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

REFERRAL FORM

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

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

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

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

In completing a Referral Form, the following should occur:

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

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

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

Postal address

Minister for Planning
PO Box 500
EAST MELBOURNE VIC 8002

Couriers

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

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

PART 1 PROPONENT DETAILS, PROJECT DESCRIPTION & LOCATION

1. INFORMATION ON PROPONENT AND PERSON MAKING REFERRAL

Name of Proponent:	Esso Australia Resources Pty Ltd
Authorised person for proponent: **Position:** **Postal address:** **Email address:** **Phone number:** **Facsimile number:**	Emma Ogilvie Project Manager Level 9, 664 Collins St, Docklands emma.m.ogilvie@exxonmobil.com +61 3 9261 0000 NA
Person who prepared Referral: **Position:** **Organisation:** **Postal address:** **Email address:** **Phone number:** **Facsimile number:**	Lucy Levecke Environment & Regulatory Advisor Esso Australia Resources Pty Ltd Level 9, 664 Collins St, Docklands lucy.j.levecke@exxonmobil.com +61 3 9261 0000 NA
Available industry & environmental expertise: (areas of 'in-house' expertise & consultancy firms engaged for project)	Esso Australia Resources Pty Ltd (Esso) has, through arrangements with its affiliates, access to extensive experience in managing environmental commitments and has utilised key in-house environmental professionals as well as in-house land, construction and operational experts to guide project planning, assessing environmental impacts and preparing this referral. The following consultancies have been engaged to provide specialist technical assessment and advice: • Advisian – regulatory approvals and preliminary design • Biosis – ecological assessment • Jem Archaeology – Aboriginal cultural heritage assessment • Stantec – soil assessment • Wood – noise assessment

2. PROJECT – BRIEF OUTLINE

Project title:
South East Australia Carbon Capture and Storage Project (SEA CCS Project), herein referred to as the Project.
Project location: (describe location with AMG coordinates and attach A4/A3 map(s) showing project site or investigation area, as well as its regional and local context)
The Project spans multiple jurisdictions in the Gippsland region of Victoria (**Figure 1**): • onshore from Longford to Paradise Beach, wholly within the Wellington Shire Council local government area • the State waters of the Bass Strait • the Commonwealth waters of the Bass Strait.

The portion of the Project covered within this referral is the new carbon dioxide (CO_2) facilities at the existing Longford Gas Conditioning Plant (GCP), a new CO_2 pipeline between the Longford GCP and Valve Site 3 and use of the existing Bream pipeline from Valve Site 3 to the edge of State waters (3 nautical miles (NM) from low water line off Paradise Beach) (**Figure 2**).

The location of the Project facilities is shown in Figure 1. Please note that all figures have been presented in the document have also been submitted in **Attachment – Figures** for better clarity.

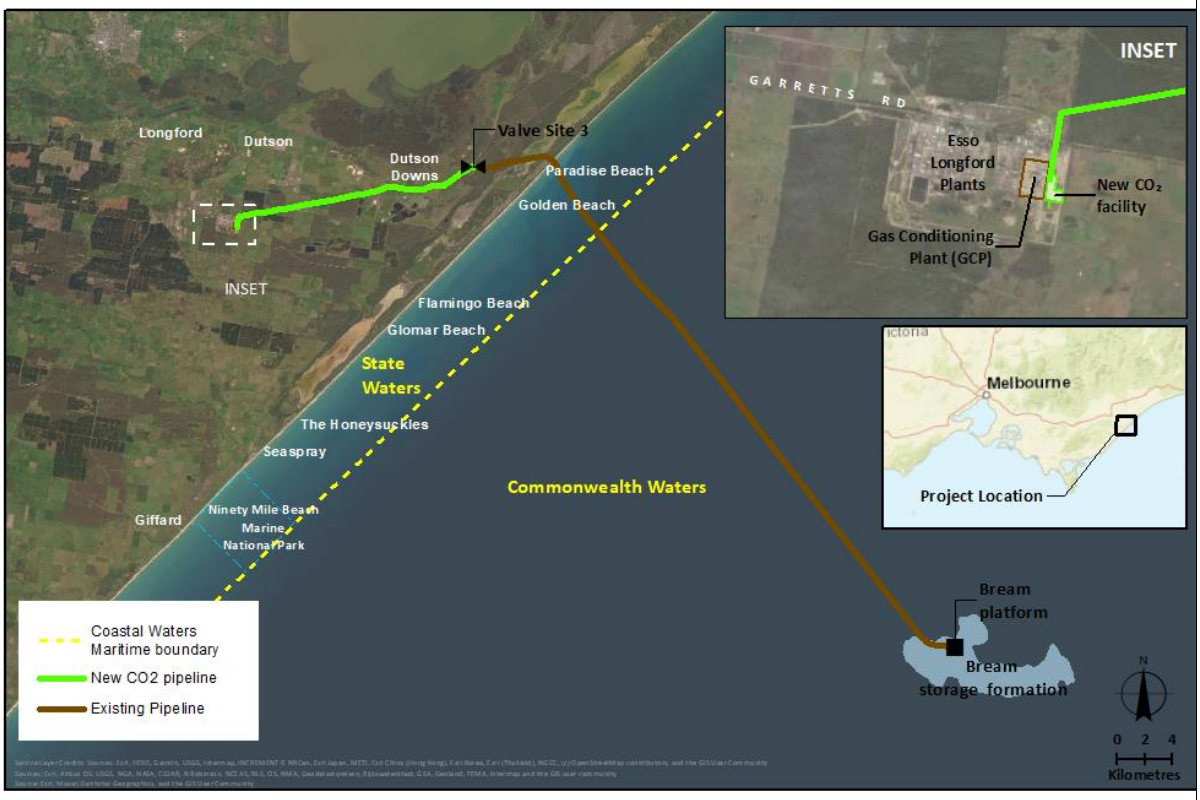


Figure 1: Project overview

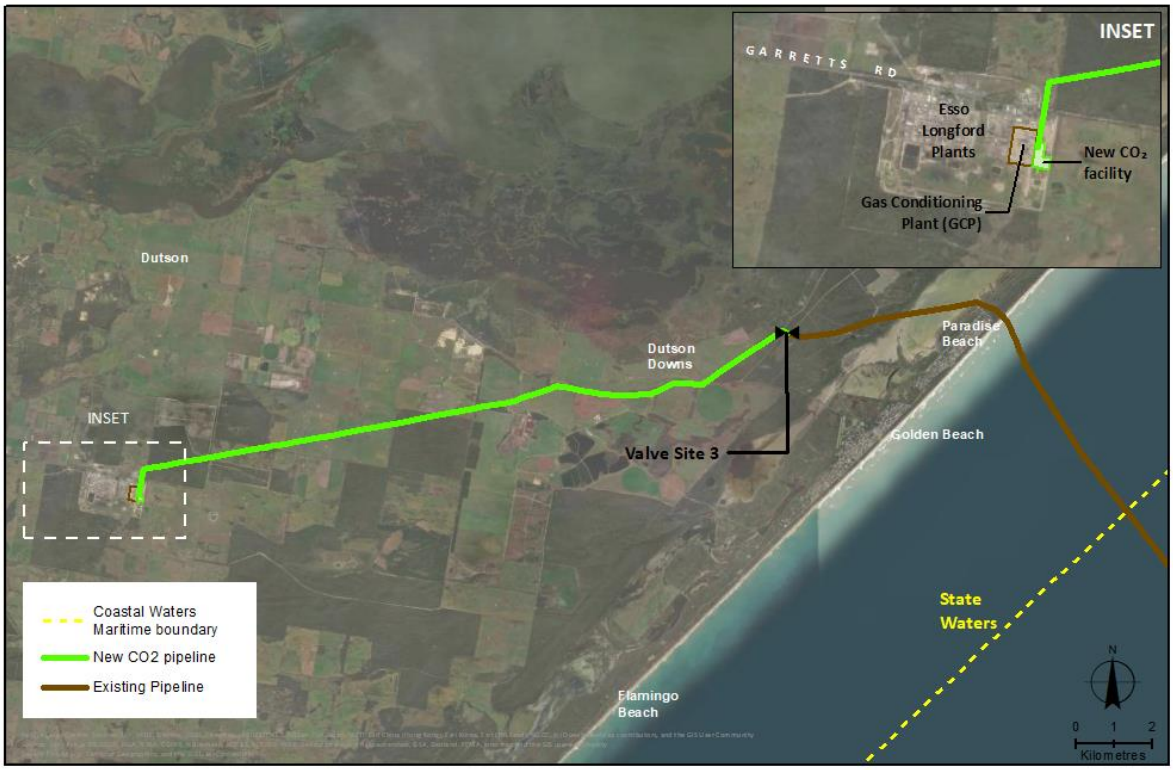


Figure 2: Referral area

The Australian Map Grid (AMG) coordinates of project components within scope of this referral are shown in **Table 1**.

Table 1: Project coordinates

Location	Easting	Northing
Longford Gas Conditioning Plant	515325.448	5769150.868
New CO_2 Facilities	515427.713	5769043.291
Valve Site 3	532549.238	5773366.358

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

Esso proposes to compress, dehydrate, transport and store carbon dioxide (CO_2) in the depleted Bream oil and gas reservoir.

The CO_2 stream available for injection as part of the Project is forecast to average ~0.5 million tonnes per annum (Mtpa) with a peak CO2 compression capacity of ~0.7 Mtpa and a cumulative injection of approximately 3 million tonnes (MT). This would be achieved by compressing the concentrated CO2 stream, which is already separated and vented at the existing licensed Longford Gas Conditioning Plant (GCP) (which is operated by Esso), into a dense phase for transportation to the Bream A platform where it will be injected and stored in the depleted Bream oil and gas reservoir. The Bream reservoir ceased production in September 2020 following more than 30 years of production including periods of gas injection and cycling.

While the Project will predominantly involve the use of existing facilities, certain new facilities will be installed. All new facilities will be located on land that has been previously disturbed by construction activities or land within the existing Longford plant boundary.

The Project would provide a foundation for potential future expansion, including to allow for the injection and storage of CO_2 from third party sources. As any such expansions cannot be defined at this point, they are not addressed in, or within scope of, this referral. If in the future an expansion proposal becomes sufficiently defined a further assessment against the *Environmental Effects Act 1978* (Vic) would be undertaken.

There are four main components of the Project covered by this referral which are described below.

3. PROJECT DESCRIPTION

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

The principal objective of the Project is to store CO_2 captured at the GCP in the depleted Bream offshore petroleum reservoir, predominantly through the use of existing Gippsland Basin Joint Venture (GBJV) infrastructure. A secondary objective is to provide a foundation for potential future expansion that would combine the greenhouse gas storage potential of Gippsland's depleted offshore petroleum reservoirs with existing GBJV infrastructure to enable large scale CO_2 abatement and establish a scalable CCS hub in Gippsland capable of supporting decarbonisation efforts across industries.

Carbon capture and storage (CCS) technology is among the few proven technologies that could enable reduced CO_2 emissions from high-emitting and hard-to-decarbonise sectors, such as power generation and heavy industries, including manufacturing, refining and petrochemicals.

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

Background

Esso, a wholly owned subsidiary of ExxonMobil Australia Pty Ltd, is the operator of the Gippsland Basin Joint Venture (Esso and Woodside Energy (Bass Strait) Pty Ltd) and the Kipper Unit Joint Venture (Esso, Woodside Energy (Bass Strait) Pty Ltd, and MEPAU A Pty Ltd). In connection with these joint ventures, Esso operates 23 offshore platforms and subsea installations in Bass Strait, 600 km of subsea pipelines and the Longford and Long Island Point plants. Esso has produced and processed natural gas, crude, condensate and natural gas liquids from the production of offshore oil and gas fields in the Gippsland Basin in Bass Strait for more than 50 years. Gas processed at the Longford plants currently accounts for more than 40% of the gas consumed on Australia's east coast.

As the oil and gas fields mature and reach their end of production life, Esso is working to transition to a modern gas business; continuing the much-needed supply of natural gas to Victoria and eastern Australia and working to reduce the emissions associated with its operations.

Rationale

In 2009 the National Carbon Storage Taskforce, originally established to accelerate the deployment of CCS technologies in Australia, identified the offshore Gippsland Basin as a highly prospective area for long-term, high-capacity CO_2 storage in Australia (DoI, 2014). Located in the Gippsland Basin, the Project has the potential to be one of the most feasible CCS projects in Australia for a number of reasons:

- Bream reservoir has proven gas injectivity and storage capacity having conducted multiple phases of natural gas injection and storage during oil and gas production.
- Esso has an extensive understanding of the subsurface characteristics of the Bream reservoir as a result of over 30 years of development and production from the field.
- The Bream field ceased production in 2020, and its associated infrastructure is considered suitable for greenhouse gas injection and storage operations.
- The Project maximises the use of existing infrastructure in order to reduce the project footprint and impacts, including use of the existing Bream natural gas pipeline and Bream A platform and wells.
- The Project has an existing available source of concentrated CO_2 from the GCP and as noted above, would provide a foundation for potential future expansions, including to allow for the injection and storage of CO_2 from third party sources.
- As a result of the available CO_2 stream and re-purposement of a significant amount of existing infrastructure, the Project has the potential to start CO_2 storage earlier than most other projects.
- Esso affiliates have more than 30 years of experience capturing and storing CO_2. Esso will leverage industry proven CCS technology, experience and expertise in the Project.

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

The operational life of the Project is expected to be approximately 7-10 years. There are four main components covered by this referral. These components have been described below and pictorially represented in **Figure 2** Figure 1**, Figure 3**

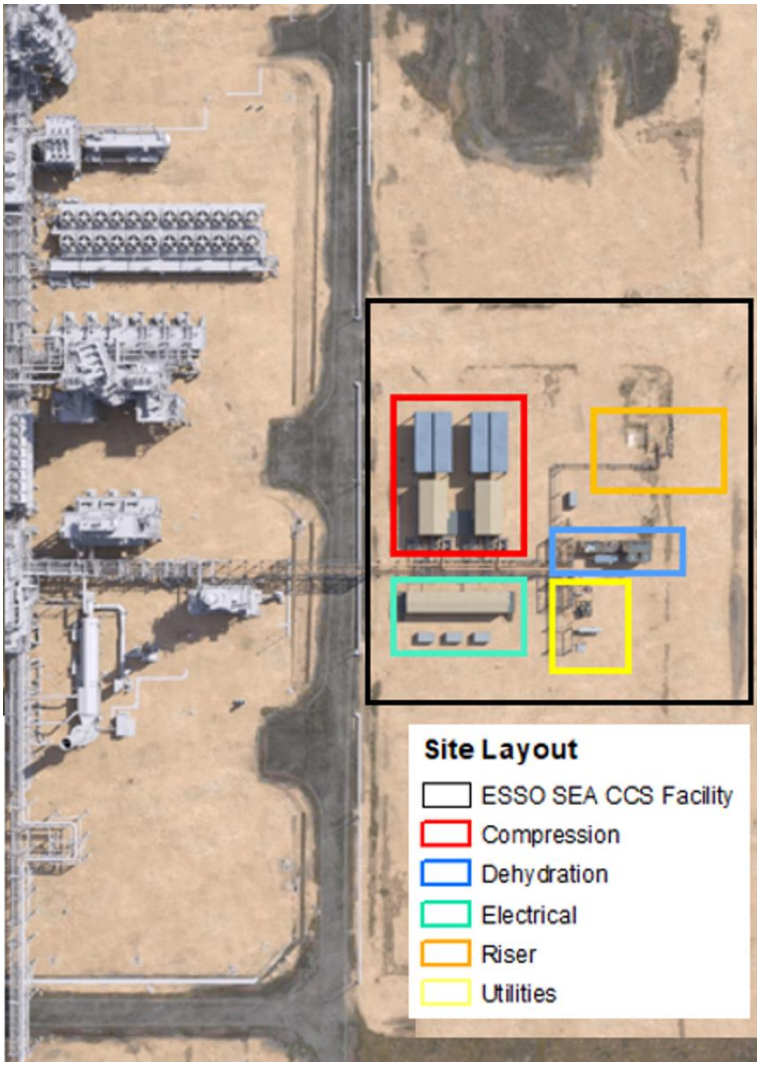


Figure 4**, Figure 4** and **Figure 5**.

1. Modifications at the existing Environment Protection Authority (EPA) licensed Gas Conditioning Plant (GCP).

   GCP is located within the broader existing Longford plant site. A range of modifications will be required relating to three functions:

   i. Routing of the existing CO_2 stream to the new CO_2 facilities

   ii. Modification of the GCP incinerator system where the CO_2 is currently vented

   iii. Tie-ins of process and utility streams, and electrical system.

2. New CO_2 facilities for compression and dehydration adjacent to Longford GCP.

   The new CO_2 facilities will be located at the eastern end within the existing Longford plant site, within the EPA licensed area and in a disturbed area, adjacent and east of the GCP. This area has been previously cleared, graded and finished with crushed rock. The facilities will be configured as an integral part of the GCP, rather than as a standalone facility. The new facilities include:

i. Four stage CO_2 reciprocating compressor with 2 trains. The compressors will be driven by electric motors.

ii. Air coolers to reduce the temperature of the CO_2 during compression.

iii. Adsorbent based CO_2 dehydration facilities to achieve the CO_2 moisture specification required for pipeline transport and subsurface injection.

iv. Liquid handling facilities to recover other streams resulting from compression which will be filtered, recycled and returned to GCP.

v. Drain systems to manage stormwater and oily water.

vi. Vent and relief facilities required for compression shutdown, pressure safety and maintenance purposes. Release points will be designed and located to manage hazards associated with the primarily CO2 streams.

vii. Metering station.

viii. Control and monitoring systems.

ix. Power will be supplied from existing Longford power generation, with the balance of power to be provided via grid import (maximum power import will be up to 6 MW).

Figure 3: Proposed location of new CO_2 facilities within the larger existing Longford plant site

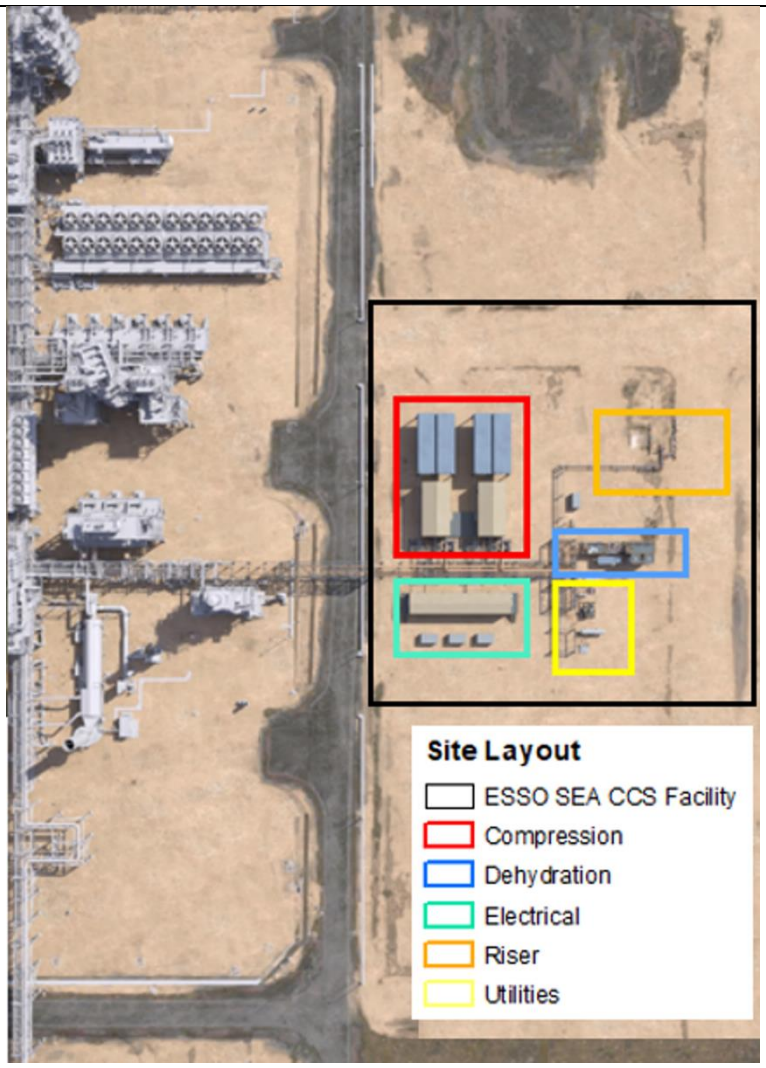


Figure 4: Approximate set up of new CO_2 compression and dehydration facilities

3. New CO_2 onshore pipeline.

   The new CO_2 pipeline will transfer CO_2 between the new CO_2 facilities to the existing Bream pipeline at Valve Site 3, totalling approximately 19 km in length. The new pipeline will be located adjacent to and south of the five existing pipelines which are currently located within an existing maintained pipeline corridor (these existing pipelines are licensed and covered under an Environment Management Plan (EMP) and Safety Management Plan (SMP) under the *Pipelines Act 2005* and do not form part of this referral). The existing pipeline corridor is approximately 36 m wide.

   The new pipeline will have a maximum nominal diameter of 350 mm and will be buried in accordance with Australian Standard Pipelines – Gas and Liquid Petroleum (AS2885) at a minimum depth of cover of 900 mm.

Figure 5: Location of new CO_2 onshore pipeline

4. Utilisation of the existing Bream pipeline (onshore and within State waters).

   There will be no construction activities associated with using the existing Bream pipeline for transport of CO_2 onshore or within State waters.

   The Bream natural gas pipeline was installed in 2002 and commences at Valve Site 3 in Dutson Downs. The existing Bream pipeline extends from Valve Site 3 underground beneath Paradise Beach for approximately 6 km, before it surfaces on the seabed and extends for approximately 46 km in Victorian and Commonwealth waters and terminates at the Bream A platform. The existing Bream pipeline is covered by 3 licences – PL233 (onshore), VIC/PL32(v) (State waters) and VIC/PL32 (Commonwealth waters) and variations of those licences will be sought to allow for the transportation of CO_2.

   The existing Bream pipeline is a nominal 350 mm in diameter and an early Front End Engineering Design re-purposing study has identified the pipeline is suitable for transport of compressed CO_2.

   The existing Bream pipeline extends into Commonwealth waters and ties in to the Bream A platform in Commonwealth waters (the components of the Project in Commonwealth waters do not form part of this referral.)

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

Temporary offsite premises may be required for construction management offices, equipment and material storage areas, toilet facilities and waste storage and disposal. If required, these will be located in existing commercial or industrial facilities. The construction contractor will be responsible for organising these premises and preference will be given to utilising the Longford plant site, provided there is available space and existing plant operations are not compromised.

A small number of additional temporary work areas may be required to support the construction activities such as vehicle turn-around points, water supply tanks and temporary dams for storing water for dust suppression and hydrotesting. These areas will avoid environmentally sensitive areas and preference will be given to using existing infrastructure and disturbed areas.

Key construction activities:

1. Modifications at the existing EPA licensed GCP (~6 months).

   Modifications to the GCP are predominantly tie-in connections and will include extending existing facilities across the GCP road to connect to the new facilities. This is routine construction work and will be executed using normal work practices of the retrofit contractor.

   No bulk earthworks will be required as part of the modifications.

2. New CO_2 facilities for compression and dehydration adjacent to Longford GCP (~7 months).

The new compression and dehydration facilities will be modularised using pre-assembled units and/or pre-assembled racks, fabricated offsite and transported to Longford.

Construction will occur as follows:

- Construction of the hardstand and site drainage
- Installation of civil foundations
- Installation of mechanical equipment and piping including vents
- Tie-ins of modular equipment and systems

Power supply will be provided via a 11 kV cable to be run in buried conduit from the existing Eastern substation at GCP to the new substation for the new CO_2 facilities.

Construction personnel will access the site from Garretts Road and will use the existing carpark located within the Longford plant boundary.

3. New CO_2 onshore pipeline (~5 months).

Pipeline construction will comply with AS2885, the Australian Pipelines and Gas Association Code of Environmental Practice (APGA, 2022) and an Environmental Management Plan (EMP) to be prepared in compliance with the *Pipelines Act 2005* and related regulations and accepted by the Minister for Energy and Resources prior to construction.

