Inspections by qualified arborists must be undertaken to inform measures which may minimise the likelihood of trees being lost.
EC01C	**Avoid or minimise native vegetation loss and degradation - offsets** Obtain native vegetation offsets in accordance with the *Guidelines for removal, destruction or lopping of native vegetation* (DELWP 2017) for the native vegetation to be removed based on the detailed design.
EC02	**Develop and implement a biodiversity management plan** Prior to commencement of project works develop a biodiversity management plan to avoid or otherwise minimise impacts to flora and fauna values. The vegetation and habitat management measures must cover, but not be limited to:

EPR ID	Environmental Performance Requirements
	• Identification and protection of native vegetation and priority habitats to be retained as shown in Figures 5 and 6 of EIS/EES Technical Appendix V and identified through the further surveys and assessments undertaken in accordance with EPR EC01A. This must include pre-construction assessment to flag vegetation to be removed and retained and establishment of no-go zones to a standard suitable to prevent access during construction. • Implementation of tree protection measures identified in accordance with EPR EC01B. • Implementation of appropriate measures to manage the risk of the introduction and spread of environmental weeds and diseases during construction in areas supporting native vegetation, priority habitats and threatened ecological communities, as shown in Figures 5 and 6 of EIS/EES Technical Appendix V including relevant approved EPBC Act threat abatement plans. • Manage all work areas to maintain landform stability and avoid or minimise erosion and sedimentation, and avoid storage of excess soil or fill material upslope or adjacent to native vegetation and priority habitats (to the extent not already addressed under EPR GM02, GM03, GM06, GM07, GM08). • Use of sedimentation and pollution controls to prevent uncontrolled releases into retained native vegetation and priority habitats, as shown in Figures 5 and 6 of EIS/EES Technical Appendix V (to the extent not already addressed under EPR GM08 and SW01). • Use of locally indigenous species in revegetation or plantings, particularly in areas where habitat is removed that is suited to the landscape context and associated native species requirements. • Where possible, avoid removal or disturbance of root systems associated with native vegetation in areas of priority habitat, to prevent impacts to ground- dwelling fauna (e.g. crayfish). • Incident management protocols for addressing accidental clearing of vegetation or habitat through assisted regeneration or additional offsets. The flora and fauna species management measures must cover, but not be limited to: • Undertaking pre-clearing inspections by a suitably qualified ecologist to confirm the on-site location of fauna immediately prior to habitat removal. • Salvage and re-location of fauna, if required prior to construction, in accordance with the *Wildlife Act 1975* (Vic) and EPBC Act (Cwlth) where required. • Daily inspections of open trenches or pits for trapped animals, such as reptiles and small-ground dwelling mammals. • Utilising night lighting to a minimum amount required to safely operate the site and to reduce light pollution and adverse effects to nocturnal species in accordance with *Night Light Pollution Guidelines for Wildlife* (DCCEEW 2023). This must include using: • light shields to direct light and reduce light spill.

