Title of Proposal - Crib Point Pakenham Pipeline

Section 1 - Summary of your proposed action

Provide a summary of your proposed action, including any consultations undertaken.

1.1 Project Industry Type

Energy Generation and Supply (non-renewable)

1.2 Provide a detailed description of the proposed action, including all proposed activities.

APA Transmission Pty Limited (APA) is part of the APA Group and is proposing to construct and operate a high pressure gas pipeline of approximately 56 km in length, which will connect AGL's proposed Gas Import Jetty at Crib Point to the Victorian Transmission System (VTS), east of Pakenham.

The pipeline will be designed and constructed in accordance with AS2885.1-2012: Pipelines – Gas and liquid petroleum (design and construction) (AS2885.1-2012). The requirements of this standard are that pipeline routes are selected having regard to public safety, pipeline integrity, environmental impact and the potential consequences of escape of fluid. The Crib Point Pakenham Pipeline Project consist of the following components:

- Approximately 56 km of high pressure gas transmission pipeline with a nominal diameter of 600mm, within a construction right-of-way (ROW) of 30m in width and an operational easement of 15m in width;

- Two mainline valves (MLVs), which will be situated along the route of the pipeline and either remotely or manually operated. MLVs are provided as a means to isolate the pipeline in segments for emergency management, maintenance, repair and/or operation;

- A cathodic protection system is to be provided via a combination of cross-bonds to existing cathodic protection system and the installation of an impressed current system at either of the MLVs which will be determined during detailed design. The system will be designed to use both impressed current and sacrificial anodes;

- Crib Point Receiving Facility situated at landside of the Crib Point Jetty and include metering, pigging facility, nitrogen storage and injection, odourant plant, gas analysers and a vent stack;

- Pakenham Delivery Facility situated adjacent to the Pakenham East Rail Depot, which is within land owned by Public Transport Victoria and include a scraper station, filtration, metering, heating, pigging facility and a vent stack; and

- An underground scraper/delivery station on the Longford Dandenong Pipeline and the Bunyip to Pakenham Pipeline (collectively referred to as the Longford Dandenong Pipeline) where the proposed pipeline connects to them. This station, which will be within the area of the permanent easement, will consist of a number of fittings that will allow for the future connection of

temporary pig traps to inspect the internal lining of the pipeline during operations.

The design life of the pipeline and pipeline valves and assemblies (excluding scraper traps) is 60 years. Other station equipment, piping fixtures and instrumentation have a design life of between 10 and 40 years and will require maintenance and replacement during the pipeline design life. With ongoing integrity management, and subject to appropriate commercial drivers, the operational life of the pipeline is expected to be longer.

As identified above, the construction footprint will comprise a 30m wide pipeline construction ROW, as well as extra work space for temporary facilities to support construction. The construction ROW and all temporary facilities, temporary access tracks and extra work areas will be progressively decommissioned and reinstated on completion of the construction phase. Extra work space and temporary facilities will include:

- Access tracks (upgrade of existing and construction of new);
- Additional work areas (e.g. vehicle turn-around points, additional work space for crossings, set up areas for alternate construction methodologies, stockpiling and storage areas);
- Water supply tanks and temporary dams for storing water required for dust suppression and hydrostatic testing (pressure testing) of the pipeline.

The width of the construction ROW has been reduced in areas such as sensitive environments and/or watercourses to minimise disturbance to these features. In some cases due to the presence of areas of high ecological significance or other constraint, APA will utilise alternate construction techniques, such as Horizontal Directional Drilling (HDD) or boring, which will negate the need for construction disturbance within the area of the alternate method. The HDD construction methodology will require the excavation of entry and exit pits, typically an approximate bell hole of 3m x 3m x 3m. As part of this process, a bore hole is drilled below the invert of the constraint being crossed from one side to the other and the pipe pulled back through the bore hole.

Pipeline construction will occur in the following sequence:

- Surveying of the construction ROW: Surveying works are undertaken to mark the extent of approved works areas and makers are place along the propose alignment to identify the pipeline centreline.

- Installation of temporary gateways: Temporary construction gateways will be installed at every fence line that is intersected by the construction ROW to provide security for farm stock during construction.

- Clearing of vegetation from the construction ROW: Clearing of vegetation within the construction ROW will be required to provide a safe and efficient area for construction activities.