A construction Right of Way (ROW) will be established to facilitate the construction of the onshore pipeline. A typical construction ROW is shown in **Figure 6**. For this Project, the width of the construction ROW varies along the pipeline route. Environmental surveys have been completed to identify sensitive areas and these have been used to determine the width of the disturbance area. The construction ROW will be a subset of this disturbance area. Impacts to environmentally sensitive areas have either been avoided or minimised as much as possible.

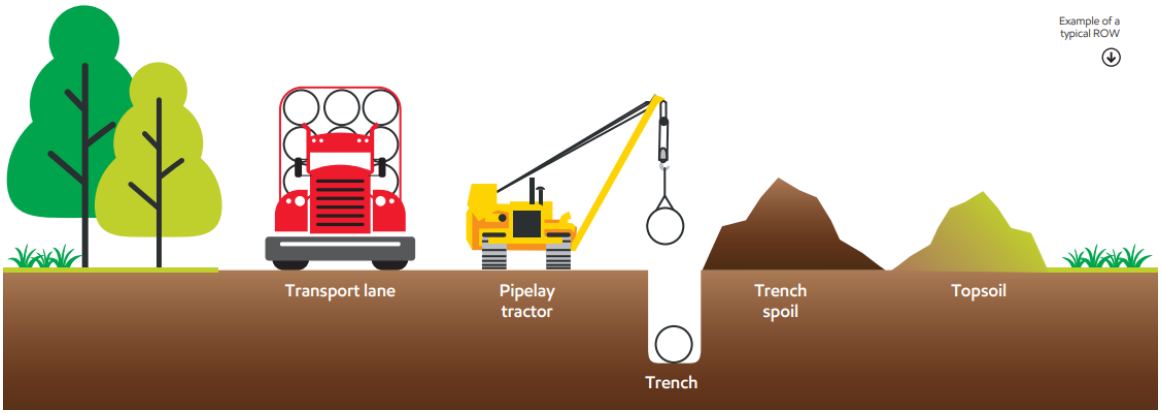


Figure 6: Typical construction Right of Way layout

Onshore pipeline construction will occur as follows, using specialised crews:

i. **Preparatory work** - setting up the construction ROW which involves installing temporary gates and fences and flagging/fencing off sensitive areas to be avoided/protected.

ii. **Clear and grade** – construction ROW vegetation is cleared, and topsoil preserved and stockpiled using graders, bulldozers or excavators

iii. **Stringing and bending** – pipes are delivered to and laid out 'strung' on the construction ROW. Where required, specialised machinery will bend the pipe

iv. **Trenching** – rotary trenching machines and/or excavators are used to dig the trench and stockpile the material

v. **Trenchless construction** – an alternative to trenching, whereby specialist operators are used to drill a hole or tunnel beneath the surface and pull the pipe through the hole, see **Figure 7** for an example profile of typical trenchless construction.

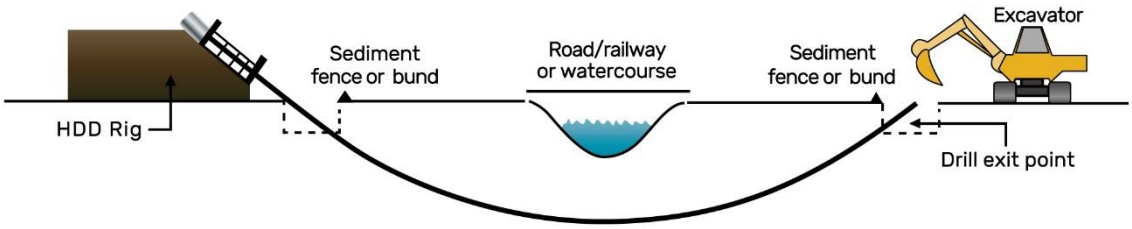


Figure 7: Typical trenchless construction profile

vi. **Welding and coating** – pipe sections are joined together by specialised welders. Welds are tested for integrity using x-ray or ultrasonic equipment and coated to protect against corrosion

vii. **Lowering in and padding** – multiple side boom tractors or excavators are used to lower the pipe into the trench. Fine grain material 'padding' is used around the pipe

viii. **Backfilling** – the trench is backfilled with the previously excavated trench spoil and compacted

ix. **Hydrotesting** – the pipe is pressure tested using water to ensure it is fit for operational service, followed by dewatering and drying. The pipe will be filled with an inert gas from GCP until all Project facilities are commissioned.

x. **Rehabilitation** – the construction ROW is rehabilitated in accordance with the approved EMP taking into account the requirements of any agreement with landowners or occupant and involves re-contouring and re-spreading the stockpiled topsoil. Marker signs are placed at regular intervals along the buried pipe.

Further details of pipeline construction activities are provided in **Attachment 01 – SEA CCS Project Pipeline Activities fact sheet.**

4. Utilisation of the existing Bream pipeline within State waters

There will be no construction activities associated with using the existing Bream pipeline for CO_2 transport within State waters.

Key operational activities:

Esso will build, own (together with Woodside Energy in their capacities as GBJV participants), operate and maintain the new (and existing) infrastructure required for the Project. Operational activities will include ongoing inspection, maintenance and monitoring, combined with ongoing use of the Project facilities, that is, compressing, dehydrating, transporting and injecting the CO_2.

The Project's operational activities relevant to this referral are considered to be low impact and will include the following:

- Surveillance and maintenance of the operational plant and equipment at Longford in accordance with a Major Hazard Facility licence and an EPA Operating Licence. It is proposed that the Longford Major Hazard Facility Safety Case and EPA Operating Licence (licence number OL000011327) will be revised to cover operation of the new CO_2 facilities at Longford.
- Onshore pipeline surveillance, inspection, maintenance and repair (IMR), and easement management in accordance with a Safety Management Plan (SMP) and an Environmental Management Plan (EMP). A SMP and an EMP that covers operations of the new pipeline and the existing Bream pipeline in CO_2 service will be sought.
- Subsea pipeline surveillance and IMR within State waters. These activities will be aligned with current integrity management practices including internal and external assessments, which are conducted under the approved Safety Case and Bass Strait State Waters Environment Plan (EP) under the *Offshore Petroleum and Greenhouse Gas Storage Act 2010* (Vic) (Victorian OPGGS Act). External programmes currently occur every 3-6 years and mostly in Commonwealth waters (Commonwealth programmes are not within the scope of this referral). A Safety Case and an EP that covers operations of the existing Bream pipeline in CO_2 service will be sought.
-

Key decommissioning activities (if applicable):

No decommissioning activities are proposed as part of the Project.

Once applicable Project operations activities have ceased, decommissioning of facilities will occur in accordance with applicable regulations and subject to receipt of the required regulatory approvals.

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

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

The Project also includes components within Commonwealth waters, consisting of:

- Utilisation of the existing Bream pipeline (within Commonwealth waters)
- Topside modification and operations of the existing Bream A platform
- Utilisation of the depleted Bream reservoir as a greenhouse gas storage formation

Two referrals under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) have been prepared in relation to the portions of the Project that would occur within the Victorian jurisdiction and Commonwealth jurisdiction respectively. The scope of each referral is set out below in **Error! Reference source not found.**.

Table 2: Scope of referrals relating to the Project

Referral under Environment Effects Act (this document)	Referral under EPBC Act – Victorian jurisdiction	Referral under EPBC Act – Commonwealth jurisdiction
• Modifications at the existing Environment Protection Authority (EPA) licensed Gas Conditioning Plant (GCP)	• Modifications at the existing EPA licensed GCP • New CO_2 facilities for compression and	• Utilisation of the existing Bream pipeline (within Commonwealth waters) • Topside modification and operations of the existing Bream A platform

• New CO_2 facilities for compression and dehydration adjacent to Longford GCP • New CO_2 onshore pipeline • Utilisation of the existing Bream pipeline (onshore and within State waters)	dehydration adjacent to Longford GCP • New CO_2 onshore pipeline • Utilisation of the existing Bream pipeline (onshore and within State waters)	• Utilisation of the depleted Bream reservoir as a greenhouse gas storage formation

Esso have engaged with the Department of Climate Change, Energy, the Environment and Water (DCCEEW) regarding the assessment and approval requirements of the Project. Esso will prepare a coordinated assessment of the Project and will submit referrals under the EPBC Act in parallel to this referral.

While the Project is not an element or stage of a larger project, the Project would provide a foundation for potential future expansion, including to allow for the injection and storage of CO_2 from third party sources and to facilitate development of a CCS hub in the Gippsland Basin. As the nature of any potential future expansions cannot be defined at this point, they are not addressed in, or within scope of, this referral. If in the future an expansion proposal becomes sufficiently defined a further assessment against the *Environmental Effects Act 1978* (Vic) would be undertaken.

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

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

The Project is not related to any other past, current or mooted proposals in the region; however, the Project would provide a foundation for potential future expansion, including to allow for the injection and storage of CO_2 from third party sources and to facilitate development of a CCS hub in the Gippsland Basin. As the nature of any potential future expansions cannot be defined at this point, they are not addressed in, or within scope of, this referral. If in the future an expansion proposal becomes sufficiently defined a further assessment against the Environmental Effects Act 1978 (Vic) would be undertaken.

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

Estimated capital expenditure is in the order of $400M (AUD). This amount relates to all onshore and offshore components of the Project. The amount includes new infrastructure and modifications to existing infrastructure. It does not take into account the original construction costs of existing infrastructure. As noted above, the assessment of environmental impacts described in this referral is based on the Project components located onshore and within State waters (up to 3 nautical miles from low water line).

4. PROJECT ALTERNATIVES

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

A variety of alternatives were assessed, ranging from project-wide alternatives to specific project element alternatives.

Key alternatives that were considered and discounted are summarised as follows:

<u>Project-wide</u>

- Do nothing

  Continue to vent to atmosphere the CO_2 generated from oil and gas production via the GCP incinerator and decommission Bream A platform. This option means there will be no reduction in CO_2 emissions and the storage potential of the Bream reservoir would very likely not be realised.

- Re-use of the CO_2 captured at GCP

Esso has explored re-use options and has signed agreements to send some of the CO_2 (that would be otherwise vented) to Air Liquide Australia and BOC, who will then process and provide the gas to food, beverage, hospitality and medical industries. The amount to be re-used only equates to a small percentage of the overall CO_2 that is currently vented and re-use of all the CO_2 is not currently feasible. This option will require the remaining CO_2 to continue to be vented.

- Alternative CO_2 storage locations – alternative reservoirs (e.g., GBJV's Snapper, Barracouta and Marlin reservoirs) were assessed and although these fields are expected to share many characteristics with the Bream field, the use of Bream as a greenhouse gas storage formation would provide the following additional benefits:
  - Bream has demonstrated subsurface characteristics required for safe injection and storage through an operations history of natural gas injection and storage.
  - The Bream field ceased production in 2020, and its associated infrastructure (platform, well, pipeline) is considered suitable for greenhouse operations (Barracouta, Marlin, Snapper and Tuna fields are still producing).

Longford

- Alternative energy source for new CO_2 facilities required for compression and dehydration

  Alternative energy sources for the new CO_2 compression and dehydration facilities at Longford were evaluated with consideration for the use of hydrocarbons, increasing site emissions and cost. Based on these factors power import was considered to be the preferable energy source for the new CO_2 facilities.

Longford to Valve Site 3

Alternative pipeline routes were evaluated on design considerations (including pipeline length and number of infrastructure crossings), environmental sensitivities, heritage sensitivities and social aspects (including major roads intersected and proximity to dwellings). Below is a summary of the routes considered.

- Use of existing Barracouta pipeline from Longford to Valve Site 3

  A technical analysis confirmed the existing Barracouta pipeline, which sits in the same corridor as the new pipeline in **Figure 8**, is not suitable for greenhouse gas re-purposement for transport of compressed CO_2 without significant modifications; therefore there is no existing pipeline between Longford to Valve Site 3 that could be used to economically transport compressed CO_2. The results of the technical analysis have been discussed with Energy Safe Victoria (ESV) and DEECA Energy team.

- New direct onshore pipeline between GCP and Valve Site 3

  A desktop quantitative multi criteria analysis using publicly available information and datasets was completed to assess the proposed CO_2 pipeline route against an alternative direct route. A new direct route would involve disturbing additional land and establishing a new pipeline corridor, in addition to the existing maintained pipeline corridor which would create unnecessary environmental and social impacts and increased regulatory risk. These factors were not considered reasonable for a small reduction of approximately 800 m in pipeline length). See **Figure 8**.

- New onshore pipeline between GCP and Valve Site 3 (indirect, outside of existing pipeline corridor)

  Other alternative pipeline routes between GCP and Valve Site 3 were considered at a high level. However, all other routes were rejected as, similar to the direct route option, these would result in additional land disturbance resulting in an increase in environmental and social impacts and regulatory risk.

Figure 8: Map of alternative onshore pipeline route

- Alternative disturbance footprint along proposed route

  A typical ~30 m construction right-of-way along the proposed pipeline route was initially considered as a basis for the disturbance footprint. To inform further development of the disturbance footprint, an ecological assessment of the existing maintained pipeline corridor and additional land south of the corridor was completed which consisted of a desktop assessment, preliminary field surveys (October 2022) and targeted surveys (November 2022 – February 2023 and October 2023). Additionally, an arborist assessment was completed to inform potential impacts and mitigations to trees (these assessments are detailed further in Section 12).

  Using these assessments, combined with specialised pipeline construction contractor input which was sought to ensure feasibility of proposed avoidance and mitigation measures during construction, the disturbance footprint proposed in this referral was developed and optimised.

  Through adopting measures such as trenchless construction or narrowed construction right-of-way (~12 m vs typical ~30 m) in environmentally sensitive areas, the disturbance footprint proposed within this referral has been optimised from the original 30 m construction right-of-way basis, and significantly reduces impacts to native vegetation and habitat along the proposed pipeline route.

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

As project design progresses, the construction right-of-way will be further refined and where opportunities arise the areas to be cleared may be further reduced from what is proposed in this referral. Based on the work completed to optimise the disturbance footprint, no further key alternatives are proposed to be considered as part of this Project at this stage.

5. PROPOSED EXCLUSIONS

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

As noted above, the Project would provide a foundation for potential future expansion, including to allow for the injection and storage of CO_2 from third party sources and to facilitate development of a CCS hub in the Gippsland Basin. As the nature of any potential future expansions cannot be defined at this point, they are not addressed in, or within scope of, this referral. If in the future an expansion proposal becomes sufficiently defined a further assessment against the *Environmental Effects Act 1978* (Vic) would be undertaken.

There are a number of activities that are excluded from this referral as they are required to inform detailed design of the new facilities and to gather preliminary environmental information. These excluded activities are:

- Any land access and land access negotiations required for the Project
- Any low impact surveys required to inform the detailed design of the Project

Ongoing operations, optimisations and inspection, maintenance and repair activities associated with the existing Bream pipeline and Longford, other than what is described in this referral, are out of scope of this referral.

6. PROJECT IMPLEMENTATION

Implementing organisation (ultimately responsible for project, ie. Not contractor)**:**
Esso Australia Resources Pty Ltd
Implementation timeframe:
Subject to obtaining all regulatory approvals, construction could commence as early as 2025. Start up (CO_2 injection) would occur following construction activities and could occur as early as 2026.
Proposed staging (if applicable):
Not applicable

7. DESCRIPTION OF PROPOSED SITE OR AREA OF INVESTIGATION

Has a preferred site for the project been selected?
☐ No ☒ Yes If no, please describe area for investigation. If yes, please describe the preferred site in the next items (if practicable).
A preferred site has been selected for the Project which maximises the use of existing infrastructure and disturbed area to reduce environmental impacts (see **Figure** 1). The preferred site has the following key benefits: • The new CO_2 facility will be located within a disturbed area previously cleared, graded and finished with crushed rock, on land owned by the GBJV participants and which is within the EPA licensed boundary. • The new CO_2 onshore pipeline will be located within the GBJV participants' existing maintained pipeline corridor. The existing maintained pipeline corridor currently hold 5 licensed pipelines which Esso is required to maintain in accordance with the *Pipelines Act 2005*. The pipeline corridor has been disturbed on multiple occasions as each of these pipelines were constructed and rehabilitated at different points in time over the years. • The Project will re-purpose and utilise >50 km of existing pipeline between Valve Site 3 and the offshore Bream platform.
General description of preferred site, (including aspects such as topography/landform, soil types/degradation, drainage/ waterways, native/exotic vegetation cover, physical features, built structures, road frontages; attach ground-level photographs of site, as well as A4/A3 aerial/satellite image(s) and/or map(s) of site & surrounds, showing project footprint):
The Project extends from Esso's existing GCP to approximately 46 km off the coast of Paradise Beach in Commonwealth waters. Consequently, the Project extent includes a wide range of environments. The new components of the Project are located within modified environments, including: • Existing industrial land (i.e., Longford plant) • Agricultural land used for cropping and grazing • Crown land (used for public utilities (associated with Gippsland Water managed land) and conservation areas).

The existing components of the Project also traverse (underground) a range of natural environments, including:

- Native forest, woodland and/or grasslands (conservation land)
- Lake Reeve and associated wetlands (part of the Gippsland Lakes system)
- Beach and coastal dunes at Paradise Beach
- Shallow marine environments within Bass Strait.

Topography/Landform

The onshore portion of the Project traverses the Gippsland Plain Bioregion which is characterised by flat low lying coastal and alluvial plains with a gently undulating terrain dominated by barrier dunes and floodplains and swampy flats. The bioregion is generally below 200 m in altitude, with coastlines that includes sandy beaches backed by dunes and cliffs, and shallow inlets with extensive mud and sand flats (DEECA, 2022).

The offshore portion of the Project is located in the shallow sandy plains of the inner continental shelf of the Gippsland Basin (Eastern Bass Strait). The bathymetry in the Gippsland Basin is concave shaped, with a shallower rim on the eastern and western entrances to the Strait and a deeper centre.

Soils

Regionally, soils associated with Gippsland Plain Bioregion can be described as both texture contrast soils (Chromosols, Sodosols) and gradational texture soils (Dermosols) for the upper terrain geology; dunes are predominantly sandy soils (Podosols and Tenosols); and fertile floodplains and swamps are earths as well as pale yellow/grey texture contrast soils (Hydrosols) (DEECA, 2022).

A desktop assessment of government soil datasets, described by Australian Soil Classifications (ASC), was completed and is presented in **Figure 9**. **Table 3** presents a description of the soils expected across the Project. The majority of the new CO_2 onshore pipeline (>80%) will occur in soils that consists of leached acidic sands with a B-horizon of iron cemented sand (Podosols) on the inland dunes. The characteristics of these soils include extremely low fertility, poor water retention and the seasonal waterlogging in some forms.

A desktop assessment of CSIRO's Atlas of Australian Acid Sulfate Soils was completed and is presented in **Figure 10.** Acid sulfate soils (ASS) are dominated by sulfidic or sulfuric materials and are common in sulfuric Hydrosol soils. See Section 14 for a further assessment on ASS.

Table 3: Soil classification across the Project

Soil classification	Length intersected (km)			Description
	New CO_2 pipeline	Existing Bream pipeline	Total	
Podosol (PO)	15.43	2.55	17.98	Dominated by organic matter and aluminium with or without iron. These sandy soils have accumulations of 'coffee rock' in the subsoil. Podosols are used for irrigated vegetables and grazing on improved pastures.
Hydrosol (HY)	0.78	1.19	1.97	Saturated for 2-3 months or more due to site or tidal influence. Distribution is often limited to wet drainage depressions, low lying narrow coastal plains and seepage areas on lower slopes.
Vertosol (VE)	2.25	0	2.25	Clay soils that shrink and swell, and crack as the soil dries. Used for grazing of native and improved pastures, extensive dryland agriculture where rainfall is adequate, and irrigated agriculture.
Calcarosol (CA)	0	0.34	0.34	Calcarosols contain calcium carbonate (lime) as soft or hard white fragments or as a solid layer and occur in low rainfall, arid and semi-arid regions. Soils may also contain high salinity, alkalinity and sodicity issues.
NA	0	1.86	1.86	Water

Source: https://www.clw.csiro.au/aclep/asc/Soil_Poster.pdf

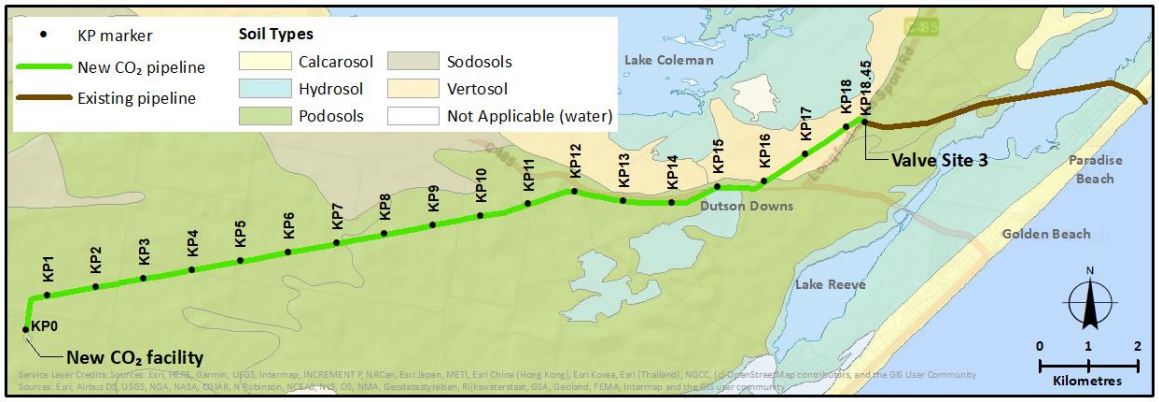


Figure 9: Soil Classification across the Project

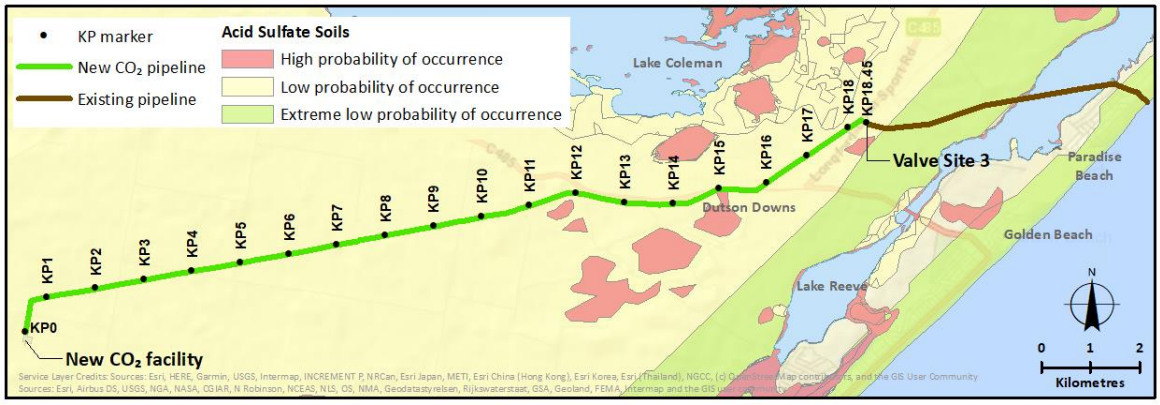


Figure 10: Acid sulfate soils across the Project

Terrestrial Water

A desktop assessment of government hydrology datasets has been completed and identified that the Project intersects a number of mapped waterways and wetlands (see **Figure 11**). All of these water features occur on Gippsland Water managed land. The mapped waterways represent channel drains and includes Gippsland Water's man-made Regional Outfall Sewer (ROS). No rivers or permanent natural watercourses are intersected by the Project. The Gippsland Lakes Ramsar site (Lake Reeve) will be intersected where the existing Bream pipeline is buried beneath Lake Reeve, however there will be no disturbance associated with the use of the existing Bream pipeline.

See Section 13 for a further assessment on waterways and wetlands.