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	• low beam vehicle lights except where safety is compromised. • Work restrictions during sensitive life-stages (e.g. breeding, nesting, etc.) within 100m of priority habitats, as shown in Figure 5 of EIS/EES Technical Appendix V, to avoid and minimise disturbance to native fauna (with a particular focus on noise and light pollution). This may include restrictions on work activities during a season (e.g., spring), species life stage (e.g., breeding or nesting) or time of day (e.g., night-time), based on the ecology of the species and proximity to habitats. Where work restrictions are not feasible, develop and implement alternative control measures (e.g. light shields). • Installation of temporary wildlife barriers near priority habitats to prevent the movements of ground-dwelling fauna into high-risk areas, such as access tracks. • Procedures to manage and limit the spread of Chytrid fungus *Batrachochytrium dendrobatidis* when working in or within 200 meters of waterways, dams, wetlands and other aquatic habitat. • Ensuring speed limits within works areas are restricted to appropriate levels, and enforced, to minimise the risk of faunal strikes. • Managing native fauna that may be displaced due to habitat removal, in compliance with the *Wildlife Act 1975* (Vic). • Procedures if unexpected threatened species are identified during construction. The biodiversity management plan must be a sub plan of the CEMP and must be implemented during construction.
EC03	**Implement aquatic habitat protection measures** Where reasonably practicable a~~A~~void and minimise impacts to aquatic habitat~~, so far as reasonably practicable,~~ through ~~adopting preference for~~ trenchless construction methods (such as HDD) or project alignment changes ~~where reasonably practicable~~ at the following waterway crossing locations shown as HDD in EES Attachment 6 (Map Book): • Morwell River~~.~~ • Tarwin River East Branch~~,~~ • Tributary of the Tarwin River East Branch (northern)~~,~~ • Tributary of the Tarwin River East Branch (southern)~~,~~ • Stony Creek~~,~~ • Buffalo Creek~~,~~ • ~~and~~ Fish Creek~~, as shown in Figure 6 of EIS/EES Technical Appendix V, and~~ • Little Morwell River~~.~~

EPR ID	Environmental Performance Requirements
	• Amber Creek • Ten Mile Creek • Eel Hole Creek • Tributary of Berrys Creek in the vicinity of KP54.8 • the unnamed waterway in the vicinity of KP2.9 ~~as shown in Figure 6 of EIS/EES Technical Appendix V, and the Little Morwell River.~~ Where trenching works across the unnamed waterways at KP66.7 and 67 can not be limited to the existing~~,~~ built-up crossing points associated with the existing tracks, consider alternative design and construction approaches as appropriate to avoid disturbance of the waterways. For each designated waterway that is proposed to be trenched, conduct a high level assessment by a suitably qualified aquatic ecologist prior to commencement of works that: • Documents the existing aquatic and riparian habitat. • Determines whether the waterway provides potential habitat for threatened species. Where the high level assessment identifies a waterway provides ~~If any additional flowing or ephemeral waterways that are deemed to be~~ potential habitat for threatened species ~~are proposed to be open cut or directly impacted~~, a suitably qualified aquatic ecologist is to conduct aquatic surveys prior to commencement of project works to inform design and construction methods. Trenchless construction methods are preferred for any crossing of a waterway that provides potential habitat for threatened species. Where direct impacts to waterways are likely to occur, prepare a site environmental management plan with reference to the plan prepared to manage erosion and surface water in accordance with EPR SW01 and the plan prepared to manage fluvial geomorphology at waterway crossings in accordance with EPR GM09, and in consultation with the West Gippsland Catchment Management Authority, covering: • Details for retention and protection of riparian and instream vegetation, dead and alive standing trees and fallen timber and other habitat values. • Requirements for salvage and translocation of aquatic fauna prior to construction, in accordance with the Wildlife Act 1975 (Vic). • Approach for the implementation of appropriate measures to manage the risk of the introduction and spread of environmental weeds, diseases and pathogens during construction in aquatic habitats. • Document the locations of where measures must be applied. The plan must be a sub plan of the CEMP and be implemented in construction.

E:2 Recommended Incorporated Document

The following clauses of the Incorporated Document include the IAC's recommended changes based on the Proponent's Day 2 version (D141). Only clauses where changes are recommended are included. Headings of those clauses are included for ease of navigation.

Tracked Added

~~Tracked Deleted~~

4 CONTROL

4.1 Exemption from Planning Scheme Requirements

4.1.2 The Project includes, but is not limited to, the following:

(a) Use and development of land for Utility Installations (as defined in Clause 73 of the Planning Schemes) and associated buildings and works including:

i. Transmission cables and fibre optic cables, including cable joints, a fibre optic terminal station and inspection and communications building (including transition station if required).

ii. HVAC-HVDC converter station.