- Pipe stringing and bending: Stringing involves distributing pipe segments along the ROW in preparation for welding. Where required, pipe lengths will be bent using a hydraulic bending machine to match changes in either elevation or direction of the alignment.

- Welding: Specialised construction crews will weld pipe segments together manually or using an automated welding process. Pipe segments will be welded into strings of up to approximately

1.5km in length, allowing for stock and landholder access breaks where required.

- Trench excavation: A wheel trencher, rocksaw or excavator will be used to dig the trench to lay the pipeline in. Trenches will typically be excavated to a depth of approximately 2m to achieve a depth of cover of 1.2m to the natural ground level. Topsoil and other excavated material will be stockpiled to the side of the trench area as it will be reused during backfilling activities.

- Lowering in and backfilling: the welded pipe strings will be lifted off skids and lowered into the trench using side-boom tractors. The pipe coating is inspected and tested for defects as each welded pipe string is lifted. After lowering-in, the strings are welded together (a 'tie-in') in the trench.

- Testing and commissioning: The pipeline will be pressure tested prior to commissioning to ensure that the pipeline passes strength and leak tests. This is done through a process called hydrostatic testing whereby sections of the pipeline (test sections) are filled with water and then pressurised.

- Rehabilitation of the ROW: Shallow-rooted vegetation can be re-established across the entire ROW (e.g. cropping such as grain and fibre crops) although tall and deep rooted vegetation cannot, due to the potential to damage the pipeline and impede operational access requirements. Shallow-root cropping and grasslands re-establishment are encouraged and no long term impacts would be expected to land uses that rely on cropping and grazing primary production.

1.3 What is the extent and location of your proposed action? Use the polygon tool on the map below to mark the location of your proposed action.

Area	Point	Latitude	Longitude
Crib Point to Pakenham Pipeline	1	-38.348853238556	145.21785750885
Crib Point to Pakenham Pipeline	2	-38.348853238556	145.21571174164
Crib Point to Pakenham Pipeline	3	-38.344410476364	145.21313682098
Crib Point to Pakenham Pipeline	4	-38.34417486773	145.2082015564
Crib Point to Pakenham Pipeline	5	-38.339058605531	145.20159259338
Crib Point to Pakenham Pipeline	6	-38.328824997136	145.19090667267
Crib Point to Pakenham Pipeline	7	-38.32650203609	145.18588557739
Crib Point to Pakenham Pipeline	8	-38.316266654454	145.18562808533
Crib Point to Pakenham Pipeline	9	-38.316165640198	145.18339648743

Area	Point	Latitude	Longitude
Crib Point to Pakenham Pipeline	10	-38.303874522203	145.18352523346
Crib Point to Pakenham Pipeline	11	-38.27726469564	145.18408313293
Crib Point to Pakenham Pipeline	12	-38.277332074608	145.18876090546
Crib Point to Pakenham Pipeline	13	-38.234601263703	145.2383710434
Crib Point to Pakenham Pipeline	14	-38.218553873523	145.24249091644
Crib Point to Pakenham Pipeline	15	-38.203986791249	145.28918281097
Crib Point to Pakenham Pipeline	16	-38.188607263745	145.34291282196
Crib Point to Pakenham Pipeline	17	-38.132457931253	145.46891227264
Crib Point to Pakenham Pipeline	18	-38.086804766647	145.52350059051
Crib Point to Pakenham Pipeline	19	-38.08383226995	145.54152503509
Crib Point to Pakenham Pipeline	20	-38.065183852327	145.53723350067
Crib Point to Pakenham Pipeline	21	-38.064643247577	145.53345695038
Crib Point to Pakenham Pipeline	22	-38.063832332962	145.53397193451
Crib Point to Pakenham Pipeline	23	-38.064372943704	145.5377484848
Crib Point to Pakenham Pipeline	24	-38.084102501916	145.54238334198
Crib Point to Pakenham Pipeline	25	-38.087210097742	145.52384391327
Crib Point to Pakenham Pipeline	26	-38.133133059749	145.46994224091
Crib Point to Pakenham Pipeline	27	-38.189551714296	145.34308448334
Crib Point to Pakenham Pipeline	28	-38.219228204863	145.24334922333
Crib Point to Pakenham Pipeline	29	-38.234870937489	145.23940101166
Crib Point to Pakenham Pipeline	30	-38.278140617349	145.18927588959
Crib Point to Pakenham Pipeline	31	-38.278140617349	145.18498435516
Crib Point to Pakenham Pipeline	32	-38.315323849253	145.18429770966
Crib Point to Pakenham Pipeline	33	-38.315458536461	145.18635764618