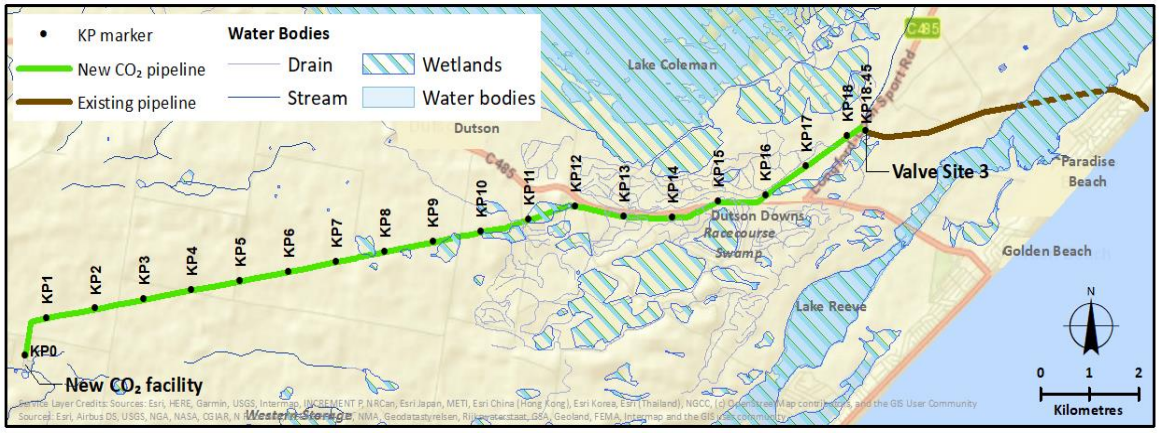


Figure 11: Water features across the Project

Marine Environment (State waters)

The offshore components of the Project are located in Bass Strait which is characterised by shallow water and tidal currents. A desktop assessment of government marine datasets shows the majority of the seabed in the region comprises sandy sediments and muddy sand. The existing Bream pipeline traverses the nearshore marine environment within the Ninety Mile Beach Biounit (VEAC, 2019). This biounit encompasses the marine area along the coastline east of Nooramunga to east of Marlo and is characterised by weak to moderate tidal systems with emergent patch reef, extensive sediment bed, and non-reef forming sediment epibiota habitats.

There are no Key Ecological Features (KEF) within 50 km of the offshore Project area, however, the existing Bream pipeline intersects 15 biologically important areas (BIAs) located within State waters (or a 1km buffer), which are associated with 11 species including white sharks, pygmy blue whales, southern right whales and various seabirds.

Nearshore environments of significance or sensitivity within the surrounding marine area include:

- Ninety Mile Beach Marine National Park (approximately 30 km southwest of the State waters Project area)
- Corner Inlet and Nooramunga Marine and Coastal Parks/ Corner Inlet Ramsar site (approximately 115 km southwest of the State waters Project area)
- Wilsons Promontory Marine National Park (approximately 130 km southwest of the State waters Project area)
- Beware Reef Sanctuary (approximately 130 km northeast of the State waters Project area)
- Point Hicks Marine National Park (approximately 160 km northeast of the State waters Project area)
- Beagle Commonwealth Marine Reserve (approximately 100 km south-southwest of the State waters Project area)
- East Gippsland Commonwealth Marine Reserve (approximately 200 km northeast of the State waters Project area)
- Australian Whale Sanctuary (all Commonwealth waters).

Esso will utilise existing infrastructure within State waters; no construction and installation will be required with using the existing Bream pipeline.

Vegetation cover

The Gippsland Plain Bioregion is characterised by native vegetation of disparate pattern, reflecting a variety of land-use histories in the bioregion. The region has been heavily modified by agricultural practices with only a quarter of the original extent of native vegetation remaining. Approximately half of the remaining native vegetation is located within public land, with a substantial proportion of this being within conservation reserves. See Section 12 for a further assessment on vegetation.

Built structures

Most of the land around the Project includes sparse structures (isolated farmhouses, sheds and outbuildings), mostly associated with farming. There are 18 buildings within 1 km of the new CO_2 onshore pipeline (8 associated with Gippsland Water managed land) which are located on land not directly affected by the Project. There are no residential buildings located within a 1 km radius of the new CO_2 facilities for compression and dehydration.

Roads

The new CO_2 pipeline crosses 3 different category of roads:

- VicRoads arterial roads (Garretts Rd and 2 crossings of Longford Loch Sport Rd)
- Wellington Shire Council named roads (Johnsons Rd, Flints Rd, Sandy Camp Rd, Signboard Ln)
- Wellington Shire Council unnamed/government roads.

Site area (if known): …… (hectares)

Route length (for linear infrastructure) …… (km) **and width** …….. (m)

See **Table 4** for dimensions of the Project for each component.

Table 4: The Project component dimensions

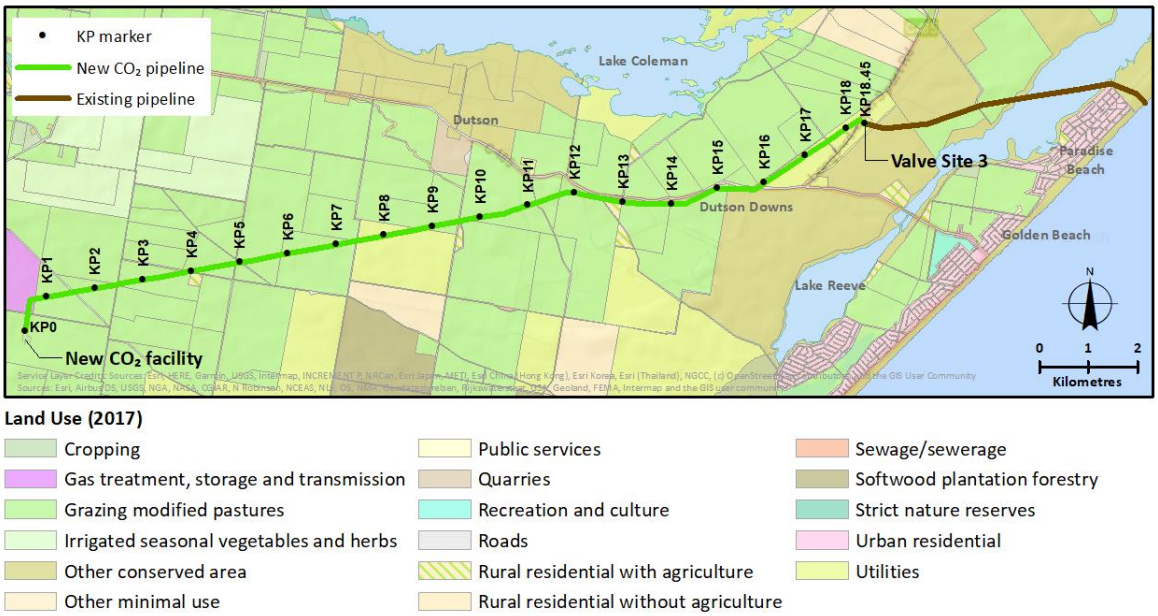
Project component	Approx. area	Route length and width (linear infrastructure)
Onshore		
Existing GCP modifications	Existing infrastructure = 0.8 ha Modifications activities are confined to approx. 0.8 ha (11%) of the broader 7.35 ha GCP area.	-
New CO_2 facilities	7.4 ha (construction) 1.3 ha (operation) Located within EPA licensed area and disturbed area of existing Longford plants. Dimensions approximate and subject to detailed design.	-
New CO_2 onshore pipeline	-	Length = approximately 19 km Width (construction) = varies along the route, with construction ROW width to be determined but will be a subset of the disturbance footprint which ranges in width between 12 m and 75 m Width (operation) = existing maintained pipeline corridor width of approximately 36 m
Existing Bream pipeline (onshore only)	-	Length = approximately 6 km
Offshore		
Existing Bream pipeline (Victorian waters only)	-	Length = approximately 6 km

Current land use and development:

A desktop assessment of government land use datasets was completed and is presented in **Figure 12** and **Table 5.**

The majority of the land use across the Project is agriculture. A large portion of the surrounding area is land associated with Gippsland Water, who operate wastewater treatment and organic recycling facilities as well as manage land for other purposes. Gippsland Water land equates to approximately 8,500 hectares.

Most of the Gippsland coastline is bound by conservation land (Public Conservation and Rural Conservation Zones), with a majority of the nearby lakes and swamplands making up the Gippsland Lakes system which stretches along the coastline from Seaspray to Lake Tyers.



Land Use (2017)

Cropping	Public services	Sewage/sewerage
Gas treatment, storage and transmission	Quarries	Softwood plantation forestry
Grazing modified pastures	Recreation and culture	Strict nature reserves
Irrigated seasonal vegetables and herbs	Roads	Urban residential
Other conserved area	Rural residential with agriculture	Utilities
Other minimal use	Rural residential without agriculture	

*Figure 12: Land use surrounding the Project**

* Note: Government land use dataset indicates the new CO_2 facility is located on 'grazing modified pastures' as the larger parcel of land is predominantly agricultural, however the Esso Longford Plants are zoned Industrial 1 (see **Figure 12**) and are used for gas treatment, storage and transmission.

Table 5: Land use across the Project

Land use	Length intersected (km)		
	New CO_2 pipeline	Existing Bream pipeline	Total
Grazing modified pastures	12.84	1.96	14.80
Other conserved area	0.62	3.75	4.37
Utilities[1]	3.82	0.22	4.04
Rural residential with agriculture	0.42	0	0.42
Roads	0.36	0.03	0.39
Gas treatment, storage and transmission	0.36	0	0.36
Cropping	0.03	0	0.03

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

The onshore components of the Project are located on lands under the jurisdiction of the West Gippsland Catchment Management Authority (CMA) and the local government authority is the Wellington Shire Council.

Road access

The Project can be accessed via existing arterial roads (Garretts Rd and Longford Loch Sport Rd). There are also a number of Council roads that run in a north-south direction that intersect the Project.

Infrastructure

A number of existing underground and overground utilities (excluding pipelines and facilities operated by Esso) are located in close proximity to the Project, including:

- Existing oil and gas pipelines - Eastern Gas Pipeline which transports natural gas from Longford to New South Wales and Australian Capital Territory and Tasmania Gas Pipeline which transports natural gas from Longford to Tasmania
- High voltage power lines – intersects the Project at 6 locations and runs parallel to Longford Loch Sport Road.

[1] This corresponds with Gippsland Water managed land

Proximity to residences and urban centres

The Project does not extend into townships. The existing Bream pipeline is located immediately east of the low density housing of Paradise Beach. Paradise Beach is a small coastal town with a combined population with the adjacent Golden Beach township of 510 (2021 census). However, over the summer holiday season the population of these coastal towns can grow significantly. The second closest town is Longford, located approximately 7 km northwest of GCP, which has population of 1,489 (2021 census).

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

Figure 13 and **Figure 14** shows the planning zones and planning overlays across the Project and **Table 6** and **Table 7** lists the planning zones and planning overlays for the Project.

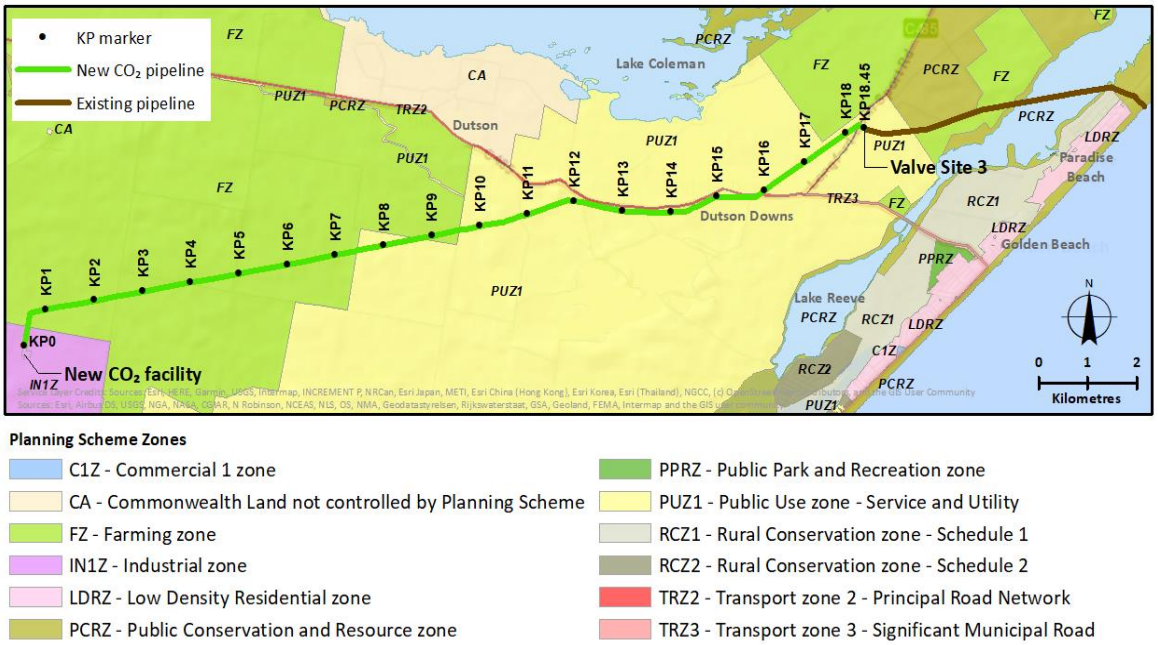


Figure 13: Planning zones across the Project

Table 6: Planning zones across the Project

Scheme Code	Planning overlay	Length intersected (km)	% within zone
GCP modifications and new CO_2 facilities			
IZ1	Industrial 1 Zone	0.06	100
New CO_2 onshore pipeline			
IZ1	Industrial 1 Zone	0.33	2
FZ	Farming Zone	7.89	43
PUZ1	Public Use Zone 1 – Service and Utility[2]	10.09	55
TRZ2	Transport Zone 2 – Principle Road Network	0.09	<1
Existing Bream pipeline			
FZ	Farming Zone	1.98	33
PUZ1	Public Use Zone 1 – Service and utility[3]	0.97	50
PCRZ	Public Conservation & Resource Zone	3.00	16
RCZ1	Rural Conservation Zone 1	0.01	1

[2] This corresponds with Gippsland Water managed land
[3] This corresponds with Gippsland Water managed land

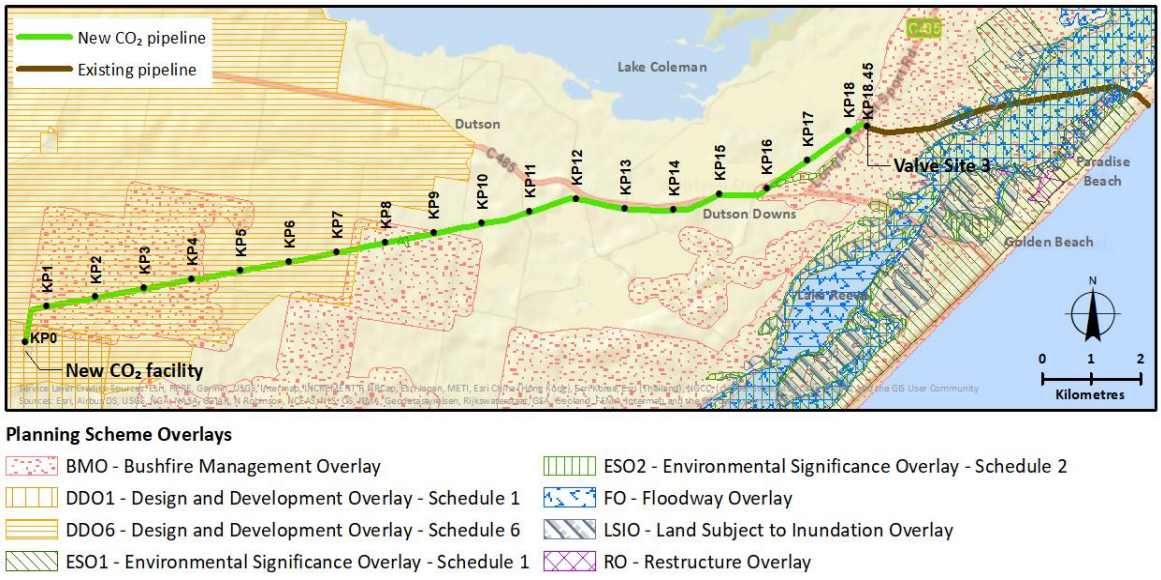


Figure 14: Planning overlays across the Project

Table 7: Planning overlays across the Project

Scheme Code	Planning overlay	Length intersected (km)	% within Area
GCP modifications and new CO_2 facilities			
DDO6	Design & Development Overlay 6 (East Sale Royal Australian Air Force Base)	0.06	100
BMO	Bushfire Management Overlay	0.32	51
New CO_2 onshore pipeline			
DDO1	Design & Development Overlay 1	0.31	2
DDO6	Design & Development Overlay 6	7.44	40
BMO	Bushfire Management Overlay	6.70	36
ESO2	Environmental Significance Overlay - Schedule 2 (Wetlands)	0.41	2
Existing Bream pipeline			
BMO	Bushfire Management Overlay	1.12	19
ESO1	Environmental Significance Overlay - Schedule 1 (Coastal and Gippsland Lakes Environs)	1.98	33
ESO2	Environmental Significance Overlay - Schedule 2	2.70	45
FO	Flood Overlay	2.55	43
LSIO	Land Subject to Inundation Overlay	0.49	8
RO	Restructure Overlay	0.01	0.2

Local government area(s):

To the extent within a local government area, the Project is wholly located within the Wellington Shire Council local government area. It has been noted that elements of the Project are offshore.

8. EXISTING ENVIRONMENT

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

Desktop environmental assessments were completed to characterise the environment values in the vicinity of the broader Project. This was supplemented by field assessments on particular environmental aspects based on the outcomes of the desktop assessment. The field assessments were completed within the Project area associated with the new onshore pipeline (aka study area, see Figure 4 in **Attachment 02**), a broader investigation area for the purposes of environmental

field surveys to provide additional environmental context. The scope of the field assessments focussed on the new Project components that require construction activities. The results of the field assessments were used to determine the disturbance footprint to avoid and minimise environmental impacts.

The following environmental values and sensitivities were identified as a result of the desktop and field assessments and are summarised in the following sections:

- Native vegetation
- EPBC Act listed terrestrial Matters of National Environmental Significance (MNES)
- *Flora and Fauna Guarantee Act 1988* (Vic) (FFG Act) listed communities, flora and fauna
- Marine biodiversity
- Water features
- Soil characteristics
- Aboriginal cultural heritage
- Noise.

No non-Aboriginal cultural heritage places were identified across the Project area.

The following reports support this referral and provide further detailed information on environmental and social values and sensitivities:

Attachment 02 – Flora and Fauna Assessment (Biosis, 2023)

Attachment 03 – Environmental Site Assessment (Stantec, 2023)

Attachment 04 – Aboriginal Heritage Assessment (Jem Archaeology, 2023)

Attachment 05 – Environmental Noise Risk Assessment (Wood, 2023)

Native vegetation

Native vegetation was identified and classified into Ecological Vegetation Classes (EVCs), mapped, and condition quantified as part of a Vegetation Quality Assessment (VQA) consistent with benchmarks described in the *Vegetation Quality Assessment Manual – Guidelines for applying the habitat hectare scoring method – Version 1.3* (DSE, 2004).

Five EVCs are expected to be impacted by the Project. Further details are provided in Section 12 and **Attachment 02**.

Native vegetation was also mapped as a patch, scattered tree or other native vegetation in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017).

Field assessments identified the following native vegetation within the disturbance footprint:

- 12.69 ha of modified native vegetation within the existing maintained pipeline corridor. The existing maintained pipeline corridor lacks all medium and large plant lifeforms due to the existing pipelines and maintenance slashing
- 0.94 ha of intact native vegetation patches
- 0 large canopy trees (canopy and sub-canopy will remain intact)
- 0 large and scattered trees

EPBC Act listed terrestrial MNES

The Protected Matters Search Tool (PMST) was used to identify terrestrial MNES and other relevant matters that are required to be protected in accordance with the EPBC Act that may be impacted by the Project. A PMST report was generated, which identified the following MNES that are likely or known to occur within the study area and a 10 km buffer around it:

- 0 World Heritage properties
- 0 National Heritage Places
- 1 Wetlands of International Importance (located within the 10 km buffer area)
- 1 Listed Threatened Ecological Community
- 26 threatened fauna species
    - 3 mammals
    - 1 reptile
    - 3 frogs
    - 2 fish

    - 17 birds
- 14 threatened flora species
- 17 migratory species
    - 17 birds
- 0 Commonwealth lands
- 0 Commonwealth Heritage Places
- 0 Commonwealth Reserves Terrestrial

Following assessment of the PMST report (10 km buffer) and the Victorian Biodiversity Atlas, preliminary field assessments and discussions with DEECA and DCCEEW, the following MNES were considered relevant to the Project:

- 1 threatened flora species
- 12 threatened terrestrial fauna species
- 7 migratory species

No suitable habitat was identified for threatened ecological communities.

As the existing Bream pipeline, which the Project will utilise, traverses across the one identified Wetland of International Importance (Gippsland Lakes Ramsar site), no direct or indirect impacts to the wetland are expected.

Further information about flora and fauna is provided in Section 12 and **Attachment 02**.

FFG Act listed communities, flora and fauna

Suitable habitat for an additional 9 FFG Act listed terrestrial flora species and additional 12 FFG Act listed terrestrial fauna species were recorded or considered to have a moderate to high likelihood of occurrence within the Project area.

Further information about flora and fauna is provided in Section 12 and **Attachment 02**.

Marine biodiversity

The PMST was used to identify project relevant marine MNES and other relevant matters that are required to be protected in accordance with the EPBC Act for the State waters portion of the Project. A PMST report was generated, which identified the following MNES as likely or known to occur in the State waters Project area (or a 1 km buffer) (terrestrial species not relevant to the marine environment have been excluded):

- 1 Commonwealth Marine Area
- 0 Great Barrier Reef Marine Park
- 45 Listed threatened species
    - 2 marine mammals (whales) (+ 1 species not identified in PMST but through aerial surveys)
    - 3 fish
    - 3 marine reptiles
    - 3 sharks
    - 34 bird species (sea and shore birds, plus land birds that transit through the marine space)
- 44 Listed migratory species
    - 6 marine mammals (whales or dolphins)
    - 3 marine reptiles
    - 3 sharks
    - 32 shore or sea birds
- 82 Listed marine species
    - 2 marine mammals
    - 3 marine reptiles
    - 26 fish
    - 51 shore or sea birds
- 15 Biologically Important Areas
    - 4 marine mammals (whales)
    - 3 sharks
    - 8 birds
- 0 Australian marine parks
- 0 Habitat critical to the survival of marine turtles

As the Project will utilise an existing pipeline within State waters, no impacts to marine MNES are expected.

Water features

The Project intersects 21 mapped waterways (categorised as channel drains) and 7 wetlands, all of which are located on Gippsland Water managed land. No rivers or permanent natural watercourses will be intersected by the Project. Gippsland Water's man-made ROS will be intersected but will not be impacted as trenchless construction will be undertaken at this location.

Soil characteristics

Based on the results of the desktop assessment, field surveys were completed at representative locations for a largely rural setting, assessing a range of contaminants. There were 25 representative borehole locations, one of which was converted to a groundwater well. Multiple samples were collected at a range of depths at each borehole location. In all, 151 samples were collected and 95 analysed (see **Attachment 03**).

Field assessment indicated ground conditions within the Project area are expected to be mostly natural soils. A summary of subsurface soil conditions observed during field work is presented in Table 8.

Table 8: Summary of soil profile across the Project

Depth (m below ground surface)	Description
0.0 to 0.3	Clayey to silty sand: loose, medium plasticity, brown, fine to medium grained
0.3 to 3.1	Alternating sandy clay and clayey sand: loose to firm, medium/medium-high plasticity, grey/orange, brown, fine to coarse grained
3.1 to 4.1	Clayey Sand: medium dense, medium plasticity, grey, brown, coarse grained

No visual and olfactory observations were noted during field surveys with the exception of a faint sulphur odour near KP16 which can be attributed to Acid sulphate soils (ASSs) that was identified at that location.

All samples recorded contaminants below laboratory limits of reporting or adopted criteria with the exception of the following isolated occurrences.