(b) Ancillary activities including, but not limited to:

i. Use and development of laydown areas for construction purposes.

ii. Earthworks, including cutting and excavation, spoil stockpiling and removal, and the formation of drainage works.

iii. Use and development of temporary site workshops and storage, car parking, administration and amenities buildings.

iv. Use and development of temporary concrete batching plants.

v. Removal, destruction and lopping of trees and vegetation, including native vegetation and dead vegetation.

vi. Development of trenches, ducts, horizontal directional drilling pads, cable joint pits, and provision of access to construction and maintenance sites.

vii. Demolition, removal and/or relocation of buildings and works.

viii. Storage and assembly of materials and equipment.

ix. Relocation, modification, upgrade and installation of services and utilities, including drainage infrastructure, telecommunications infrastructure, high voltage transmission lines and gas pipelines.

x. Construction or carrying out works to create or alter roads, create or alter access to roads including roads in a Transport Zone, bridges, ramps, fences, access tracks, temporary barriers and site security, noise attenuation walls, retaining walls, car

parking areas, bunds, mounds, landscaping, piles, foundations, drainage infrastructure, water treatment and storage, bores and flood mitigation.

xi. Construction and display of signs related to the Pproject.

xii. Subdivision and consolidation of land and creation and removal of easements.

xiii. Restoration and reinstatement works.

xiv. Modification, removal or installation of bus stops, car parking, and bicycle facilities.

xv. Construction or carrying out works to excavate land and salvage artefacts.

xvi. Any activity, building or works that the Minister for Planning confirms in writing is for the purposes of the Project.

5 CONDITIONS

5.2 Alignment Plans and Development Plans

5.2.2 The Alignment Plans must show the route and construction area of the transmission cables and associated easements within the Subject Land, location of joint pits, access roads and tracks, construction compounds, and the location of the converter station and the inspection and communications building (and transition station if one is required).

5.2.4 Prior to the commencement of development of each specified above-ground Utility Installation (being the fibre optic terminal station, the converter station, and the inspection and communications building including the transition station if required) (excluding preparatory buildings and works under Clause 5.6), a Development Plan showing site layout plans and elevations for that Utility Installation must be submitted to and approved by the Minister for Planning.

5.5 Other Conditions

5.5.4 An application for approval of an amendment to the Alignment Plans, Development Plans and/or EMF must be accompanied by:

(a) A track changes version with a schedule explaining the proposed amendment.

(b) A description of the form and extent of any consultation undertaken concerning the proposed amendment with relevant councils, relevant government agencies and other stakeholders including community groups, affected landholders and business associations.

(c) Any written comments from relevant councils, relevant government agencies and other stakeholders including community groups, affected landholders and business associations.

5.6 Preparatory Buildings and Works

5.6.2 Before the removal, destruction or lopping of native vegetation to enable a preparatory use or development, information about that native vegetation in accordance with requirements 1, 2, 3, 4, 5, 9 and 10 of the Guidelines must be prepared to the satisfaction of the Secretary to the DEECA. The biodiversity impacts from the removal of native vegetation under Clause 5.6.1 must be included in the total biodiversity impacts when determining the offset(s) in accordance with Clause 5.4.

6 AVAILABILITY OF APPROVED PLANS AND DOCUMENTS

6.1 A current version of the following plans and documents must be made available on a clearly identifiable Project website from the date of approval and must remain on the available website for at least 5~~2~~ years after commencement of operation~~.~~:

(a) Alignment Plans and Development Plans approved under Clause 5.2.

(b) The Environmental Management Framework approved under Clause 5.3.

Attachment 1 – Specific Control Overlay Maps Subject Land – showing Project Land and Additional Land

IAC note: Make the following changes to Attachment 1:

- Include a list of all figures (numbered) forming part of Attachment 1
- Rename and renumber 'Figure 2: Marinus Link Project land' to 'Figure 1: Marinus Link Subject Land'
- Renumber all figures thereafter from 2.1 to 2.18 (or other consistent numbering system).