- One borehole location south of Garretts Road on Esso land had one surface sample (0.1 m below ground level (mbgl)) exceedance:
    - Perfluorooctane sulfonic acid (PFOS) (PFOS is part of larger per-and poly-fluoroalkyl substances (PFAS) group) result of 0.008 mg/kg exceeded the interim criteria for reuse of PFAS-impacted soil of <0.002 mg/kg (EPA Publication 1669.4) by 0.006 mg/kg.
- One borehole location north of Garretts Road on Esso land had one surface sample (0.1 mbgl) with the following exceedances:
    - PFOS result of 0.077 mg/kg exceeded the ecological indirect exposure criteria of 0.01 mg/kg by 0.067 mg/kg.
    - PFOS result of 0.077 mg/kg exceeded the interim criteria for reuse of PFAS-impacted soil of <0.002 mg/kg by 0.075 mg/kg.

  These two boreholes are located with Esso's EPA licensed premises and have been subject to an environmental audit in December 2020, consistent with Section 53V under the *Environment Protection Act 1970*. The Audit report (CARMS No. 75325-1) concluded that the risk posed by residual PFAS contamination both on site and off site is low and acceptable. Esso will manage handling, reuse and/or disposal of any waste soil generated with PFOS exceedances in accordance with the PFAS National Environmental Management Plan and EMP for the Project, including a relevant screening risk assessment, waste transport certificates, certified transport vehicles, licensed landfills and occupational health and safety considerations.

- One borehole location next to an unsealed dirt road (Sandy Camp Road) had one surface sample (0.1 mbgl) with following exceedances:
    - Total recoverable hydrocarbon (TRH) fraction C16-C34 exceeded the National Environment Protection Measures (NEPM) management limits and ecological based assessment criteria.
    - Benzo(a)pyrene exceeded the ecological limits.

- Samples at depth did not exceed guidelines.

Based on these exceedances, these would be categorised as Category B contaminated soil for offsite disposal.

This exceedance was considered a 'hot spot' and contamination is not considered widespread across the Project.

Fluoride concentrations exceeded fill criteria for offsite disposal at two locations. However, given that there were no exceedances of ecological or human health criteria, soil at these 2 locations can be reused on site.

Acid Sulfate Soils

Following the field assessment, ASS was confirmed at five locations within the Project area. Four out of the five locations were located in the eastern portion of the new CO_2 onshore pipeline (between KP15-KP18). One surface sample was identified near KP10, indicating localised ASS. The majority of samples recorded ASS at the surface but not deeper. One exception being GW1, which recorded ASS at 4.1 mbgl, but not at the surface.

ASS is discussed further in Section 14 and **Attachment 03**.

Aboriginal cultural heritage

Desktop and field assessments completed to date have identified that whilst parts of the Project intersect areas of cultural heritage sensitivity, no Aboriginal places were identified within the Project area. However, several areas of Aboriginal archaeological sensitivity were identified that may support Aboriginal cultural heritage. These areas comprise several sandy rises and dune landforms. No scar trees, rock shelters, caves or cave entrances were identified within the Project area.

A cultural heritage management plan (CHMP) is being prepared for the Project in accordance with the *Aboriginal Heritage Act 2006* (Vic) (AH Act) for approval by the Gunaikurnai Land & Waters Aboriginal Corporation (GLaWAC) as the Registered Aboriginal Party (RAP).

Further information about Aboriginal cultural heritage is provided in Section 15 and **Attachment 04**.

Noise

A noise risk assessment was completed in relation to operation of the new CO_2 facilities for compression and dehydration. All predicted noise levels at the 33 nearby noise sensitive areas fall below the night-time noise limits (most stringent) using adverse weather conditions. The predicted noise levels are significantly lower than both the measured ambient levels (measured in 2018) and applicable noise limits.

Further information about noise is provided in Section 15 and **Attachment 05**.

9. LAND AVAILABILITY AND CONTROL

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

☐ No ☒ Yes If yes, please provide details.

The onshore part of the Project intersects Crown land that is categorised as named roads, unnamed roads and parcels administered by Gippsland Water (Central Gippsland Regional Water Corporation). See **Table 9** for a summary of the Crown land intersected by the Project.

Table 9: Crown Land across the Project

Crown land manager	Crown land use	Length intersected (km)	Number of land parcels
New CO_2 onshore pipeline			
VicRoads	Arterial road	0.02	3
Wellington Shire Council	Council named roads	0.11	4
Wellington Shire Council	Council unnamed/government roads	0.05	3
Gippsland Water	Services and utility	4.28	8
Existing Bream pipeline (onshore)			
Gippsland Water	Services and utility	0.98	3
Parks Victoria	Gippsland Lakes	2.96	2
Wellington Shire Council	Council unnamed roads	0.03	2

Current land tenure (provide plan, if practicable):

As per the existing Bream pipeline, the new CO_2 pipeline will be located within the existing maintained pipeline corridor, which traverses a mixture of freehold land (owned by private persons) and Crown land (outlined in **Table 9**:). The GBJV participants hold easements over freehold and Crown land within the maintained pipeline corridor. **Table 10** provides a summary of the land tenure across the Project within state jurisdiction.

Table 10: Tenure across the Project

Land/waters	Approx length (km)
Freehold land	15.61
Crown land	8.43
State waters	5.82

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

Esso has existing rights across the onshore part of the Project.

New CO_2 facilities for compression and dehydration
The new CO_2 facilities will be constructed and operated on land operated by Esso and owned by the GBJV participants.

New CO_2 onshore pipeline

The GBJV participants have existing land tenure through registered pipeline easements between the Longford Gas Plant and Valve Site 3 (the length of the new onshore pipeline) for the existing pipeline assets. It is intended that the new CO_2 pipeline will predominantly be located and operated within the existing easements, negating new easement requirements. Temporary workspace adjacent and south of the existing easements will be required to support the safe and efficient construction of the CO_2 pipeline. Tenure for the temporary workspace will be via leases or licenses with the relevant landowners and will be rehabilitated prior to returning to the landowner. New easement will be required in a single location where a trenchless crossing is required. The easement will be widened with the landowner at this location. Where the CO_2 pipeline is located on land owned by the GBJV participants, no new easement is required.

Utilisation of the existing Bream pipeline (onshore only)

The GBJV participants have registered pipeline easements in place for the existing Bream pipeline.

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

The Gunaikurnai people are the traditional owners of the land within the project area. The project area falls within the boundaries of the existing Gunaikurnai native title determination (National Native Title Tribunal No. VCD2010-001), for which the registered native title body corporate is the GLaWAC. Esso will comply with the *Native Title Act 1993* (Cth) or the *Traditional Owner Settlement Act 2010* (Vic), if a Land Use Activity Agreement is in place at the relevant time, for the grant of any rights and interests over Crown land.

Esso have previously negotiated an Indigenous Land Use Agreement (ILUA) with GLaWAC for a previous project in Gippsland and will follow a similar process for this Project. As a result of long-term operations in Gippsland Esso has an existing relationship with GLaWAC and provides regular opportunities for engagement on existing operations and new projects. Project specific engagement with GLaWAC has commenced for the Project.

10. REQUIRED APPROVALS

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

The key approvals for the Project are listed in **Table 11**. Notwithstanding, Esso will obtain all applicable regulatory approvals required for the Project.

Table 11: Key legislative approvals

Legislation	Scope and relevance to Project
Commonwealth legislation	
Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act)	The EPBC Act aims to protect nationally important flora, fauna, ecological communities and heritage places, defined as matters of national environmental significance. Under the EPBC Act, actions that will or are likely to have a significant impact on MNES will trigger Commonwealth assessment and approval. In parallel to a referral under the Environment Effects Act, this document, Esso is submitting two referrals under the EPBC Act for new Project components in the Victorian and Commonwealth jurisdictions.
Native Title Act 1993 (Cth) (NT Act)	The NT Act recognises the rights and interests of Aboriginal peoples and Torres Strait Islanders to traditional lands and waters. It establishes procedures to be followed so that future acts (proposed actions/ developments) can be validly done. The Victorian *Traditional Owner Settlement Act 2010* provides an alternate system to the NT Act for recognising the rights of Victorian traditional owners and provides a system for negotiating or consulting about activities on Crown land that is subject to a settlement. The Gunaikurnai people have been determined by the Federal Court of Australia to hold non-exclusive native title rights and interests in respect of certain Crown land areas over much of Gippsland. Esso recognises the Gunaikurnai people as important stakeholders in the region and has an existing relationship with GLaWAC as a result of long-term operations in Gippsland. Esso has commenced project specific engagement with GLaWAC.
Offshore Petroleum and Greenhouse Gas Storage Act 2006 (Cth) (Commonwealth OPGGS Act)	The Commonwealth OPGGS Act and its regulations addresses licensing, health, safety and environmental matters for offshore greenhouse gas (GHG) activities within Commonwealth waters (between 3-200 NM from shore). In accordance with the OPGGS Act, the Project will require: • Greenhouse Gas Assessment Permit • Declaration of Identified Greenhouse Gas Storage Formation • Injection Licence (including a CO_2 monitoring plan) • Site Plan • Pipeline Licence Variation to existing licence VIC/PL32 • Safety Case • Environment Plan (EP)

	• Well Operation Management Plan (WOMP)
Environment Protection (Sea Dumping) Act 1981 (Cth) (Sea Dumping Act)	The Sea Dumping Act regulates the loading and dumping of controlled material at sea in Australian waters. Under the Sea Dumping Act, a permit is required for the placement of controlled material (as defined in the Sea Dumping Act) in Australian waters, including the injection of CO_2 streams into sub-seabed geological formation. A sea dumping permit will be required for the Project to load and store CO_2 in the sub-seabed geological formation.
Victorian legislation	
Aboriginal Heritage Act 2006 (Vic) (AH Act)	The AH Act protects and manages cultural heritage in Victoria, on both private and Crown land. The AH Act requires a Cultural Heritage Management Plan (CHMP) to be prepared and approved for high-impact activities in areas of cultural heritage sensitivity. The construction of the new CO_2 pipeline will require a CHMP to be prepared and approved.
Country Fire Authority Act 1958 (Vic) (CFA Act)	The CFA Act establishes prohibitions and provisions for the prevention of fires. The construction of the new CO_2 pipeline may require a Fire Danger Period Permit and/or Total Fire Ban Permit for hot work depending on construction timing.
Environment Effects Act 1978 (Vic) (EE Act)	The EE Act establishes a process for assessing the potential environmental effects of a proposed development and determines if an Environment Effects Statement is required. This document forms the EE Act Referral.
Environment Protection Act 2017 (Vic) (EP Act)	The EP Act requires applicants to reduce risk to human health and the environment from their activities. A tiered permissioning framework requires licences for prescribed activities that are considered complex and require a more detailed assessment. The Longford plant site is already covered by an existing EPA operating licence (licence number OL000011327). A development licence will be required for the design, construction and modification of activities at Longford. It is proposed that the existing EPA operating licence will be revised to cover operation of the new CO_2 facilities at Longford.
Flora and Fauna Guarantee Act 1988 (Vic) (FFG Act)	In accordance with the FFG Act, a licence or permit is required to take, trade in, keep, move or process protected flora. A permit will be required to take protected flora for land clearing activities that occur on Crown land.
Occupational Health and Safety Act 2004 (Vic) (OHS Act)	The OHS Act protects the health, safety and welfare of employees and other people at work and ensures that the health and safety of the public is not put at risk by work activities. The Longford plant site is already licensed as a Major Hazard Facility and is covered by a Safety Case. The new CO_2 facilities and GCP modifications will require a revision to the existing Safety Case.
Offshore Petroleum and Greenhouse Gas Storage Act 2010 (Vic) (Victorian OPGGS Act)	Similar to the Commonwealth OPGGS Act, the Victorian OPGGS Act and associated regulations addresses licensing, health, safety and environmental matters for offshore greenhouse gas (GHG) activities but within Victorian waters (between the low water mark and 3 NM limit). The existing Bream pipeline in State waters is already licensed (VIC/PL32(v)) and covered by the approved Bass Strait State Waters Environment Plan. In accordance with the Victoran OPGGS Act and to allow the transport of CO_2, the Project will require: • Pipeline Licence Variation; and • Environment Plan.
Pipelines Act 2005 (Pipelines Act)	The Pipelines Act requires a licence for pipelines that convey petroleum, oxygen, carbon dioxide, hydrogen, nitrogen, compressed air, sulphuric acid or methanol. The Pipelines Act also addresses consultation, environmental and safety matters. In accordance with the Pipelines Act, the new CO_2 pipeline will require: • Pipeline Consultation Plan (PCP) (already approved)

	• Pipeline Licence • Environment Management Plan (EMP) • Safety Management Plan (SMP). The new CO_2 pipeline will be located within existing maintained pipeline corridor. The existing pipelines in this corridor are covered by an accepted EMP and an accepted SMP and are out of scope of this referral. The existing onshore Bream pipeline is already licensed (PL233) and covered by an accepted EMP. A licence amendment will be required to allow conveyance of CO_2. An EMP that covers transport of CO_2 via the existing onshore Bream pipeline will also be sought.
Planning and Environment Act 1987 (P&E Act)	The P&E Act establishes a framework for planning the use, development and protection of land in Victoria, with municipal planning schemes regulating or prohibiting the use or development of any land through zones and overlays. The Longford plant site is located within the Wellington Shire Council local government area. The GCP and other existing operations at the Longford plant site are already covered by planning permits or otherwise authorised under the P&E Act, but a new permit will be required for the new CO_2 compression and dehydration facilities at Longford. Section 85 of the Pipelines Act provides an exemption from the need to obtain planning approvals under the P&E Act for the new CO_2 pipeline, where a licence is issued under the Pipelines Act for the construction and operation of a pipeline.
Road Management Act 2004 (RM Act).	The RM Act requires consent from the Coordinating Road Authority (CRA) for works in a road reserve. Road closure, diversion and/or opening permits may also be required.
Water Act 1989 (Water Act)	The Water Act provides the legal framework for managing Victoria's water resources, including surface and groundwater. There are a number of approvals that may be required under the Water Act including a permit for works on waterways as well as a take and use licence if sourcing water from a waterway or groundwater.
Wildlife Act 1975 (Wildlife Act)	The Wildlife Act establishes procedures to protect and conserve wildlife and allows for the sustainable use of and access to wildlife. An Authority to Control Wildlife (ATCW) may be required in accordance with the Wildlife Act to wilfully disturb or control wildlife during construction.

Have any applications for approval been lodged?

☒ No ☒ Yes If yes, please provide details.

A referral in accordance with the EBPC Act has been lodged in parallel to this Referral.

A Pipeline Consultation Plan (PCP) for the new CO_2 pipeline was prepared in accordance with the Pipelines Act and approved on 6/7/22. The PCP is available on the Esso website:

https://www.exxonmobil.com.au/-/media/Australia/Files/Energy-and-environment/Upstream-operations/SEA-CCS-Project-PCP.pdf

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

Consultation has occurred with the following approval agencies:

- Department of Climate Change, Energy, the Environment and Water (DCCEEW) – Assessment and sea dumping teams
- Department of Energy, Environment and Climate Action (DEECA) – Energy, Natural Environment Programs (Gippsland Region), Land & Built Environment (Gippsland Region) and Earth Resources teams
- Department of Transport and Planning (DTP) – Planning team
- Energy Safe Victoria (ESV)
- Environment Protection Authority (EPA) – Gippsland Region
- Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC)

- National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA)
- National Offshore Petroleum Titles Administrator (NOPTA)
- VicRoads
- Wellington Shire Council
- West Gippsland Catchment Management Authority.

Other agencies consulted:

Consultation has occurred with the following agencies:

- Department of Industry Sciences and Resources (DISR)
- Gippsland Water
- Invest Victoria
- Major Project Facilitation Agency.

PART 2 POTENTIAL ENVIRONMENTAL EFFECTS

11. POTENTIALLY SIGNIFICANT ENVIRONMENTAL EFFECTS

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

Esso has applied the avoid, mitigate, offset hierarchy in designing the Project and as a result significant environmental effects are not expected from the Project. This is detailed below.

The majority of the Project will utilise existing infrastructure that will not require any construction or installation activities (i.e., usage of the existing pipeline) to avoid environmental impacts associated with construction. Impacts associated with the operation of the existing pipeline include IMR activities which will be aligned with current pipeline IMR activities and have been previously assessed under current pipeline licences. The potential for an unplanned release of CO_2 from the pipeline has been considered and site-specific fate and transport modelling of CO_2 releases is ongoing. Literature (source: Artioli, Y., et al.; Vielstädte, Lisa, et al.; Phelps, et al.; Geomar; ECO_2) indicates that, during a subsea release of CO_2, the initially highly buoyant gaseous CO_2 dissolves rapidly, forming potentially dense plumes of CO_2 enriched water that tends to sink in the water column (generally within 2 m above the seabed). Initial model-based studies of the North Sea indicate that dispersion can be relatively rapid so that only a localised area (spatially, with minimal impact vertically) around a leak event is likely to be strongly impacted (measured in metres or kilometres, depending on the leak rate) and that impacts are unlikely to have detrimental large-scale effects on wider ecosystems. Bass Strait is a high energy environment and an unplanned CO_2 release from the pipeline are expected to dissipate quickly.

Field experiments and numerical modelling of conditions in the North Sea indicate the carbonate system at the release sites quickly returns to background values after the end of the CO_2 release period (Vielstädte, Lisa, et al.); the release period from a pipeline is expected to be short as the valves on the pipeline could be shut within minutes of detection. The state waters Project Area does not contain highly utilised fishing grounds, with the majority of marine species occurring transiently. If any transient contact of fish with water of a lower pH does occur, it will be over a short duration and is not expected to result in lasting impacts or impacts at a population level.

Evidence suggests leaks are likely to impact upon those organisms that are unable to move away from the source of CO_2 (i.e., sessile benthic organisms) and that highly mobile species will be able to leave the area and are unlikely to suffer impacts from exposure. Species such as sharks, turtles, whales and seabirds, for which ocean acidification from climate change is a listed threat, are mobile species that can move away from the impacted area. Organisms that are restricted to a specific habitat or that have limited horizontal mobility are likely to receive the highest exposure and in extreme cases of CO_2 leakage severe acidification will be lethal to most non-mobile benthic organisms in a very localised area near the release point.

While a release of CO_2 may be lethal for some benthic species this will not be the case for every leak scenario as many marine species, even some heavily calcified taxa, can tolerate shorter periods of exposure of more moderate acidification (this would likely be the case with a pipeline release that can be shut within minutes of detection). This is because, unlike other potentially toxic substances, CO_2 is a naturally occurring and fluctuating compound in the marine environment. As a result of millions of years of exposure, marine organisms have incorporated CO_2, along with other elements of carbonate chemistry, into many of their routine physiological processes. This response, known as physiological plasticity, affords some protection to organisms from rapid changes in their environment and can provide temporary protection against moderate acidification (ECO_2).

Given the measures that will be in place to manage pipeline integrity, and that an approved CO_2 monitoring and management plan will be in place to enable rapid detection and response to any CO_2 release, the potential for significant environmental effects results from a rupture of the Bream pipeline is considered very unlikely. Through utilisation of the existing pipeline between VS3 and the edge of State waters (at Commonwealth waters), potentially significant environmental effects are highly unlikely. As such, no further impact assessment has been carried out on use of the existing Bream pipeline.

The following 5 sections (i.e., Section 11 Potentially Significant Environmental Effects, Section 12 Native Vegetation, Flora and Fauna, Section 13 Water Environments, Section 14 Landscape and Soils and Section 15 Social Environments and Cultural Heritage) detail the environmental impacts associated with the construction and operation of the new CO_2 facilities for compression and dehydration and the new onshore CO_2 pipeline.

A number of technical investigations have been completed by specialist consultants to address the potential environmental effects of the Project. Based on these investigations and assessments outlined in Sections 12 to 15 of this referral, the following potentially significant environmental effects may result from the construction and operation of the new CO_2 facilities for compression and dehydration and the new onshore CO_2 pipeline:

- Loss of native vegetation
- Impacts on threatened and migratory flora and fauna
- Impacts on waterways and wetlands
- Impacts from contaminated soils
- Impacts from ASS
- Impacts on Aboriginal cultural heritage
- Noise impacts on sensitive receptors.

Loss of native vegetation

The new CO_2 facilities for compression and dehydration and the new onshore CO_2 pipeline have been designed to avoid loss of native vegetation through:

- Locating the new CO_2 facility within Esso's existing Longford plant site on existing industrial land to avoid all impacts to native vegetation.
- Location of the new CO_2 pipeline within an existing maintain pipeline corridor to avoid impacts to previously undisturbed areas of native vegetation
- Using trenchless construction at selected locations to avoid loss of native vegetation during construction of the new CO_2 onshore pipeline.

The Project will minimise the amount of native vegetation to be removed by maximising the use of previously disturbed areas and reducing the width of the disturbance footprint. Based on the outcomes of the flora assessment and following cross-discipline input, the amount of native vegetation within the disturbance footprint has been reduced to:

- 13.62 ha of native vegetation in patches
- 0 large canopy trees in patches
- 0 large and scattered trees.

The amount of vegetation to be removed will be confirmed once the construction ROW has been finalised in consultation with relevant landholders and will be a subset of the native vegetation within the disturbance footprint (i.e., a subset of the 13.62 ha).

Of note is the amount of native vegetation that has regrown over the existing maintained pipeline corridor, which equates to 12.69 ha (93%) of the 13.62 ha of native vegetation in patches that may be temporarily disturbed and rehabilitated. This is modified vegetation and occurs within the maintained pipeline corridor which undergoes ongoing maintenance (i.e., maintenance slashing) under the Pipelines Act, pipeline licence and AS2885.

All topsoil removed will be stored with original seed stock and used in rehabilitation once construction is complete. Impacts are expected to be temporary and highly localised. Further information about native vegetation is provided in Section 12 and **Attachment 02**. Significant environmental effects from loss of native vegetation are not expected.

Impacts on threatened and migratory flora and fauna

The potential habitat of several flora and fauna species listed under the EPBC Act and FFG Act were identified as either occurring or likely to have suitable habitat within the Project area associated with the new CO_2 facilities for compression and dehydration and the new onshore CO_2 pipeline. These include:

- 1 EPBC Act listed threatened flora species –Swamp Everlasting^ (where ^ denotes species also listed under FFG Act)

- A further 9 FFG Act listed threatened flora species – Naked Beard-orchid, Pale Swamp Everlasting, Variable Bossiaea, Gippsland Lakes Peppermint, Ribbed Thrypotomene, Spurred Helmet orchid, Veiled Fringe-sedge, Pink Zieria, Eastern Water-Ribbons
- 12 EPBC Act listed threatened fauna species – Swamp Skink^, Southern Brown Bandicoot^, Gang-gang Cockatoo, Blue-winged Parrot, Swift Parrot^, White-throated Needletail^, Pilotbird, Grey-headed Flying Fox^, New Holland Mouse^, Green and Golden Bell Frog, Growling Grass Frog^ and Dwarf Galaxias^ (where ^ denotes species also listed under FFG Act)
- A further 12 FFG Act listed threatened fauna species – Eastern Great Egret, Little Eagle, White-bellied Sea-Eagle, Powerful Owl, Masked Owl, Chestnut-rumped Heathwren, Yellow-bellied Sheathtail Bat, Lace Monitor, Glossy Grass Skink, Southern Toadlet, Martin's Toadlet, Flinders Pygmy Perch
- 7 EPBC Act listed migratory species - White-throated Needletail, Fork-tailed Swift, Black-faced Monarch, Rufous Fantail, Satin Flycatcher, Latham's Snipe, Glossy Ibis
- 0 threatened ecological communities listed under the EPBC Act or FFG Act.

Most impacts will arise from the clearing of vegetation. Impacts to threatened and migratory flora and fauna habitat from the new CO_2 facilities for compression and dehydration and the new onshore CO_2 pipeline will be avoided through:

- Locating the new CO_2 facility within Esso's existing Longford plant site on existing industrial land to avoid all impacts to potential flora and fauna habitat.
- Location of the new CO_2 pipeline within an existing maintained pipeline corridor to avoid impacts to previously undisturbed areas of flora and fauna habitat.
- Using trenchless construction at selected locations to avoid impacts to potential flora and fauna habitat during construction of the new CO_2 onshore pipeline.
- Engaging an arborist to inform control measures to ensure removal of all large and scattered trees will be avoided.

Impacts to threatened and migratory flora and fauna from the new CO_2 facilities for compression and dehydration and the new onshore CO_2 pipeline will be minimised by:

- Limiting the disturbance of intact native vegetation and maximising use of the existing maintained pipeline corridor where vegetation is highly modified
- Construction activities will be undertaken when conditions are dry, so ephemeral wetlands/waterbodies are expected to be dry and aquatic species have relocated.
- Where Glossy Grass Skink habitat cannot be avoided due to two adjacent areas of trenchless construction to avoid an area of high ecological value containing Ribbed Thryptomene individuals and Longford Loch-Sport Rd, staged vegetation removal is proposed to passively relocate any skinks into adjacent habitat outside the disturbance footprint.

Impacts have been minimised through design and will be managed through an effective EMP. Further information about flora and fauna is provided in Section 12 and **Attachment 02**. As a result, significant impacts on threatened and migratory flora and fauna are not expected.

Impacts on waterways and wetlands

The Project traverses 21 mapped watercourses, categorised as channel drains and which includes Gippsland Water's man-made ROS as well as 7 mapped wetlands, 2 of which are classified as permanent open freshwater and 5 classified as freshwater marshes (4 deep and 1 shallow). With the exception of the ROS, all watercourses and the 5 freshwater marshes are ephemeral and dry throughout most of the year.

Impacts to waterways and wetlands from the new CO_2 facilities for compression and dehydration and the new onshore CO_2 pipeline will be avoided through:

- Trenchless construction of the ROS.
- Trenchless construction of the entirety of one (of the two) permanent mapped wetlands.

Impacts to waterways and wetlands from the new CO_2 facilities for compression and dehydration and the new onshore CO_2 pipeline will be minimised through:

- Trenchless construction and reducing the width of the disturbance footprint around the second permanent mapped wetland to minimise impacts to 0.2% of this wetland.

- Construction is planned when conditions are dry, so ephemeral waterways are expected to be dry.

Consequently, significant impacts to waterways and wetlands are not anticipated.

Impacts from contaminated soils

PFAS concentrations above relevant assessment criteria were identified in soils at the western end of the new onshore pipeline, attributed to past PFAS use at the Longford site. If this soil is impacted during construction, Esso will manage handling, reuse and/or disposal of any impacted soil generated in accordance with the PFAS National Environmental Management Plan and EMP for the project, including a relevant screening risk assessment, waste transport certificates, certified transport vehicles, licensed landfills and occupational health and safety considerations.

Hydrocarbon contamination from the one borehole location (at surface) that exceeded the relevant assessment criteria will require offsite disposal. If this contaminated soil is impacted by construction, offsite disposal of soil will comply with the following:

- EMP
- EPA Victoria Publication IWRG702: Soil Sampling
- EPA Victoria Publication 1828.2 Waste Disposal categories - characteristics and thresholds
- EP Regulations for transport of soils

Any imported material required for backfill will comply with EPA Victoria Publication 1828.2 Waste Disposal categories - characteristics and thresholds.

Impacts from this isolated location of contaminated soils are not anticipated to have a significant effect on the environment and will be managed using standard mitigation measures commonly used in major construction projects.

Impacts from Acid Sulfate Soils

ASS was identified at four surface locations. The flora and fauna assessment identified no aquatic habitats at these four locations. Disturbance of these soils from construction activities have the potential to impact the environment if not managed correctly.

All works will be completed in accordance with:

- EMP, approved by the Minister for Energy and Resources, and in accordance with:
  - Industrial Waste Management Policy (Waste Acid Sulfate Soils) 1999, Publication S125
  - EPA Victoria Publication 655.1: Acid Sulfate Soil and Rock
  - Victorian Best Practice Guidelines for Assessing and Managing Coastal Acid Sulfate Soils (CASS BPMG, 2010)
- Relevant field personnel will be trained on the requirements of ASS management.
- Minimise duration of stockpiling ASS
- Capture and manage run-off that has potential to be impacted by ASS.

Given significant environmental effects from ASS have not occurred as a result of construction of the existing pipelines within the pipeline corridor using standard construction methods, impacts from ASS are not anticipated to have a significant effect on the environment.

Further information about ASS is provided in Section 14 and **Attachment 03**.

Impacts on Aboriginal cultural heritage

Parts of the Project overlap areas of cultural heritage sensitivity due to the presence of 1 nearby registered cultural heritage place, 1 nearby named waterway and location within a dune or source bordering dune. As such, a CHMP is being developed for approval by the RAP.

Any potential impacts to Aboriginal cultural heritage values will be managed through the CHMP process which is underway. A complex assessment is required for the CHMP, and it is expected approval will be sought in Q1 2024.

All works will be completed in accordance with the approved CHMP to ensure significant effects to Aboriginal cultural heritage places are avoided.

See Section 15 of this referral for further details on Aboriginal cultural heritage.

Noise impacts on sensitive receptors

Construction activities associated with the new CO_2 facilities and new CO_2 pipeline will generate noise, however, impacts will be temporary and short-term in nature. Implementation of industry standards will be used to manage noise including effective stakeholder engagement.

Selection of equipment for the new CO_2 facilities at the existing Longford plant site will occur during detailed design and preference will be given to equipment with industry standard noise controls. Additional controls have not been considered given that the operational noise from the Project is anticipated to be well below ambient noise levels however further noise assessments will be undertaken as detailed design progresses to ensure designs comply with EPA Victoria's Noise Limit and Assessment Protocol (Noise Protocol). Significant impacts associated with noise are not expected from the new CO_2 facilities for compression and dehydration and the new onshore CO_2 pipeline.

12. NATIVE VEGETATION, FLORA AND FAUNA

NATIVE VEGETATION

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

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

New CO_2 facilities for compression and dehydration

The new CO_2 facilities will be located within the existing Longford plant site which has been previously cleared, graded and finished with crushed rock; there is no native vegetation.

New CO_2 onshore pipeline

Native vegetation will be cleared for the construction of the new CO_2 onshore pipeline only.

Given that native vegetation will only be cleared in areas associated with the construction of the new CO_2 pipeline, the remaining section of this referral ('Native Vegetation' within Section 12 Native Vegetation, Flora and Fauna) relates to this component of the Project only.

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

Biosis completed an assessment of native vegetation within the broader Project area in October 2023. A habitat hectare assessment was completed, and vegetation was assessed according to the habitat hectare methodology described in the Vegetation Quality Assessment Manual. See **Attachment 02** for details of this assessment.

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

☐ NYD Estimated area ……13.63…….(hectares)

New CO_2 onshore pipeline only

The area of native vegetation to be cleared for the Project considers environmentally sensitive areas to be avoided (i.e., areas considered high value, such as permanent open fresh water bodies and areas of high value woodland habitat) and includes native vegetation that has been reinstated on the existing maintained pipeline corridor following past pipeline construction works.

In total a maximum of 13.63 hectares of native vegetation will be cleared and rehabilitated. Of this, 12.69 hectares (93%) occurs within the existing maintained pipeline corridor and is of a highly modified derived state (i.e., is a treeless form of the original treed EVCs and supports modified native understorey). The remaining 0.94 hectares (7%) of native vegetation removal occurs within areas of intact native vegetation.

Areas of high ecological value will be avoided as much as practicable using trenchless construction methods (for example the high ecological value land between KP7 and KP9).

The maximum extent of native vegetation proposed to be removed includes:

- 12.69 ha of native vegetation in a highly modified derived state due to decades of maintained pipeline corridor maintenance. The maintained pipeline corridor lacks all medium and large plant lifeforms due to the existing pipelines and maintenance slashing
- 0.94 ha of intact native vegetation patches (described in Table 12).
- 0 large canopy trees (canopy and sub-canopy will remain intact)
- 0 large and scattered trees

It is expected that further refinement of the design and construction methodologies may enable reductions in the amount of vegetation to be cleared.

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

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

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

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

A total of five Ecological Vegetation Classes (EVCs) will be affected by the Project and are presented in **Table 12**.

Table 12: Ecological Vegetation Classes that may be affected by the Project

EVC	Conservation status	Modified vegetation removal (ha)	Intact vegetation removal (ha)	Total vegetation removal (ha)
Damp Sands Herb-rich Woodland (EVC 3)	Vulnerable	4.66	0.32	4.98
Sand Heathland (EVC 6)	Rare	0.87	0.47	1.34
Lowland Forest (EVC 16)	Vulnerable	0.01	0.00	0.01
Heathy Woodland (EVC 48)	Least Concern	0.48	0.05	0.53
Swamp Scrub (EVC 53)	Endangered	0.69	0.10	0.79
Deep Freshwater Marsh (modelled wetland)	Vulnerable	5.98	0.00	5.98
Total		**12.69**	**0.94**	**13.63**

The endangered Creekline Herb-rich Woodland (EVC 164) was identified during surveys and was originally expected to be impacted however trenchless construction will be employed to avoid this environmentally sensitive area.

Have potential vegetation offsets been identified as yet?

☒ NYD ☒ Yes If yes, please briefly describe.

Offsets will be sought where the removal of native vegetation cannot be avoided.

A species-general offset test determined only a general offset is required (i.e., mapped habitat value for a species threshold was not triggered and a species offset is not required). A summary of the offset requirements is presented in **Table 13**.

Table 13: Offset requirements

Offset criterion	Offset requirement
Offset type	General
General Offset Amount	5.909 general habitat units
Vicinity	West Gippsland CMA or Wellington Shire Council
Minimum strategic biodiversity score	0.569
Large trees	0

This offset target has been provided using surveyed habitat hectare scores recorded by an accredited assessor (rather than using modelled condition data).

Searches for offsets on the Native Vegetation Credit Register have been completed and General Habitat units are readily available and can be purchased via an accredited Offset Broker. As of 20

November 2023, eight (8) sites and/or credits within the West Gippsland CMA are available for purchase. The credit register outputs are presented in Appendix G of **Attachment 02.**

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

Esso has constructed and operated infrastructure within the Project area for more than 50 years and has a firm understanding of sensitivities and potential impacts associated with construction and operation in the area. This experience combined with the recent field surveys leads to a robust dataset for understanding potential environmental impacts. Conclusions on the potential for significant effects to native vegetation made above therefore carry a high degree of certainty.

NYD = not yet determined

FLORA AND FAUNA

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

New CO_2 onshore pipeline only

Flora and fauna assessments were completed within the Project area between October 2022 and October 2023. The flora and fauna assessments included:

- Desktop assessments to review relevant government databases and systems to identify existing values.
- A preliminary field assessment to understand broad biodiversity values present within the Project area and to gather information to develop design aspects (i.e., construction methods) to avoid areas of high sensitivity.
- Mapping of native vegetation patches and trees and undertaking habitat hectare assessments in all areas of identified native vegetation.
- Assessing the potential for the Project area to support habitat for EPBC Act and FFG Act listed species and communities.
- Undertaking targeted and opportunistic field surveys for species that could potentially be impacted by the Project that were:
    - listed under EPBC Act
    - listed under FFG Act and/or
    - Agreed to during discussion with DEECA.

See **Attachment 02** for details of this assessment.

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

☒ NYD ☒ No ☒ Yes If yes, please:

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

New CO_2 onshore pipeline only

Initial searches of relevant biodiversity databases (i.e., VBA, PMST, etc.) identified the following species as potentially occurring with 10 km of the Project area:

- 14 EPBC Act listed flora species (of which 10 species are also listed under the FFG Act) and a further 26 FFG Act listed flora species
- Three (3) EPBC Act listed threatened ecological communities and three (3) FFG Act listed threatened ecological communities
- 58 EPBC Act listed fauna species (of which 28 species are also listed under the FFG Act) and a further 33 FFG Act listed fauna species (terrestrial species only)
- 49 EPBC Act listed migratory species (terrestrial species only).

These species were assessed for likelihood of occurrence within the Project area which, in consultation with DEECA, informed the field surveys. Surveys were undertaken for species considered to have a medium or higher likelihood of occurrence and were undertaken in accordance with recommendations provided by DEECA. Field surveys confirmed the presence or identified suitable habitat within the disturbance footprint of the following species (where * denotes species that were recorded during surveys):

- One (1) EPBC Act listed flora species:
  - Swamp Everlasting *Xerochrysum palustre* (Vulnerable) (also listed as Critically endangered under FFG Act)
- Nine (9) FFG listed flora species (in addition to those also listed under the EPBC Act):
  - Naked Beard-orchid *Calochilus imberbis* (Critically endangered)
  - Pale Swamp Everlasting *Coronidium gunnianum* (Critically endangered) *
  - Variable Bossiaea *heterophylla* (Endangered)
  - Gippsland Lakes Peppermint *Eucalyptus Arenicola* (Endangered) *
  - Ribbed Thrypotomene *Thryptomene micrantha* (Endangered) *
  - Spurred Helmet orchid *Corybas aconitiflorus* (Endangered)
  - Veiled Fringe-sedge *Fimbristylis velata* Endangered)
  - Pink Zieria *Zieria veronicea subsp. veronicea* (Vulnerable) *
  - Eastern Water-Ribbons *Cycnogeton microtuberosum* (Endangered)
- No vegetation met the description of threatened ecological communities under the EPBC Act or FFG Act.
- 12 EPBC Act listed fauna species:
  - Swift Parrot *Lathamus discolor* (Critically endangered) (also listed as Critically endangered under FFG Act)
  - Southern Brown Bandicoot *Isoodon obesulus obesulus* (Endangered) (also listed as Endangered under FFG Act) * (indirect evidence of bandicoot activity, presence assumed)
  - Gang-gang Cockatoo *Callocephalon fimbriatum* (Endangered)
  - Swamp Skink *Lissolepis coventryi* (Endangered) (also listed as Endangered under FFG Act)
  - Blue-winged Parrot *Neophema chrysostoma* (Vulnerable)
  - Dwarf Galaxias Galaxiella pusilla (Vulnerable) (also listed as Endangered under FFG Act)
  - New Holland Mouse *Pseudomys novaehollandiae* (Vulnerable) (also listed as Endangered under FFG Act)
  - Green and Golden Bell Frog *Litoria aurea* (Vulnerable)*
  - Grey-headed Flying fox *Pteropus poliocephalus* (Vulnerable) (also listed as Vulnerable under FFG Act)
  - Growling Grass Frog *Litoria raniformis* (Vulnerable) (also listed as Vulnerable under FFG Act)
  - Pilotbird *Pycnoptilus floccosus* (Vulnerable)
  - White-threated Needletail *Hirundapus caudacutus* (Vulnerable) (also listed as Vulnerable under FFG Act)
- 11 FFG listed fauna species (in addition to those also listed under the EPBC Act):
  - Masked Owl *Tyto novaehollandiae* (Critically endangered)
  - Martin's Toadlet *Uperoleia martini* (Critically endangered)
  - Lace Monitor *Varanus varius* (Endangered)
  - Glossy Grass Skink *Pseudemoia rawlinsoni* (Endangered) *
  - Southern Toadlet *Pseudophryne semimarmorata* (Endangered)
  - White-bellied Sea-Eagle *Haliaeetus leucogaster* (Endangered) *
  - Eastern Great Egret *Ardea alba modesta* (Vulnerable)
  - Flinders Pygmy Perch *Nannoperca sp. 1* (Vulnerable)
  - Little Eagle *Hieraaetus morphnoides* (Vulnerable)
  - Powerful Owl *Ninox strenua* (Vulnerable)
  - Yellow-bellied Sheathtail Bat *Saccolaimus flaviventris* (Vulnerable)
- Suitable habitat was identified for seven (7) EPBC Act listed migratory species as likely to inhabit the terrestrial Project area or the airspace above it. The following migratory species were identified but not recorded:

- White-throated Needletail *Hirundapus caudacutus*
- Fork-tailed Swift *Apus pacificus*
- Black-faced Monarch *Monarcha melanopsis*
- Rufous Fantail *Rhipidura rufifrons*
- Satin Flycatcher *Myiagra cyanoleuca*
- Latham's Snipe *Gallinago hardwickii*
- Glossy Ibis *Plegadis falcinellus.*

Threatened Flora

Targeted flora surveys were completed during flowering periods. The results of the targeted field flora surveys are described in **Table 14**.

Table 14: EPBC Act and FFG Act listed threatened flora survey results

Threatened species	Survey result
Swamp Everlasting	Not recorded in disturbance footprint during targeted surveys. Note: areas that hold water within Project area have been searched for threatened species however no formal targeted survey has been undertaken for Swamp Everlasting as conditions within the Project area have remained relatively dry (even following wetter than usual conditions). Further assessment is based on assumed presence.
Metallic Sun-orchid	Not recorded in disturbance footprint during targeted surveys. These EPBC Act listed species were initially considered as having a medium likelihood of occurrence within the Project area and targeted surveys were undertaken in compliance with the Survey guidelines for Australia's threatened orchids (DoE, 2013b) and after discussion with DEECA. These species were not recorded during targeted surveys and the likelihood of occurrence were changed to low. As such, no further assessment for these species has been undertaken.
Thick-lip Spider orchid	
Green-striped Greenhood	
Naked Beard-orchid	Not recorded in disturbance footprint during targeted surveys however species had finished flowering. Further assessment is based on assumed presence.
Pale Swamp Everlasting	Species recorded during field surveys. 1 location was identified during targeted surveys: • 2 patches (approximately 35 populations in total) on the vegetated Crown land parcel west of Signboard Lane.
Variable Bossiaea	Not recorded in disturbance footprint during surveys. Note: No targeted surveys. Species has medium likelihood of presence within Project area, however a low likelihood of occurrence within the disturbance footprint. This shrub species would have likely been detected within the disturbance footprint if it occurred there. Further assessment is based on assumed presence.
Gippsland Lakes Peppermint	Species recorded during field targeted surveys. 2 locations were identified during targeted surveys (approximately 110 individuals in total): • Vegetated Crown land parcel west of Signboard Lane • Vegetated land east of Longford Loch Sport Rd surrounding Valve Site 3.
Ribbed Thrypotomene	Species recorded during field targeted surveys 1 location was identified during targeted surveys: • Vegetated land directly south of Longford Loch Sport Rd (approximately 193 individuals).
Spurred Helmet orchid	Not recorded in disturbance footprint during surveys. Note: No targeted surveys. There is one record within 5 kilometres of the study area, however this record is 28 years old (1995 record). All other records of this species occur more than 20 kilometres from the study area. Potential suitable habitat in Swap Scrub and Sand Heathland so further assessment is based on assumed presence.
Veiled Fringe-sedge	Not recorded in disturbance footprint during targeted surveys.

	Potentially suitable habitat in wet areas so further assessment is based on assumed presence.
Pink Zieria	Species recorded during field targeted surveys. 1 location was identified during targeted surveys: • Vegetated land east of Longford Loch Sport Rd surrounding VS3 A 20-metre x 20-metre quadrat was used to approximate individual numbers of this species within the existing maintained pipeline corridor where high numbers were evident. 192 individuals were recorded within the quadrat. Based on these results, up to 3312 individuals may occur within the existing maintained pipeline corridor around Valve Site 3.
Eastern Water-ribbons	Not recorded in disturbance footprint during surveys Note: No targeted surveys. Species has medium likelihood of presence following inundation within Project area, however a low likelihood of occurrence within the disturbance footprint. No periods of inundation have occurred within the Project area over the span of the assessment. Further assessment is based on assumed presence.
Dwarf Kerrawang, Maroon Leek-orchid, Wellington Mint-bush	Original likelihood of occurrence for these EPBC Act listed species were considered medium and targeted surveys were undertaken. These species were not recorded in disturbance footprint during targeted surveys. Likelihood of occurrence within the disturbance footprint was reduced from medium to low and no further assessment for these species has been undertaken.
Stunted Sheoak, Velvet Apple-berry, Purple Donkey Orchid, Golden Grevillea, Rough Blown-grass, Coast Mistletoe, Heath Platysace, Oval-leaf Pseudanthus, Beardless Bog-sedge, Annual Fireweed	Original likelihood of occurrence for these FFG Act listed species were considered medium and targeted surveys were undertaken. These species were not recorded in disturbance footprint during targeted surveys. Likelihood of occurrence within the disturbance footprint was reduced from medium to low and no further assessment for these species has been undertaken.

Threatened Fauna

The results of the field fauna surveys are described in **Table 15.**

Table 15: EPBC Act and FFG Act listed threatened fauna survey results

Threatened species	Description
Birds	
Gang-gang Cockatoo	Not recorded in disturbance footprint during surveys. Suitable habitat in forest, woodland and scattered trees.
Blue-winged Parrot	Not recorded in disturbance footprint during surveys. Suitable foraging and nesting habitat within disturbance footprint includes all large hollow-bearing trees in Woodland and Forest EVCs and foraging habitat throughout agricultural land and the entire existing maintained pipeline corridor.
Swift Parrot	Not recorded in disturbance footprint during surveys. Suitable habitat includes all woodland and forest habitat with mature flowering eucalypts for occasional foraging.
White-threated Needletail	Not recorded in disturbance footprint during surveys. Habitat for the species is largely restricted to the airspace above the disturbance footprint, although the species may occasionally roost within the dense canopy or hollows of large mature trees.
Pilotbird	Not recorded in disturbance footprint during surveys. Suitable habitat includes woodland and forest with dense undergrowth, leaf litter and debris.

Masked Owl	Not recorded in disturbance footprint during surveys. Suitable woodland habitat with numerous hollow trees
White-bellied Sea-Eagle	Species observed during field work but likely to occur offsite, within nearby coastal and lakeside habitat. Species likely to regularly fly over Project area.
Eastern Great Egret	Not recorded in disturbance footprint during surveys. Species may forage within seasonally flooded pasture and along drainage lines
Little Eagle	Not recorded in disturbance footprint during surveys. Suitable nesting and hunting habitat in woodland and open areas.
Powerful Owl	Not recorded in disturbance footprint during surveys. Suitable woodland habitat with numerous tree hollows
Brown Treecreeper Hooded Robin Chestnut-rumped Heathwren	Not recorded in disturbance footprint during surveys. Original likelihood of occurrence for the EPBC Act listed species Brown Treecreeper and Hooded Robin and the FFG Act listed species Chestnut-rumped Heathwren was considered medium however, following constraints mapping and further definition of the disturbance footprint the likelihood of occurrence of these species were reduced to low and no further assessment has been carried out.
Mammals	
Southern Brown Bandicoot	Bandicoot diggings recorded at 3 locations throughout opportunistic surveys: • Vegetated land between KP7 and KP9 • One vegetated patch directly south of Longford Loch Sport Rd • Vegetated land between KP16 and KP19 Note: diggings observed may be attributed to the long-nosed bandicoot as surveys cannot distinguish between species. Project has assumed presence of Southern Brown Bandicoot.
New Holland Mouse	Not recorded in disturbance footprint during surveys. Suitable habitat with woodland areas. All populations of New Holland Mouse within Victoria are considered important populations.
Grey-headed Flying fox	Not recorded in disturbance footprint during surveys. Species may occasionally forage in flowering trees and temporarily roost within the Project area.
Yellow-bellied Sheathtail Bat	Not recorded in disturbance footprint during surveys. Species may forage above canopy and low in open areas.
Reptiles	
Swamp Skink	Targeted survey undertaken – no species recorded within disturbance footprint. Potentially suitable habitat within wet grassland, sedgeland and swamp scrub habitat.
Lace Monitor	Not recorded in disturbance footprint during surveys. Suitable habitats include a variety of wooded habitats, including woodlands; shelters in hollow trunks, limbs and logs. Species unlikely to utilise cleared land.
Glossy Grass Skink	Targeted survey undertaken - species recorded at 2 locations utilising Kikuyu grass beside water bodies: • Near ROS • Grassed patch directly south of Longford Loch Sport Rd
Frogs	
Green and Golden Bell Frog	Targeted survey undertaken - species recorded offsite in wetland adjacent to the Project area but not within disturbance footprint. The Project area has the potential to support an important population of the species as it would represent the southernmost known range limit of the species and contain habitat critical to the survival of the species. Suitable habitat includes wetlands.
Growling Grass Frog	Targeted survey undertaken – no species recorded within disturbance footprint.

	Suitable habitats include still or slow-flowing waterbodies and surrounding terrestrial vegetation.
Martin's Toadlet	Targeted survey undertaken – no species recorded within disturbance footprint. Suitable habitat includes woodland areas.
Southern Toadlet	Not recorded in disturbance footprint during surveys. Suitable habitat includes a wide variety of woodland, forest and grassland habitats, where the species shelters under leaf litter and other debris in moist soaks and depressions.
Fish	
Dwarf Galaxias	Not recorded in disturbance footprint during surveys. Suitable habitat includes slow-flowing or still freshwater wetlands such as swamps, drains and backwaters of streams.
Flinders Pygmy Perch	Not recorded in disturbance footprint during surveys. Suitable habitat within the ROS.

Migratory Species

No EPBC Act listed migratory species were recorded during field surveys however the proposed works will result in clearing of small patches of woodland, forest, swamp scrub and heathland, which may provide habitat for these species.

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

New CO_2 onshore pipeline only

A review of the key threatening processes under the EPBC Act and potentially threatening processes listed under the FFG Act has been completed and presented in **Table 16**.

Table 16: Potentially threatening processes relevant to the Project

Threatening process	Relevance to the Project	Management measures
Land clearance	Land will be cleared within the construction ROW for the new CO_2 pipeline.	Cleared topsoil containing seedstock will be stockpiled and reinstated following construction.
Habitat fragmentation as a threatening process for fauna in Victoria	Fauna habitat has been identified for 23 listed species within the Project area. Of these species, habitat fragmentation is likely to occur at no locations during construction.	• Fragmentation of high value habitat avoided through trenchless construction • Habitat fragmentation is minimised through a narrow construction footprint • Cleared topsoil containing seedstock will be stockpiled and reinstated following construction to promote quick recovery of habitat • Impacts to habitats will be short-term and, due to the nature of pipeline construction, unlikely to be constrained at one location for long periods during the approximately 5 month construction period
Loss of coarse woody debris from Victorian native forests and woodlands	Four EVCs relating to native forests and woodlands are present within the Project area.	Impacts to these EVCs will be minimised, in particular: • For Creekline Herb-rich Woodland, all impacts will be avoided by using trenchless construction • For Damp Sands Herb-rich Woodland, the construction ROW will be confined to the existing maintained pipeline corridor • For Lowland Forest, almost all impacts will be avoided by using

		trenchless construction. Impacts have been minimised to 0.01 ha by reducing the construction ROW to less than 30 m within the existing maintained pipeline corridor. • For Heathy Woodland, the construction ROW will be confined to the existing maintained pipeline corridor, reduced to less than 30 m within the existing maintained pipeline corridor or avoided at particular locations using trenchless construction.
Loss of hollow-bearing trees from Victorian native forests	Large scattered trees and large trees in patches are present within the Project area.	No large and scattered trees will be removed.
Invasion of native vegetation by 'environmental weeds'/novel biota and their impact on biodiversity	Ground disturbance caused during construction and spread of seeds from vehicle and equipment movement can cause invasion of weeds.	Standard construction hygiene measures will be implemented including: • All equipment, machinery and vehicles will be free of soil and vegetation before entering woodland and forests • All vehicles and equipment will be cleaned to prevent transfer of weeds and diseases prior to entering the Project area. • All vehicles and equipment will remain on the construction ROW and approved access areas.
The spread of *Phytophthora cinnamomi* from infected sites into parks and reserves, including roadsides, under the control of a state or local government authority	Native vegetation within the Project area is susceptible to impacts of *Phytophtora cinnamomi* Conservation advice lists New Holland Mouse as a species susceptible to the impacts of *Phytophthora* dieback.	
Alteration to the natural flow regimes of rivers and streams	No permanent rivers or streams will be intersected. Ephemeral channel drains intersected by the Project.	Impacts to ROS will be avoided by trenchless construction. Construction to occur when conditions are dry, so ephemeral wetlands/water bodies are expected to be dry.
Increase in sediment input to Victorian rivers and streams due to human activities		
Wetland loss and degradation as a result of change in water regime, dredging, draining, filling and grazing	Seven mapped wetlands – 2 permanent open freshwater and 5 ephemeral freshwater marshes (4 deep and 1 shallow)	One (of the two) permanent mapped wetlands are proposed to be entirely avoided through trenchless construction and the other permanent mapped wetland is largely avoided through trenchless construction and reducing the width of the disturbance footprint. Construction to occur when conditions are dry, so ephemeral wetlands/water bodies are expected to be dry.
Infection of amphibians with Chytrid Fungus, resulting in chytridiomycosis	Suitable amphibian habitat has been identified for 2 EPBC Act listed frog species and 2 FFG Act listed toadlet species in or near the Project area: • Drainage channels connected to wetlands • Wetlands within Gippsland Water managed land (including the ROS) • Offsite dams with high quality aquatic vegetation (adjacent to Project area)	One (of the two) permanent mapped wetlands are proposed to be entirely avoided through trenchless construction and the other permanent mapped wetland is largely avoided through trenchless construction and reducing the width of the disturbance footprint. Standard hygiene construction measures will be implemented as described above.
Degradation of native riparian vegetation along Victorian rivers and streams	No permanent rivers and streams with riparian	Not applicable.

	vegetation will be intersected.	

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

☒ NYD ☒ No ☒ Yes If yes, please:

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

Environmental risk assessments were undertaken for EPBC Act and FFG Act listed threatened and migratory species. Significant or extensive impacts to threatened or migratory species, species of conservation significance or listed communities identified throughout the Project have been assessed as unlikely, as detailed below.

New CO_2 onshore pipeline only

A terrestrial environmental risk assessment was undertaken that identified environmental sensitivities/values, sources of risks, potential project impacts and control measures to mitigate risks. Full impact assessment details are presented in **Attachment 02.** The following section provides a summary of potential impacts to threatened flora, threatened fauna and migratory species.

Threatened Flora

EPBC Act listed species

Table 17: Impact assessment of EPBC Act listed threatened flora species

Threatened flora species	Potential impact
Swamp Everlasting (Vulnerable)	• Species favours native wetland vegetation following inundation. Project will either avoid permanent open freshwater waterbodies by undertaking trenchless construction and/or will undertake construction works when conditions are dry, so ephemeral wetlands are expected to be dry and modelled wetlands are unlikely to provide suitable habitat for the species. • No significant impact to species

FFG Act listed flora species

The proposed works will result in the disturbance of habitats suitable for FFG Act listed threatened flora. The following habitat may be impacted by the Project:

- Swamp Scrub and Sand Heathland (Spurred Helmet Orchid)
- Native woodland and heathland vegetation suitable habitats (Naked Beard Orchid, Variable Bossiaea, Gippsland Lakes Peppermint, Ribbed Thryptomene and Pink Zieria)
- Native wetlands following inundation (Pale Swamp Everlasting, Eastern Water Ribbons and Veiled Fringe Sedge)

Impacts have been avoided or minimised through mitigation measures informed by the targeted surveys, constraints mapping (i.e. the disturbance footprint has been narrowed in several areas to reduce impacts to native vegetation and threatened species habitat) and confining the majority of the disturbance footprint to the existing maintained pipeline corridor (i.e., modified environment). The majority of areas of high environmental sensitivity (i.e., woodlands) will be avoided by trenchless construction – this will avoid or minimise impacts to Naked Beard-orchid, Pale Swamp Everlasting, Variable Bossiaea, Gippsland Lakes Peppermint, Ribbed Thrypotomene, Pink Zieria. Construction will be undertaken when conditions are dry so ephemeral wetlands/waterbodies are expected to be dry (i.e., impacts to Pale Swamp Everlasting, Eastern Water Ribbons and Veiled Fringe Sedge will be avoided). Of these species with suitable habitat within the disturbance footprint, only Gippsland Lakes Peppermint, Ribbed Thryptomene,

Pink Zieria and Pale Swamp Everlasting were found to be present. No impacts to Ribbed Thryptomene or Pale Swamp Everlasting individuals are expected.

Impacts will be minimised by rehabilitation and revegetation of the impact area. It is unlikely that the proposed works will have a significant long-term impact on any habitat for FFG Act listed flora species.

Threatened Fauna

EPBC Act listed fauna species

Table 18: Impacts to EPBC Act listed threatened fauna species

Threatened fauna species	Potential Impact
Birds	
Gang-gang Cockatoo	• Impacts were assessed against significant impact criteria[4] (SIC) guidelines • Removal of up to 5.52 ha of potential foraging habitat • Impacts minimised: – All large and scattered trees will be retained – Trenchless construction will be used to avoid high value woodland habitat – Largely limiting the works to within the existing maintained pipeline corridor and agricultural land – Revegetation of foraging habitat post construction • Small trees to be removed are unlikely to contain suitable hollows for the species. • Removal of potential habitat unlikely to have significant impact due to presence of extensive wooded habitat surrounding the Project area. • No significant impact to species.
Blue-winged Parrot	• Impacts were assessed against SIC guidelines • Removal of up to 5.52 ha of potential foraging habitat • Impacts minimised: – All large and scattered trees will be retained – Trenchless construction will be used to avoid high value woodland habitat – Largely limiting clearance works to within the existing maintained pipeline corridor and agricultural land – Revegetation of foraging habitat post construction • No significant impact to species.
Swift Parrot	• Impacts were assessed against SIC guidelines • Removal of up to 5.52 ha of potential foraging habitat within the secondary range of the species (i.e., no preferred foraging trees naturally occur within the Project area) • No loss of preferred foraging trees or priority habitat • Impacts minimised: – All large and scattered trees will be retained (therefore eucalypt canopy will be largely unaffected) – Project does not contain any breeding habitat or structures that could cause collision. – Trenchless construction will be used to avoid high value woodland habitat

[4] Defined by the *Matters of National Environmental Significance. Significant impact guidelines 1.1 Environment Protection and Biodiversity Conservation Act 1999*

	– Revegetation of foraging habitat post construction • No significant impact to species
White-threated Needletail	• Impacts were assessed against SIC guidelines • The White-throated Needletail is predominantly aerial and is highly unlikely to be impacted by the planned terrestrial works. The construction footprint supports no important population (as defined in the SIC guidelines) of the species, or habitat critical to the survival of the species. • No significant impact to species.
Pilotbird	• Impacts were assessed against SIC guidelines • Loss of potential habitat minimised by largely limiting the works to within the existing maintained pipeline corridor and agricultural land, which contains no suitable habitat for the species (i.e., low value to Pilotbird) • Nesting is unlikely to occur within habitat proposed for removal • The construction footprint supports no important population of the species, or habitat critical to the survival of the species. • No significant impact to species
Mammals	
Southern Brown Bandicoot	• Impacts were assessed against SIC guidelines and species-specific referral guidelines[5]. • Removal of up to 7.66 ha of potential habitat, of which 0.94 ha is intact vegetation. • Impacts largely limited to low quality foraging habitat • Proposed works are planned for summer months, outside of the species peak breeding season in spring. • Negligible impact to shelter or nesting habitat • Impacts to potential habitat will be temporary • No significant impact to species
New Holland Mouse	• Impacts were assessed against SIC guidelines • Removal of up to 7.66 ha of potential foraging or nesting habitat, of which 0.94 ha is intact vegetation • The broader construction period may partially overlap with the peak breeding season of the species (Aug-Jan). However, due to the progressive nature of pipeline construction, females that may temporarily have their breeding cycle disrupted are still likely to breed within the species breeding season as construction is unlikely to be at one location for a long time (i.e., unlikely to be at one location across the whole breeding season). • Impacts minimised: – Clearing works largely limited to within the existing maintained pipeline corridor and agricultural land – Trenchless construction will be used under areas of key habitat value and all areas of soil disturbance will be subject to revegetation – Impacts largely limited to foraging and dispersal habitat and minimal impacts to potential shelter or nesting habitat – Temporary disturbance with revegetation of habitat post construction (including restoration of soil profile to avoid modifications to potential nest burrow habitats) • Due to the species small home range (0.44 - 1.4 ha, (DEWHA, 2010), impacts are likely to be small scale and short term in nature, such that the Project is

[5] Draft Referral Guidelines for the endangered southern brown bandicoot (eastern) (Isoodon obesulus obesulus), (DSEWPaC, 2011)

	unlikely to lead to the long-term decrease in size of the population if recommended mitigation and management measures are employed. • No significant impact to species
Grey-headed Flying fox	• Impacts were assessed against SIC guidelines • Removal of up to 5.52 ha of potential habitat, of which 0.94 ha is intact vegetation. • Habitat within the disturbance footprint is largely seasonal foraging habitat for the permanent colonies located near Sale botanic gardens (approximately 15 kilometres northwest of Project area) and the Woodside camp (approximately 43 kilometres south of Project area). • Impacts minimised: – All large and scattered trees will be retained – Clearing works largely limited to within the existing maintained pipeline corridor and agricultural land. • Species is highly mobile and proposed habitat loss is unlikely to have a notable effect on species. • No important populations exist (Australian population functions as a single, highly mobile unit of ~700,000 individuals (Biosis, 2023). • No significant impacts to species.
Reptiles	
Swamp Skink	• Impacts were assessed against SIC guidelines • Not recorded during surveys - absence indicates disturbance footprint is unlikely to support a large viable population • Disturbance footprint contains minimal suitable habitat • Impacts to potential habitat will be temporary • No significant impact to species
Frogs	
Green and Golden Bell Frog	• Impacts were assessed against SIC guidelines and species-specific referral guidelines[6]. • Primary habitat for species (within the disturbance footprint) is the ROS – impacts avoided by trenchless construction. Trenchless construction will also avoid the vegetation fringing the waterway, maintaining habitat connectivity acting as a potential dispersal corridor • While short-term habitat disturbance and removal of terrestrial vegetation is planned within 200 metres of the ROS and wetland identified to support species, works will be completed when conditions are dry, so ephemeral wetlands are expected to be dry, and frogs are unlikely to be overwintering in vegetation fringing wetlands. • Staged trench backfilling to reinstate topsoil and revegetation of the disturbance footprint will promote quick recovery of potential habitat vegetation • Impacts to potential terrestrial hibernation habitat unlikely as vegetation clearing works will be conducted outside of the species hibernation period. • No significant impact to species
Growling Grass Frog	• Impacts were assessed against SIC guidelines and species-specific referral guidelines[7]. • Project area is unlikely to support an important population of the species, and the species was not recorded within or adjacent to the disturbance footprint during targeted surveys.

[6] Significant impact guidelines for the vulnerable green and golden bell frog (*Litoria aurea*) (DEWHA, 2009)
[7] Significant impact guidelines for the vulnerable growling grass frog (Litoria raniformis) (DEWHA, 2009)

	• Impacts to the ROS (primary habitat for species within the construction footprint) and species potential dispersal corridor will be avoided by trenchless construction. • Construction works scheduled when conditions are dry, so ephemeral wetlands are expected to be dry. The proposed works have no reasonable likelihood of altering wetland hydrology. • Impacts to potential terrestrial hibernation habitat unlikely as vegetation clearing works will be conducted outside of the species hibernation period and Project unlikely to lead to a long-term decrease in the size of an important population • Records indicate species is widely distributed throughout local area (north and south of existing maintained pipeline corridor) and fragmentation of an important population is unlikely. • Minimal habitat is present. No suitable breeding habitat and Project unlikely to disrupt the breeding cycle of an important population and unlikely to contain critical habitat for survival of the species. • No permanent physical barriers will be constructed between water bodies or wetlands. • No significant impact to species
Fish	
Dwarf Galaxias	• Impacts were assessed against SIC guidelines • No removal of species– impacts to be avoided by trenchless construction of the ROS • No significant impact to species

FFG Act listed fauna species

Eleven (11) animal species (in addition to those listed above) listed as threatened under the FFG Act were assessed as likely to inhabit the disturbance footprint. These species are:

- Masked Owl *Tyto novaehollandiae*
- Martin's Toadlet *Uperoleia martini*
- Lace Monitor *Varanus varius*
- Glossy Grass Skink *Pseudemoia rawlinsoni*
- Southern Toadlet *Pseudophryne semimarmorata*
- White-bellied Sea-Eagle *Haliaeetus leucogaster*
- Eastern Great Egret *Ardea alba modesta*
- Flinders Pygmy Perch *Nannoperca sp. 1*
- Little Eagle *Hieraaetus morphnoides*
- Powerful Owl *Ninox strenua*
- Yellow-bellied Sheathtail Bat *Saccolaimus flaviventris*

The proposed works will result in the temporary disturbance of vegetation within the existing maintained pipeline corridor, and clearing of small patches of woodland, forest, swamp scrub and heathland, which provide habitat for these species.

Potential impacts to these species and their habitats have been minimised through mitigation measures informed by the targeted surveys and constraints mapping process. Impacts to habitat have been minimised largely through limiting the disturbance footprint to the existing maintained pipeline corridor or using trenchless construction under areas of high habitat value, and staged rehabilitation and revegetation of the disturbance footprint. During construction, habitats will be walked through to 'flush' any animals from the vicinity into nearby habitat outside of the impact area prior to land clearing.

It is unlikely that the proposed works will have a significant long-term impact on any habitat for FFG Act listed species, or direct impact to a significant proportion of individual animals within any potential local populations.

Migratory species

While the proposed works may result in clearing of suitable habitat for migratory species (i.e., small patches of woodland, forest, swamp scrub and heathland) impacts are likely to be minor and temporary and are not expected to substantially modify, destroy or isolate an area of important habitat for any migratory species. The disturbance area is unlikely to support an ecologically significant proportion of any population of migratory species:

- White-throated Needletail, Fork-tailed Swift are almost exclusively aerial species. Individuals may fly over or occasionally roost within the study area, however potential impacts are restricted to minor loss of potential roosting habitat and are unlikely to substantially modify any area of important habitat.
- Black-faced Monarch are associated typically with rainforest ecosystems, occasionally occurring in coastal scrub dominated by Coast Banksia. Impacts to banksia-dominated Heathy Woodland are minimal, with the majority of vegetation loss limited to the existing maintained pipeline corridor.
- Rufous Fantail and Satin Flycatcher may occasionally forage or nest within forest and woodland vegetation within the disturbance footprint. Modification to potential habitat for these species is relatively minor, as most impacts have been limited to the existing maintained pipeline corridor.
- Latham's Snipe and Glossy Ibis are typically associated with permanent and ephemeral wetlands and waterbodies. The study area supports minimal suitable foraging habitat for these species, as the majority of DEECA mapped wetlands were not observed to hold water throughout the site investigation and targeted surveys (October 2022 – February 2023), despite the higher than average rainfall for the period. Additionally, one (of the two) permanent mapped wetlands are proposed to be entirely avoided through trenchless construction and the other permanent mapped wetland is largely avoided through trenchless construction and reducing the width of the disturbance footprint.

While some areas of potential foraging, roosting or nesting habitat will be temporarily impacted by the proposed project, it is unlikely to seriously disrupt the lifecycle of a significant proportion of a population of any migratory species.

No significant impacts to migratory species are expected.

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

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

Potential direct and indirect impacts to threatened flora and fauna will be managed through the implementation of a number of avoid, mitigate and offset measures which are outlined below.

<u>Avoid</u>

- Locating the new CO_2 facility within Esso's existing Longford plant site on existing industrial land to avoid impacts to flora and fauna habitat.
- Using trenchless construction at selected locations to avoid impacts on environmental sensitivities during construction of the new CO_2 onshore pipeline (i.e., conservation land between KP7 and KP9 and under the ROS).
- Utilising the existing Bream pipeline to transport CO_2 from VS3 to the Bream A platform (approximately 6 km onshore and approximately 6 km within State waters) to avoid impacts associated with construction of a new pipeline.
- Completion of an arborist assessment and implementation of proposed controls to ensure loss of large trees is avoided.
    - TPZ will utilise ground protection techniques, such as steel plates, HDPE matting or rumble board when necessary to protect trees.
    - Trenchless construction will occur at depths >1000 mm to protect root zones.

<u>Mitigate</u>

- Designing the new CO_2 facility to integrate with GCP to minimise disturbance footprint and reduce impacts on amenity.

- Locating the new CO_2 onshore pipeline within the GBJV participants' existing maintained pipeline corridor minimise clearing of undisturbed areas.
- Reducing the width of the disturbance footprint to minimise impacts on environmental sensitivities during construction of the new CO_2 onshore pipeline.
- Undertaking construction of new CO_2 onshore pipeline during the summer months to reduce impacts to habitats of potential aquatic species.
- Staged vegetation removal is proposed where Glossy Grass Skink habitat cannot be avoided to passively relocate any skinks into adjacent habitat outside the disturbance footprint.
- Immediately prior to clearing works, the area will be walked through to 'flush' any animals from the vicinity into nearby habitat outside of the impacted area.
- Disturbance footprint will be rehabilitated in accordance with the EMP (which will be approved by the Minister for Energy and Resources prior to construction), taking into account any landowner or occupier requirements, and involves re-contouring and re-spreading the stockpiled topsoil over the disturbed area.
- Engagement and input from DEECA to inform suitable identification of potential impacts for assessment and refine disturbance footprint and ensure mitigations proposed are appropriate.
- Flora and fauna management measures will be included in the EMP, which will be approved by the Minister for Energy and Resources before construction commences.
- Adherence to standard construction measures including hygiene, erosion and sediment control and weed control.

Offset

- Offsets will be sought in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017).
-

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

Esso has constructed and operated infrastructure within the Project area for more than 50 years and has a firm understanding of sensitivities and potential impacts associated with construction and operation in the area. This experience combined with the recent field surveys leads to a robust dataset for understanding potential environmental impacts. Conclusions on the potential for significant effects to flora and fauna made above therefore carry a high degree of certainty.

13. WATER ENVIRONMENTS

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

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

New CO_2 facilities for compression and dehydration

Minimal volumes of water will be required for standard construction activities such as concrete batching and curing, dust suppressions and washdown facilities.

During operation, the Project will operate with a net reduction in water usage due to the dehydration phase which will remove water from the CO_2 stream and integrate the recycled water back to the existing GCP facility for use. The returned water will result in a reduction of make-up water in GCP of up to 1,282 kg/h.

New CO_2 onshore pipeline

During construction, water will be required for trenchless construction, dust suppression and hydrotesting activities. The estimated volume of water required for the Project is estimated to be approximately 8 ML and the total volume is anticipated to be less than 1 GL.

Operation of the new CO_2 pipeline will not require any freshwater.

Will the project discharge wastewater or runoff to water environments?

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

New CO_2 facilities for compression and dehydration

There will be no discharge of wastewater or run-off to water environments at the new CO_2 facilities. All wastewater generated from the dehydration units within the new CO_2 facilities will be recycled back into the GCP facilities through an integrated system that will manage water as per current EPA licencing conditions.

During construction and operation, any stormwater within the new CO_2 facilities will be directed towards the existing stormwater drain system at GCP.

New CO_2 onshore pipeline

During construction, water run-off from the construction ROW will be managed in accordance with EPA Publication 275: Construction techniques for sediment pollution control. Groundwater that may be encountered in the trench will be discharged to land using industry standard erosion and sediment control measures.

Water management measures, including water run-off and disposal of trench water and hydrotest water will be addressed in the EMP, which will be approved by the Minister for Energy and Resources before construction commences. It should be noted that Esso has an existing trade waste agreement (TWA) in place with Gippsland Water which allows for the discharge of wastewater as per the *Water Industry Act 1994*. The TWA provides for the discharge of wastewater to Gippsland Water's system in accordance with acceptable criteria. Any hydrotest water that does not meet Gippsland Water's acceptable criteria will be transported to a licenced treatment facility.

There will be no wastewater or run-off to water environments associated with the operation of the new CO_2 pipeline.

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

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

No estuaries will be affected by the Project.

Waterways and Wetlands

New CO_2 facilities for compression and dehydration

No waterbodies will be intersected or affected during the construction or operation of the new CO_2 facilities.

New CO_2 onshore pipeline

A desktop assessment of government hydrology datasets shows the Project area intersects 21 mapped watercourses, categorised as channel drains (7 of which do not intersect the new CO_2 onshore pipeline) and 7 mapped wetlands (2 classified as permanent open freshwater and 5 classified as freshwater marshes (4 deep and 1 shallow)) (see **Figure 11**). All intersected watercourses and wetlands are located on Gippsland Water managed land. One of the 21 mapped watercourses includes Gippsland Water's man-made ROS. All other watercourses are considered ephemeral and dry throughout most of the year based on soil conditions, engagement with West Gippsland CMA and Esso's regular inspections of the existing maintained pipeline corridor. No rivers or permanent natural watercourses will be intersected by the new CO_2 pipeline.

The seven (7) wetlands intersected by the Project area are not part of the nearby Gippsland Lakes system, a Ramsar-listed wetland and instead reflect low land depressions that may hold water during wet periods.

Of the 2 wetlands classified as permanent open freshwater one will be avoided by trenchless construction. The other will be largely avoided through trenchless construction and reducing the

width of the disturbance footprint with 0.03 hectares of the total 13.86 hectares of this mapped permanent wetland (0.2%) impacted by the Project temporarily. The ROS will also be avoided through trenchless construction.

Construction is planned when conditions are dry, to ensure there is minimal impact to watercourses and wetlands.

No impacts are anticipated to water environments during operation.

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

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

New CO_2 onshore pipeline

As detailed in **Attachment 02,** the flora and fauna assessment identified suitable habitat for the following aquatic fauna species:

- Dwarf Galaxias - vulnerable under EPBC Act and endangered under FFG Act
- Flinders Pygmy Perch - vulnerable under the FFG Act
- Green and Golden Bell Frog - vulnerable under EPBC Act
- Growling Grass Frog – vulnerable under EPBC Act and FFG Act
- Southern Toadlet – endangered under FFG Act
- Martin's Toadlet – critically endangered under FFG Act

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

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

New CO_2 facilities for compression and dehydration and new CO_2 onshore pipeline

No wetlands listed under the Ramsar Convention or in 'A Directory of Important Wetlands in Australia' will be intersected or affected during the construction or operations of the new CO_2 facilities or new CO_2 pipeline.

Could the project affect streamflows?

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

New CO_2 facilities for compression and dehydration

The new CO_2 facilities will not intersect or affect streamflows during construction or operation.

New CO_2 onshore pipeline

Trenched construction of waterways for the new CO_2 pipeline has the potential to affect streamflows. However, construction and rehabilitation of the construction ROW is planned during the driest period of the year when there is the lowest likelihood of flowing water. Impacts to the ROS will be avoided through trenchless construction.

There will be no impacts to streamflows during operation of the new CO_2 pipeline.

Could regional groundwater resources be affected by the project?

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

Impacts to regional groundwater are not anticipated as a result of the Project.

New CO_2 facilities for compression and dehydration

Groundwater levels were obtained from government datasets (see **Figure 15**). While groundwater at the new CO_2 facility indicates groundwater of <5 mbgl, groundwater monitoring by Esso at the

Longford plant site, as per their EPA licence, indicates field verified groundwater to be >20 m[8]. The new CO_2 facilities will consist of shallow earthworks that are above the groundwater table and are unlikely to impact regional groundwater resources.

New CO_2 onshore pipeline

Construction of the new CO_2 pipeline may affect local groundwater levels (if encountered) during trenched and trenchless construction. However, given the shallow trench and borehole depth, regional impacts to groundwater are not anticipated.

Government datasets of groundwater levels across the new CO_2 pipeline (see **Figure 15**) indicates groundwater levels >5 mbgl for most of the route, with the exception of the start and end of the pipeline route where groundwater levels of <5 mbgl may be encountered. However, as indicated above, groundwater monitoring at the start of the pipeline route at the Longford plant site indicates field verified groundwater to be >20 m[9].

At the eastern end of the new CO_2 pipeline, the depth to groundwater was confirmed at 0.375 mbgl following the field assessment (see groundwater results in **Attachment 03**). Construction activities are unlikely to affect regional groundwater due to the shallow nature of the excavation and the short timeframe to be impacted. Any localised impacts will be temporary and groundwater flows are expected to return to pre-construction levels as soon as the trench is backfilled.

All water removed from trenches will be managed in accordance with an approved EMP.

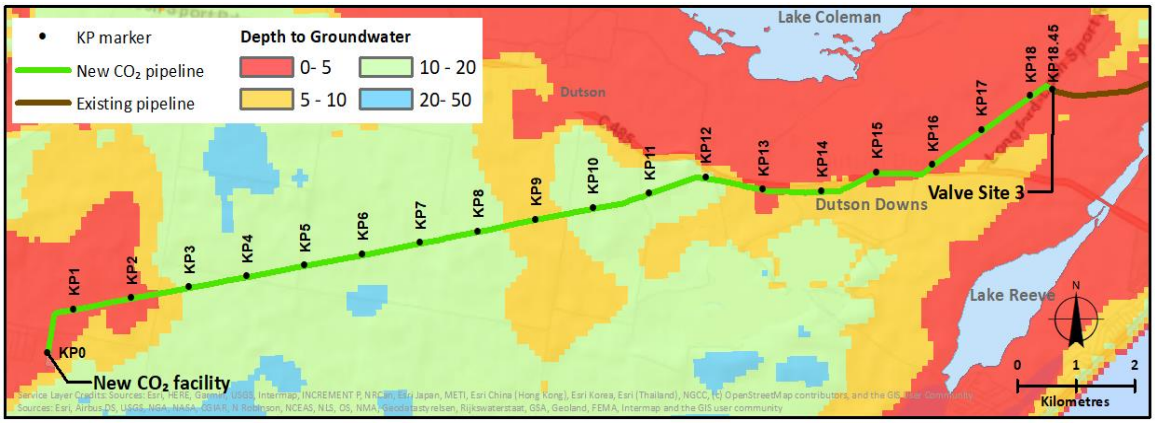


Figure 15: Indicative depth to groundwater across the Project

Impacts to regional groundwater are not anticipated during operation of the new CO_2 pipeline.

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

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

Onshore

New CO_2 facilities for compression and dehydration and new CO_2 onshore pipeline

According to the EPA Victoria's Environment Reference Standard (ERS) the following environmental values relevant to the Project include:

Groundwater - based on groundwater salinity (total dissolved solids) which are classified as Segment E:

- Water dependent ecosystems and species
- Agriculture and irrigation (stock watering)
- Water-based recreation (primary contact recreation)
- Traditional Owner cultural values

[8] Esso Longford Gas Plants '53V Environmental Audit Report', December 2020 (CARMS No. 75325-1)

[9] Esso Longford Gas Plants '53V Environmental Audit Report', December 2020 (CARMS No. 75325-1)

- Buildings and structures
- Geothermal properties

Surface Water – based upon Rivers and Streams, subsection Central Foothills and Coastal Plains:

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

Impacts to these environmental values resulting from the Project are not anticipated due to the following:

- No rivers or permanent natural watercourses will be intersected
- Construction activities will occur when conditions are dry, when most water features are dry
- Construction will be temporary and short term in nature, with any impacts highly localised
- All trenched watercourses will be reinstated in accordance with the EMP and works on waterways permit.

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

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

No estuaries will be affected by the Project.

New CO_2 facilities for compression and dehydration

The new CO_2 facilities do not intersect aquatic or marine ecosystems.

New CO_2 onshore pipeline

During construction, the Project may have some minor impacts on water quality, aquatic species and habitats on 21 watercourses and 7 wetlands. However, impacts are expected to be temporary and short-term in nature due to the following reasons:

- Four (4) of the seven (7) wetlands will be avoided by trenchless construction or by reducing the width of the disturbance footprint
- Construction activities will occur when conditions are dry, so ephemeral wetlands are expected to be dry and aquatic species have relocated to permanent water features located outside the Project area
- Impacts to the ROS will be avoided through trenchless construction methods
- All trenched watercourses will be reinstated in accordance with the EMP and works on waterways permit.

Impacts to aquatic ecosystems are not anticipated during operation of the new CO_2 pipeline.

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

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

The Project will have no impact on estuarine ecosystems.

New CO_2 facilities for compression and dehydration

The new CO_2 facilities do not intersect aquatic or marine ecosystems.

New CO_2 onshore pipeline

Although the Project may have some minor impacts to water quality, aquatic species and habitats, any impacts are not anticipated to be extensive or major. Impacts are expected to be temporary, short term and highly localised. Extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems are not anticipated.

Is mitigation of potential effects on water environments proposed?
☒ NYD ☒ No ☒ Yes If yes, please briefly describe.

The Project risks to the water environment are considered low and the following mitigation is proposed:

Measures to avoid impacts to water environments from the Project include:

- Impacts to the ROS will be avoided through trenchless construction methods
- An existing pipeline will be used that traverses a Ramsar wetland to avoid construction activities within a sensitive area

Measures to minimise impacts to water environments from the Project include:

- Construction activities will occur when conditions are dry, so ephemeral wetlands/ water bodies are expected to be dry
- All trenched watercourses will be reinstated in accordance with the EMP and works on waterways permit
- Water will be managed using standard construction measures and management processes (i.e., Sediment and erosion control measures)

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

Esso has constructed and operated infrastructure within the Project area for more than 50 years and has a firm understanding of water environments and potential impacts associated with construction and operation in the area. This experience combined with the recent field surveys leads to a robust dataset for understanding potential environmental impacts. Conclusions on the potential for effects to water environments made above therefore carry a high degree of certainty.

14. LANDSCAPE AND SOILS

LANDSCAPE

Has a preliminary landscape assessment been prepared?
☒ No ☒ Yes If yes, please attach.

A preliminary landscape assessment is not considered necessary for the Project because:

- The new CO_2 facilities will be located within the existing Longford plant site (vertically and spatially), are consistent with the existing infrastructure onsite and will account for <5% of the Longford plant site
- The new CO_2 pipeline will be buried within an existing maintained pipeline corridor
- The visual impact of construction will be temporary, and no permanent material visual changes will occur at the Longford plant site or along the existing maintained pipeline corridor.

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

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

The Project does not intersect a Landscape Significance Overlay.

New CO_2 facilities for compression and dehydration

The new CO_2 facility does not intersect with an Environmental Significance Overlay.

New CO_2 onshore pipeline

The Project area intersects two Environmental Significance Overlay (ESO2) polygons (see Figure 14). The purpose of ESO2 (Wetlands) is listed as:

- To protect and enhance the ecological, habitat, aesthetic, scientific, floristic, faunal, cultural, educational, and recreation values of wetlands through the control of development.
- To implement obligations under international, national, State, or other agreements to protect and enhance plant and animal species and habitats.

These two ESO2 polygons are small in size and are associated with depressions that may hold water during wet periods. Construction is planned when conditions are dry, to ensure there is minimal impact to ephemeral water features. Any impacts will be temporary and residual impacts are not anticipated following rehabilitation.

- **Identified as of regional or State significance in a reputable study of landscape values?**

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

New CO_2 facilities for compression and dehydration and new CO_2 onshore pipeline

The Project area associated with the new CO_2 facilities and new CO_2 pipeline are not located in or near areas of State significance.

- **Within or adjoining land reserved under the *National Parks Act 1975*?**

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

New CO_2 facilities for compression and dehydration and new CO_2 onshore pipeline

Project activities associated with the new CO_2 facilities and new CO_2 pipeline are not located in areas reserved under the *National Parks Act 1975*.

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

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

New CO_2 facilities for compression and dehydration

There is no public land used for conservation or recreational purposes within or adjoining the new CO_2 facility.

New CO_2 onshore pipeline

There is a small portion of public land used for conservation purposes within the Project area for the new CO_2 pipeline. These public parcels are zoned as Public Use – Service and Utility and the new CO_2 pipeline will be located within existing maintained pipeline corridor.

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

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

New CO_2 facilities for compression and dehydration

No clearing of vegetation will be required for the new CO_2 facility.

New CO_2 onshore pipeline

Whilst there will be clearing of vegetation during construction, impacts on landscape values will be temporary and the construction ROW will be rehabilitated following completion of construction.

The new CO_2 pipeline will be located within existing maintained pipeline corridor which will continue to be maintained in accordance with an EMP and SMP.

Is there a potential for effects on landscape values of regional or State importance? ☐ NYD ☒ No ☐ Yes Please briefly explain response.
Impacts on landscape values of regional or State importance are not anticipated as a result of the Project.
Is mitigation of potential landscape effects proposed? ☐ NYD ☒ No ☐ Yes If yes, please briefly describe.
New CO_2 facilities for compression and dehydration Project impacts on landscape are not anticipated for the new CO_2 facilities for compression and dehydration, consequently, no mitigation measures are proposed. *New CO_2 onshore pipeline* Due to the nature of pipeline construction, impacts to landform and landscape values will be temporary and residual impact are not anticipated following rehabilitation. The construction ROW will be rehabilitated in accordance with the EMP, which will be prepared and submitted to the Minister for Energy and Resources for regulatory approval before construction commences.
Other information/comments? (eg. accuracy of information)
Esso has constructed and operated infrastructure within the Project area for more than 50 years and has a firm understanding of the existing landscape and potential impacts associated with construction and operation in the area. Conclusions on the potential for effects to landscape made above therefore carry a high degree of certainty.

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

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

SOILS

Is there a potential for effects on land stability, acid sulphate soils or highly erodible soils? ☐ NYD ☐ No ☒ Yes If yes, please briefly describe.
The Project area is not located within an Erosion Management Overlay or Salinity Management Overlay under the Wellington Planning Scheme. *New CO_2 facilities for compression and dehydration* Impacts on land stability, ASS and highly erodible soils are not anticipated because the new CO_2 facilities will be located on an area that has been previously cleared, graded and finished with crushed rock. *New CO_2 onshore pipeline* There is potential for effects on land stability and erosion, however, potential extensive or major effects are not anticipated because the new CO_2 pipeline will be located within the existing maintained pipeline corridor on previously disturbed land and the construction ROW will be rehabilitated following construction, in accordance with the approved EMP.

A soil assessment has been completed (see **Attachment 03**) within the Project area, which indicated ASS at five locations. Four out of the five locations are located in the eastern portion of the new CO_2 onshore pipeline (between KP15-KP18). Three out of the four locations confirmed ASS at surface (0.1 mbgl) and not at depth; and the last of the four locations confirmed potential ASS at depth only (4.1 mbgl). The last of the five locations was identified near KP7 and identified ASS at surface (0.1 mbgl).

Soil material will be managed using standard construction measures and management processes. Whilst construction activities have potential to disturb ASS, the following mitigation measures are proposed, as a minimum, to ensure impacts to the surrounding environment are effectively managed during construction of the Project:

- Management of ASS will be included in the EMP, which will be approved by the Minister for Energy and Resources before construction commences.
- ASS will be managed in accordance with:
    a. Industrial Waste Management Policy (Waste Acid Sulfate Soils) 1999, Publication S125
    b. EPA Victoria Publication 655.1: Acid Sulfate Soil and Rock
    c. Victorian Best Practice Guidelines for Assessing and Managing Coastal Acid Sulfate Soils (CASS BPMG, 2010)
- Train relevant field personnel on the requirements of the ASS management.
- Minimise duration of stockpiling and exposure to air of ASS.
- Capture and manage run-off that has potential to be impacted by ASS.

There are five existing pipelines which have been constructed immediately adjacent to the proposed new pipeline location, and extensive soil related impacts have not occurred. Given this, and considering the mitigations proposed it is unlikely the Project will cause potentially extensive or major effects on land stability, acid sulphate soils or highly erodible soils over the short or long term.

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

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

A review of Geosciences Australia data indicated there had been no earthquakes over magnitude 5 within 10 km of the Project area over the past 10 years. Low level earthquake activity is noted in the Gippsland region, with the Rosedale Fault System the nearest fault line located north of Lake Coleman and positioned approximately 2.5 km north of KP18.

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

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

Esso has constructed and operated infrastructure within the Project area for more than 50 years and has a firm understanding of soils and potential impacts associated with construction and operation in the area. This experience combined with the recent field surveys leads to a robust dataset for understanding potential environmental impacts. Conclusions on the potential for effects to soils made above therefore carry a high degree of certainty.

15. SOCIAL ENVIRONMENTS

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

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

The Project will generate traffic during construction of the new CO_2 facilities at Longford and the new CO_2 onshore pipeline, however, the impact will be temporary.

New CO_2 facilities for compression and dehydration

The construction impact on road use for the new CO_2 facilities will consist of:

- Movement of construction equipment (e.g., cranes, excavators)
- Movement of new facilities to be installed
- Movement of construction personnel, travelling to and from the Longford plant site at the start and end of each day.

Two primary transport routes are available to the Longford plant site depending on the fabrication location of the new facilities:

- Transport from the Port of Melbourne, following designated VicRoads over-dimension routes and limits
- Transport from Latrobe Valley fabrication shops, similar to other retrofit projects executed by Esso.

The Longford plant site is located on Garretts Road which can be accessed via Seaspray Road, an arterial road. Current traffic users of Garretts Road are predominantly those accessing the industrial area of Esso's Longford plants as well as Jemena's compression station.

At this stage, the traffic volumes during the construction phase (approximately 7 months) have not been determined, although they are likely to be similar to traffic volumes experienced during previous periods of construction at the Longford plant site. The Longford plant site is located in a rural setting and traffic impacts to major highways from pipe trucks and other project related traffic movement are expected to be negligible in comparison to existing traffic volumes on these roads. Esso has constructed and operated infrastructure within the Project area for over 50 years. Given the small footprint of the new Project infrastructure and that any impacts will be temporary, significant impacts to road traffic are not expected.

During operations, traffic is expected to be similar to current traffic levels.

New CO_2 onshore pipeline

The construction impact on road use for the new CO_2 pipeline will consist of:

- Mobilisation and demobilisation of construction ROW equipment at the start and end of construction
- Movement of other machinery and deliveries at selected locations along the construction ROW during construction (e.g., trenchless machinery)
- Pipe delivery along the construction ROW during construction
- Movement of construction personnel along the construction ROW at the start and end of each day

Construction of the new CO_2 pipeline will generate increased traffic, however, given the progressive nature of pipeline construction, the impacts will be short-term in nature and unlikely to be confined at one location for long periods during the approximately 5 month construction period. Esso has constructed and operated infrastructure within the Project area for over 50 years. Given that the new pipeline is only 19 km in length and any impacts will be temporary, significant impacts to road traffic are not expected.

During operations, traffic is expected to be similar to current traffic levels.

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

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

New CO_2 facilities for compression and dehydration and new CO_2 onshore pipeline

There are no residential buildings located within a 1 km radius of the new CO_2 facilities. The closest residential dwelling is approximately 1.9 km southeast of the new facilities (Wood, 2023). Jemena's compression station, an industrial building, is approximately 2.8 km northwest of the new facilities.

There are 18 buildings within 1 km of the new CO_2 onshore pipeline (8 associated with Gippsland Water managed land).

Given the distance to residences and the nature of proposed project activities, significant effects on the amenity of residents are not anticipated. This is described further below for the construction and operational phases of the project.

Construction

Temporary impacts are anticipated to the amenity of residents from air quality, visual amenity, noise and traffic during construction. Given that these impacts will be temporary and no greater than previous construction activities, significant impacts to air quality, visual amenity, noise or traffic are not expected. No impacts are anticipated from odours.

Air Quality

Construction activities have the potential to impact on the localised air quality. Sources of air emissions during construction include:

- Emissions generated from use of machinery, equipment and vehicles
- Dust generated from disturbed and exposed areas and soil stockpiles.

Impacts from these air emissions to the amenity of residents are considered typical of any construction project and will be managed through the implementation of industry standards and good practice mitigation measures, including:

- EPA Publication 1834.1: Civil construction, building and demolition guide (EPA, 2023)
- Australian Pipelines and Gas Association Code of Environmental Practice – Onshore Pipelines (APGA 2022)
- Approved EMP
- Dust suppression measures.

The surrounding land is sparsely populated, and construction activities will be short-term. Esso has constructed and operated infrastructure within the Project area for over 50 years. Consequently, significant effects to the amenity of residents from air emissions during construction are not anticipated.

Visual amenity

During construction of the new CO_2 facilities, there will be minimal visual changes to the landscape given that these activities will occur within an industrial plant site on an existing hardstand area in which Esso has constructed and operated infrastructure for over 50 years.

Construction of the new CO_2 onshore pipeline will result in temporary visual changes to the landscape from temporary storage facilities, parking of equipment and machinery, vegetation removal and soil stockpiles along the construction ROW. Any visual impacts to residents will be short in duration due to the progressive nature of pipeline construction. All equipment will be removed, and all disturbed land will be rehabilitated upon completion of pipeline construction. As a result, significant impacts to visual amenity as a result of construction of the Project are not expected.

Noise

Construction activities will generate noise, creating the potential to cause “nuisance impact” to nearby residents. Major noise sources include:

- Movement and use of machinery, equipment and vehicles including reversing beepers
- Use of pumps and generators
- Hydrotesting.

Impacts from noise during construction are considered temporary and short-term in nature. Implementation of industry standards will be used to manage noise, including:

- EPA Publication 1411: Noise from Industry in Regional Victoria (EPA, 2011)
- AS2436: Guide to noise and vibration control on construction, demolition and maintenance sites
- AS1055-2018 Acoustics – Description and measurement of environmental noise
- Best practice stakeholder engagement

Given the distance from residences, the long history of construction and industrial operations in the area and the proposed controls, significant noise impacts as a result of construction of the Project are not expected.

Traffic

Temporary local road disruptions and closures to facilitate traffic movements to the Project area may be required during construction. However, significant effects on the amenity of residents are not anticipated, as industry good practice traffic management strategies and standards will be implemented, including:

- Road permits
- Approved Traffic Management Plan
- Best practice stakeholder engagement.

Given the long history of construction and industrial operations in the area and the proposed controls, significant impacts to traffic conditions as a result of construction of the Project are not expected.

Operations

Air Quality

Operation of the new CO_2 facilities will result in a significant reduction in the amount of CO_2 that is currently vented to atmosphere at the GCP. See Section 16 for further details on greenhouse gas emissions.

There will be no ongoing emissions of dust or odours from the new CO_2 onshore pipeline during operations.

Visual amenity

There will be no significant effects on visual amenity from the new project components during operations. The new CO_2 facilities will be consistent (vertically and spatially) with the existing infrastructure within the Longford plant site and the new CO_2 onshore pipeline will be buried below ground in an existing maintained pipeline corridor.

Noise

Operational noise from the new CO_2 facilities will be the primary long-term noise generated from the Project. A noise risk assessment was completed which determined that predicted operational noise at the closest noise sensitive areas were significantly below night-time noise limits, measured ambient noise levels and applicable noise limits. See **Attachment 05** for details of the noise impact assessment. No significant noise impacts are anticipated however further noise assessments will be undertaken as detailed design progresses to ensure designs comply with the Noise Protocol.

No noise will be generated from the new CO_2 onshore pipeline once operational.

Traffic

There will be no ongoing disruptions to road users during operations. During operations, traffic will be similar to current traffic volumes and conditions.

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

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

New CO_2 facilities for compression and dehydration

The potential air, water and noise emissions anticipated during construction will be typical of a construction project and are unlikely to expose the community to health or safety hazards. During operations, there will be a net benefit to the community resulting from reduced air emissions and reduced water usage from the broader Longford plant site.

The new CO_2 facilities for compression and dehydration will be integrated with GCP which is an existing licensed Major Hazard Facility and an EPA licensed facility. The use, storage and management of chemical hazards will be consistent with current licensing requirements.

Potential effects and risks to community safety from traffic and transport movements for the construction of the new CO_2 facilities will be managed through relevant road permits, an approved Traffic Management Plan and good practice stakeholder engagement.

New CO_2 onshore pipeline

Design, construction and operation of the new CO_2 onshore pipeline will be undertaken in accordance with the relevant Australian Standards. Whilst there may be air, water and noise emissions during construction, it is unlikely the new CO_2 pipeline will expose the community to health or safety hazards.

Chemicals required for the new CO_2 pipeline will not be present in quantities to cause any significant impacts to human health. Chemicals will be stored, handled and disposed of in accordance with the Safety Data Sheets and will avoid exposure to the health and safety of the community and the environment.

Potential effects and risks to community safety from traffic and transport movements for the construction of the new CO_2 pipeline will be similar to the construction of the new CO_2 facilities and will be managed through relevant road permits, an approved Traffic Management Plan and good practice stakeholder engagement.

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

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

New CO_2 facilities for compression and dehydration

The new CO_2 facilities for compression and dehydration will be constructed and operated within an existing industrial zone and on Esso owned land.

New CO_2 onshore pipeline

The new CO_2 onshore pipeline will be constructed within the GBJV participants' existing maintained pipeline corridor which traverses predominantly agricultural areas with sparsely located dwellings. There will be no displacement of residences or severance of residential access to community resources as a result of the Project.

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

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

New CO_2 facilities for compression and dehydration

The new CO_2 facilities for compression and dehydration will be located within Esso's Longford plant boundary and will not displace any non-residential land use activities during construction or operations.

New CO_2 onshore pipeline

Non-residential land use activities will be temporarily impacted by construction of the new CO_2 onshore pipeline. These impacts will be short in duration and rehabilitation of the construction ROW will ensure that land use activities (predominantly agriculture) can resume upon completion of construction. The new CO_2 onshore pipeline will be buried within the GBJV participants' existing maintained pipeline corridor, which enables non-residential land use activities to occur during operation.

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

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

New CO_2 facilities for compression and dehydration

The new CO_2 facilities for compression and dehydration will be located within Esso's Longford plant boundary and will not disrupt non-residential land use activities during construction or operations

New CO_2 onshore pipeline

Construction of the new CO_2 onshore pipeline will disrupt non-residential land use activities; however, disruption will be temporary and permanent effects on local residences/communities, social groups or industries are not anticipated. Consultation with affected stakeholders has commenced and will continue to occur in accordance with the approved PCP and will ensure construction will be considerate of non-residential land use activities.

Is mitigation of potential social effects proposed?

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

The new CO_2 facilities for compression and dehydration and the new onshore CO_2 pipeline have been designed to avoid social impacts through:

- Locating the new CO_2 facility within Esso's existing Longford plant site on existing industrial land to avoid amenity impacts in non-industrial areas.
- Location of the new CO_2 pipeline within an existing maintain pipeline corridor to avoid impacts to new landholders.
- Using trenchless construction to avoid impacts to existing arterial roads.

The following mitigation measures are proposed to ensure that impact to social effects is minimised during the construction and operation of the Project:

- Compliance with all relevant approval requirements and industry standards to ensure protection of the public, construction and operational personnel, and the environment
- Engagement with directly affected stakeholders to ensure minimisation of impact on their land and activities
- Community engagement to ensure that nearby residents, businesses and social groups are informed of the Project's progress and that feedback received is considered during planning, construction and operation.

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

The Project will provide employment for personnel with construction expertise as well as provide an opportunity to those with relevant existing skills to transfer into a developing new CCS industry within regional Gippsland.

CULTURAL HERITAGE

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

☐ No If no, list any organisations that it is proposed to consult.

☒ Yes If yes, list the organisations so far consulted.

Gunaikurnai Land & Waters Aboriginal Corporation (GLaWAC) is the Registered Aboriginal Party (RAP) for Aboriginal cultural heritage assessment in accordance the AH Act. As a result of long term operations in Gippsland, Esso has an existing relationship with GLaWAC and regularly provides opportunities for engagement and feedback. Esso has commenced project specific engagement with GLaWAC.

A Notice of Intent to prepare a CHMP has been submitted to all relevant stakeholders, including GLaWAC, First People – State Relations, Wellington Shire Council and relevant landowners and occupiers.

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

New CO_2 facilities for compression and dehydration

Even though the new CO_2 facilities will be located within an existing industrial facility which has been previously cleared, graded and finished with crushed rock, the CHMP will consider the broader Project area at this location.

New CO_2 onshore pipeline

An Aboriginal cultural heritage assessment has been completed (**Attachment 04**) within the activity area of the new CO_2 onshore pipeline. The scope of assessment involved:

- Desktop review of land use history and ethnohistory
- Search of relevant databases and resources including the Victorian Aboriginal Heritage Register (VAHR)
- Review of previous archaeological investigations within and outside the activity area
- Use of predictive model to assess likely presence of Aboriginal cultural heritage
- Archaeological survey (standard assessment) involving a detailed pedestrian survey of the activity area with two GLaWAC representatives.

The desktop assessment did not identify any previously recorded Aboriginal places within the activity area. The results of the desktop assessment indicated that Aboriginal cultural heritage may be present within the activity area due to the presence of sandy rises and dune landforms.

The archaeological field survey did not identify any Aboriginal places; however, several areas of Aboriginal archaeological sensitivity were identified that correlated with the sandy rises and dunes identified in the desktop assessment. The assessment concluded that it is considered likely that Aboriginal cultural heritage may be present within the Project area. No mature trees of sufficient age to be culturally scarred are present and no rock shelters, caves or cave entrances are present within the activity area.

The Aboriginal cultural heritage assessment does not constitute a CHMP as defined in Section 46 of the AH Act. A CHMP is currently being prepared and will include results of a desktop, standard and complex assessment.

Is any Aboriginal cultural heritage known from the project area?

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

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

New CO_2 facilities for compression and dehydration and new CO_2 onshore pipeline

A search of the Victorian Aboriginal Heritage Register (VAHR) identified no Aboriginal places present within the Project area.

As stated above an Aboriginal cultural heritage assessment has been undertaken which included a review of past archaeological investigations (within and outside the Project area) and undertook further field surveys. No Aboriginal places were identified during the standard assessment; however, several areas of Aboriginal archaeological sensitivity were identified and have been described below. A CHMP is currently being prepared.

Due to the size of the Project area surveys were broken down into four (4) survey areas.

Survey Area 1 - portion of the Project area stretching from the existing Longford Gas Plant south of Garretts Road to Sandy Camp Road.

No Aboriginal places were identified within Survey Area 1 however several areas of Aboriginal archaeological sensitivity were identified associated with grassy rises.

Survey Area 2 - portion of the Project area stretching from Sandy Camp Road to Signboard Lane.

No Aboriginal places were identified within Survey Area 2 however several areas of Aboriginal archaeological sensitivity were identified associated with grassy rises.

Survey Area 3 - portion of the Project area stretching from Signboard Lane to Longford-Loch Sport Road

No Aboriginal places were identified within Survey Area 3 however several areas of Aboriginal archaeological sensitivity were identified associated with grassy rises

Survey Area 4 - portion of the Project area stretching from to Longford-Loch Sport Road to Valve Site 3.

No Aboriginal places and no areas of Aboriginal archaeological sensitivity were identified within Survey Area 4.

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

☒ NYD ☒ No ☒ Yes If yes, please list.

New CO_2 facilities for compression and dehydration and new CO_2 onshore pipeline

No cultural heritage places listed on the Heritage Register or the Archaeological Inventory have been identified across the Project. The closest Heritage Inventory listed site (ID: 115418 and described as “Esso ruin”) is approximately 1.6 km west of the GCP.

There are no heritage overlays under the Wellington Planning Scheme intersected by the Project. A search of the Victorian Heritage Database did not identify any significant heritage places or objects across the Project area.

Is mitigation of potential cultural heritage effects proposed?

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

The mandatory CHMP currently being prepared will address impacts to Aboriginal cultural heritage. The CHMP will outline measures to avoid, minimise and manage impacts as well as address contingency arrangements for managing the discovery of any Aboriginal cultural heritage places identified during construction. The CHMP will require approval from GLaWAC prior to the commencement of construction.

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

Esso has constructed and operated infrastructure within the Project area for more than 50 years and has a firm understanding of cultural sensitivities and potential impacts associated with construction and operation in the area. This experience combined with the recent field surveys leads to a robust dataset for understanding potential impacts. Conclusions on the potential for effects to cultural heritage made above therefore carry a high degree of certainty.

16. ENERGY, WASTES & GREENHOUSE GAS EMISSIONS

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

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

Please add any relevant additional information.

New CO_2 facilities for compression and dehydration

A study of power supply to the new CO_2 facilities was completed considering both normal and transient loads given that the compression and dehydration facilities will be the largest power consumer for the Project. It is estimated that 11 kV power supply will be required for the new CO_2 facilities, which will be provided by:

- Two existing GCP generators, rated to 6.75 MW each
- Balance of power to be provided via grid import from the 66 kV transmission system.

New CO_2 onshore pipeline

Energy consumption associated with operation of the new pipeline will be minimal and is captured with facilities energy consumption.

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

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

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

Construction

Most of the waste generated will occur during the construction phase of the Project and is considered typical construction related waste (packaging, pallets, used lubricants and spent welding rods and general refuse and putrescible waste).

Modifications at GCP and new CO_2 facilities for compression and dehydration

Waste management during construction of the new CO_2 facilities will adhere to the existing procedures and requirements of the EPA licensed Longford plant site.

New CO_2 facilities for compression and dehydration

Waste management during construction of the new CO_2 pipeline will be addressed in the EMP, which will need to be approved by the Minister for Energy and Resources before construction commences.

Wastewater management measures, including water run-off and disposal of trench dewatering and hydrotest water will be addressed in the EMP.

Operations

Minimal waste will be generated during operation of the Project.

New CO_2 facilities for compression and dehydration

Recovered wastewater generated by the new dehydration units will be recycled into the GCP through an integrated system that will manage water in accordance with the existing EPA licence. This will reduce the make-up water required for GCP.

The Project will follow the waste objectives of the EP Act, including:

- Waste management hierarchy to minimise waste going to landfill
- Promoting waste reduction, resource recovery and resource efficiency.

New CO_2 onshore pipeline

Operational activities will generate minimal waste, if any at all. Any waste generated will adhere to the above mentioned waste objectives.

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

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

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

Low levels of greenhouse gas emissions will be generated during manufacturing, construction, transport and shipping of Project facilities. During operations, there will be low levels of greenhouse gas emissions as well as the sequestration of CO_2 that would otherwise be emitted to atmosphere. The Project will result in permanent storage of approximately 3 MT of CO_2.

17. OTHER ENVIRONMENTAL ISSUES

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

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

All environmental issues relevant to the Project have been considered in this Referral. No other significant environmental issues have been identified.

18. ENVIRONMENTAL MANAGEMENT

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

- [x] Siting: Please describe briefly
- [x] Design: Please describe briefly

Esso is committed to implementing the avoid, mitigate, offset hierarchy. The Project has been designed and will be sited to maximise the use of existing infrastructure and disturbed areas to avoid environmental impacts and to minimise impacts where avoidance isn't possible. Key management measures are outlined below.

Avoid

- Locating the new CO_2 facility within Esso's existing Longford plant site on existing industrial land to avoid impacts to flora and fauna.
- Using trenchless construction at selected locations to avoid impacts on environmental sensitivities during construction of the new CO_2 onshore pipeline.
- Utilising the existing Bream pipeline to transport CO_2 from Valve Site 3 to the Bream storage formation, over >50 km in length to avoid impacts associated with construction of a new pipeline.

Mitigate

- Designing the new CO_2 facility to integrate with GCP to minimise disturbance footprint and reduce impacts on amenity.
- Reducing the width of the disturbance footprint to minimise impacts on environmental sensitivities during construction of the new CO_2 onshore pipeline (where targeted flora and fauna assessments and an arborist assessment have informed site specific environmental sensitivities).
- Scheduling construction works when conditions are dry, so ephemeral wetlands/water bodies are expected to be dry to minimise impacts on aquatic species.
- Locating the new CO_2 onshore pipeline within the GBJV participants' existing maintained pipeline corridor to minimise clearing of undisturbed areas and to minimise impacts to landholders.

- Engagement and input from DEECA to inform suitable identification of potential impacts for assessment and ensure mitigations proposed are appropriate.

Offset

Offsets will be sought where impacts cannot be avoided or mitigated. A species-general offset test determined only a general offset is required. Searches for offsets on the Native Vegetation Credit Register have been completed and confirmed General Habitat units are readily available and can be purchased via an accredited Offset Broker.

☒ Environmental management: Please describe briefly.

Environmental studies have been completed early to ensure the outcomes are available to inform appropriate mitigation measures and input to detailed design, construction and operation of the Project. Environmental and social mitigation and management commitments will be addressed in a number of project obligations and contractual conditions. A range of tools will be used for the Project to ensure key environmental sensitivities are avoided and environmental and social impacts are appropriately managed. These include:

- A Geographic Information System (GIS) will be used to locate environmental sensitivities mapped by specialist consultants
- An Environmental Line List (ELL) or equivalent will be used to commit to measures to avoid or minimise impacts on mapped environmental sensitivities. The ELL or equivalent will form part of the EMP to be approved under the Pipelines Act
- An environmental commitments register will be prepared to capture environmental requirements specified in regulatory submissions and associated conditions of regulatory approvals
- An Environmental Clearance Process will be implemented during construction to ensure compliance with the ELL or equivalent
- An environmental inspection and audit process will be specified in the EMP.

☒ Other: Please describe briefly

Not applicable

19. OTHER ACTIVITIES

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

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

With the exception of the GBJV participants' existing oil and gas facilities at Longford and existing pipelines (which are operated by Esso), there are a number of other activities in the vicinity of the Project with a potential for cumulative effects:

- Jemena's existing gas facility (Longford Compressor Station) located approximately 2.8 km northwest of the new CO_2 facilities (and approximately 1.8km north of the broader Longford plant site). Located north of Garretts Rd.

  The compressor station is a gas distribution facility with no major gas processing components and is used for distributing gas bi-directionally between the Eastern Gas Pipeline and the Victorian gas transmission.

- GB Energy's Golden Beach Gas Project which is under development and expected to be completed in 2025.

  The Golden Beach Gas Project involves a gas plant located approximately 2.6 km northwest of the new CO_2 facilities near Jemena's gas facility and construction of a new pipeline (approximately 19 km onshore and 4 km offshore) connecting the gas plant to offshore gas reserves in Bass Strait. GB Energy's onshore pipeline is located south of the new CO_2

onshore pipeline for the majority of its length, except from the point where the pipelines intersect near Flints Rd.

- CarbonNet project

  CarbonNet is currently in the process of investigating the potential for establishing an offshore commercial-scale CCS network. Based on descriptions in publicly available materials, the network would deliver CO_2 captured from a range of industries based in Victoria's Latrobe Valley, via an underground pipeline (approximately 100 km onshore and 10 km offshore), to the Pelican offshore storage site in Gippsland Basin. The Pelican storage site is located approximately 8 km off the Gippsland coast and 1.5 km beneath the seabed. This project is yet to obtain regulatory approvals.

- Gippsland Renewable Energy Zone Project (G-REZ)

  AusNet's G-REZ project involves development of approximately 85 km of overhead transmission line from near Giffard to the existing Hazelwood Terminal Station in the Latrobe Valley. The proposed project area is located 5 km west of the Esso's Longford plant site. Construction is anticipated to commence in 2025 for 2-3 years subject to receipt of required approvals.

- Air Liquide CO_2 processing facility

  Air Liquide are constructing a new processing facility to recycle CO_2 from the Longford Gas Conditioning Plant. CO_2 extracted from Gippsland gas will be purified to food and beverage quality for use by Australian businesses. The new facility will be located adjacent to Longford GCP, south of Garretts Rd). There will be a tie-in from the existing Longford GCP to the new facility. This tie-in is out of scope of this referral. Construction commenced in 2022.

- BOC CO_2 processing facility

  BOC are constructing a new processing facility to recycle CO_2 from the Longford Gas Conditioning Plant. CO_2 extracted from Gippsland gas will be purified to food and beverage quality for use by Australian businesses. The new facility will be located adjacent to Longford GCP, south of Garretts Rd). There will be a tie-in from the existing Longford GCP to the new facility. This tie-in is out of scope of this referral. Construction commenced in 2023.

- VicGrid offshore wind transmission infrastructure

  The Project area overlaps with the Gippsland Coast area of interest identified by VicGrid for investigation for transmission infrastructure to support offshore wind. However, a proposed transmission corridor has not yet been identified. Construction is anticipated to commence in 2025.

Cumulative impacts of the Project in relation to other known activities are not anticipated on biodiversity, hydrology, landscape and soils, cultural heritage and greenhouse gas emissions.

Construction of the Project could commence as early as 2025 and the Golden Beach Gas Project is expected to be completed in 2025. Construction timing potentially coincides with the G-REZ project. Significant cumulative impacts are not anticipated from noise, traffic and amenity during construction and operation because:

- Impacts will be temporary and transient during pipeline construction; activities not remaining at any one location for extended periods of time
- Ongoing engagement with landowners and occupiers will ensure activities on their land are coordinated and impacts minimised
- Noise emissions related to the operation of the new CO_2 facility is not likely to be discernible above ambient noise
- Esso will engage as required with G-REZ to monitor timing of project and cumulative impacts to community.

20. INVESTIGATION PROGRAM

STUDY PROGRAM

Have any environmental studies not referred to above been conducted for the project?
☒ No ☐ Yes If yes, please list here and attach if relevant.

Not applicable.

Has a program for future environmental studies been developed?
☐ No ☒ Yes If yes, briefly describe.

A CHMP is required under the AH Act and is currently under development. Additional field surveys are currently underway to inform the complex assessment for the CHMP.

CONSULTATION PROGRAM

Has a consultation program conducted to date for the project?
☐ No ☒ Yes If yes, outline the consultation activities and the stakeholder groups or organisations consulted.

Esso recognises and respects the important contribution of stakeholders, including Indigenous people, throughout ongoing operations and for new activities. Esso is committed to ensuring that stakeholders are identified, given sufficient information, and afforded reasonable time for consultation to allow them to make an informed assessment of the possible consequences of a proposed activity on them.

Esso's consultation objectives are to develop and maintain consistent and constructive relationships with relevant stakeholders with a genuine desire to further understand potential impacts and to encourage stakeholders to provide feedback to Esso during development and approvals for the Project.

For over 50 years, Esso has constructed and operated infrastructure in Gippsland, including within the Project area. Over this time, Esso has developed and maintained relationships with a broad range of stakeholders. Project specific engagement will be incremental to, and coordinated with, existing long-standing engagement with stakeholders.

Esso initially commenced project specific engagement with regulatory bodies in a combination of one-on-one and larger roundtable forums in November 2021. Early engagement with regulatory bodies was focused on providing an overview of the Project and clarifying regulatory requirements and timeframes in the emerging CCS regulatory landscape.

A Pipeline Consultation Plan (PCP) for the Project was developed in accordance with the *Pipelines Act 2005* and was accepted by the Department of Energy, Environment and Climate Action (then Department of Environment, Land, Water and Planning) in July 2022. Shortly afterwards, the Project commenced activity-specific engagement with landowners and occupiers within the pipeline corridor. Three information bulletins were developed to support the Pipeline Consultation Plan and were used in engagements with landholders (available on the Project webpage: https://www.exxonmobil.com.au/Energy-and-environment/Energy-resources/Upstream-operations/The-South-East-Australia-Carbon-Capture-Hub#TheSEACCSHub). The purpose of these engagements was to share an overview of the Project and how landowners and occupiers may be affected, seek feedback and to coordinate land access to enable environmental and cultural heritage surveys to commence. Given the proposed pipeline route is within the existing maintained pipeline corridor alongside existing Esso operated pipeline, the Project was able to build on existing relationships with these landholders.

In addition to the PCP, Esso have developed a broader Stakeholder Consultation Plan for the Project. This plan is available on the Esso website: https://www.exxonmobil.com.au/-/media/australia/files/energy-and-environment/upstream-operations/sea-ccs-consultation-planrev0finalpublish.pdf

Esso commenced project specific engagement with the Gunaikurnai Land and Waters Aboriginal Council (GLaWAC) in September 2022, providing a Project overview and seeking feedback. Project specific consultation with GLaWAC continued through October and December 2022 as part of field surveys and engagement to support a cultural heritage standard assessment. Engagement with GLaWAC as part of field surveys to support the cultural heritage complex assessment and development of the associated Cultural Heritage Management Plan commenced in April 2023 with surveys completed in October 2023.

In 2023, Esso broadened project specific engagement to the wider community Esso held the first community information drop-in session for the Project in Lakes Entrance in April 2023. This session was advertised in The Australian, Herald Sun, Gippsland Times, South Gippsland Sentinel Times, Lake Post and Bairnsdale Advertiser, Snowy River Mail, La Trobe Valley Express and Koori Mail. Additional community information drop-in sessions for the Project have been held in:

- Sale in May and August 2023, advertised in the Gippsland Times, South Gippsland Sentinel Times, Lake Post and Bairnsdale Advertiser, Snowy River Mail, La Trobe Valley Express and Koori Mail.
- Hastings in August 2023, advertised in the Koori Mail, Herald Sun and Western Port News.
- Lakes Entrance in April and August 2023, advertised in The Australian, Herald Sun, Gippsland Times, South Gippsland Sentinel Times, Lake Post and Bairnsdale Advertiser, La Trobe Valley Express and the Koori Mail.

The purpose of these regular sessions is to share an overview of the Project and regulatory approvals pathway, and to provide stakeholders with the opportunity to ask questions or share feedback so that concerns can be considered through the project's development. Esso prepared a fact sheet to be distributed at these sessions to help explain the Project (available on the Project webpage).

Stakeholders engaged in relation to the Project between November 2021 and October 2023 are listed in **Attachment 06**.

Has a program for future consultation been developed?

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

Esso will expand consultation for the Project to a wider range of stakeholders and provide further opportunities for community engagement. In addition to reviewing Esso's extensive consultation database that has been built through decades of operations, the following activities will be undertaken to actively seek out new stakeholders and to encourage stakeholders to self-identify:

- Using local knowledge of existing relationships to identify relevant stakeholders including marine users and interest groups active in the area e.g., indigenous groups, commercial fisheries, recreational fishers, other energy producers, local business, etc.
- Providing a link to the Consultation Hub and Esso Consultation Questionnaire with existing stakeholders and asking them to share it with anyone who may be interested in Esso's activities
- Seeking the advice of Indigenous groups such as land councils and prescribed body corporates in relation to who and how Indigenous groups or individuals should be consulted as stakeholders whose interests may be affected by the activities
- Searches of internet sources, including social media platforms etc.
- Identification of land owners/occupiers and near neighbours
- Members of Esso and/or its affiliates' local workforce providing suggestions of other potentially impacted stakeholders
- Identified stakeholders providing recommendations of other potentially impacted stakeholders, through direct engagement and/or Esso Consultation Questionnaire
- Guidance from relevant regulators, other government agency/department, industry associations or bodies about other potential stakeholders

- Advertisements in newspapers and other relevant news sources (e.g., Koori Mail, local papers)
- A review of legislation applicable to petroleum, greenhouse gas, and marine activities
- Active participation in industry bodies and collaborations e.g., Australian Energy Producers and CO2CRC
- Leveraging existing relationships with relevant Commonwealth and state departments and agencies to identify other relevant stakeholders
- Reviewing the stakeholders identified for other energy activities in the area
- Broad-based information sharing such as through the Esso website, *Connection* magazine, advertisements etc.

Consultation and engagement will continue throughout all stages of the Project, including during operations. A key element of Esso's consultation methodology is to review the consultation process and ensure stakeholder feedback is incorporated into the consultation process design. As a result, the nature and frequency of consultation activities are likely to evolve, however a preliminary program of consultation activities for the Project includes:

- Community drop-in sessions
- Meetings and phone calls with landholders and other key stakeholders
- Specialty group sessions e.g. First Nations People, community groups
- Community meetings
- Information bulletins
- Website and social media updates
- Presence at community events e.g., conferences, festivals
- Email updates
- Updates in *Connection* magazine

The Project was publicly advertised via a press release on April 14, 2022, followed by the launching of the Project webpage later the same month. This webpage contains information on the Project. Additionally, the Esso Consultation Hub, which provides stakeholders access to information on Esso's various current projects, was established in June 2023. The Esso Consultation Questionnaire is also accessible via the Consultation Hub and provides stakeholders a means to provide feedback on the Project (and other activities) and request further information.

20. REFERENCES

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Authorised person for proponent:

I, Hena Kalam .....(full name),

Australia Major Projects SSHE Manager .....(position), confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature DocuSigned by: Hena Kalam 10BFC812BDD3493...

Date December 26, 2023

Person who prepared this referral:

I, Lucy Levecke .....(full name),

CCS Environmental Lead .....(position), confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature DocuSigned by: Lucy Levecke 0F63A32F43FB43C...

Date December 27, 2023