Area	Point	Latitude	Longitude
Crib Point to Pakenham Pipeline	34	-38.32596336782	145.18652930756
Crib Point to Pakenham Pipeline	35	-38.32825268031	145.19133582611
Crib Point to Pakenham Pipeline	36	-38.343468037227	145.20850196381
Crib Point to Pakenham Pipeline	37	-38.34360267214	145.21313682098
Crib Point to Pakenham Pipeline	38	-38.347903076961	145.21588340301
Crib Point to Pakenham Pipeline	39	-38.347953561991	145.21760001678
Crib Point to Pakenham Pipeline	40	-38.348862286519	145.21785750885
Crib Point to Pakenham Pipeline	41	-38.348794973982	145.21783605118
Crib Point to Pakenham Pipeline	42	-38.348853238556	145.21785750885

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland).

The pipeline commences at Crib Point adjacent to the jetty infrastructure that has a long history as shipping port for the former petroleum terminal since 1960. From the APA Crib Point Receiving Facility, immediately north of the existing jetty, the pipeline follows existing oil and gas pipeline infrastructure corridors to the south of Hastings. These infrastructure corridors are followed for the first 5km of the pipeline route to Reid Parade, Hastings including a 2.1km crossing of Warringine Park, a local conservation reserve managed by Mornington Peninsula Shire Council.

Through Hastings, the pipeline route generally follows Frankston-Flinders Road, with the exception of a short section of the Stony Point Rail Line corridor. This section of the pipeline route is within an existing urban area and the pipeline construction methodology will take into account the avoidance and minimisation of potential impacts to road users, potentially affected business operations and residents of the local community.

From Graydens Road to the north of Hastings, the pipeline is generally located within private property following the crossing of the Stony Point Rail Line and Frankston-Flinders Road. Between Hastings and the South Gippsland Freeway, the pipeline is generally co-located adjacent to Esso Australia’s oil and gas pipeline corridor. The pipeline route has minor excursions from the existing linear infrastructure corridor to avoid social and environmental constraints or to facilitate a proposed construction methodology. Through this area, the pipeline

route is located to the south of the Western Port Highway and the townships of Tyabb and Pearcedale, with the crossing of Baxter-Tooradin Road.

After crossing Baxter-Tooradin Road, the pipeline is located in more open agricultural land and the pipeline diverges from the Esso Australia oil and gas pipeline corridor prior to the crossing of the South Gippsland Highway this facilitates more direct route to the east of Pakenham, whereas the Esso Australia pipelines continue to Longford, East Gippsland. Between the South Gippsland Highway and Pakenham South, the pipeline traverses the low lying Koo Wee Rup swamp area and a number of significant drainage features that are maintained by Melbourne Water. Western Contour Drain, Cardinia Creek, Deep and Toomuc Creeks are three of the most significant drainage features that the pipeline crosses in between South Gippsland Highway and Pakenham South.

Towards Pakenham, the pipeline crosses the Gippsland Rail Line prior to reaching the proposed Pakenham Delivery Facility. From this facility, the pipeline then follows Oakview Lane and Mt Ararat Road South where it terminates at the Longford-Dandenong Pipeline on the northern side of the Princes Highway.

1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?

The pipeline construction footprint area is estimated to be 154ha.

1.7 Is the proposed action a street address or lot?

Lot

1.7.2 Describe the lot number and title. The pipeline traverses through multiple of land parcels (Att. 1 and 2a-2d)

1.8 Primary Jurisdiction.

Victoria

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

No

1.10 Is the proposed action subject to local government planning approval?

No

1.11 Provide an estimated start and estimated end date for the proposed action.

Start date 07/2019

End date 03/2068

1.12 Provide details of the context, planning framework and State and/or Local government requirements.

The primary Victorian Legislation which applies to the Project are the *Environment Effect Act 1978* (EE Act), *Pipelines Act 2005* (Pipeline Act) and *Aboriginal Heritage Act 2017* (AH Act), as discussed below. Various approvals/consents and decisions under this legislation forms the primary project approvals, with other secondary consents and permits required through other State legislation in relation to the undertaking of the pipeline construction activities.

Environment Effect Act 1978

The EE Act establishes a process to assess the environmental impacts of proposed developments in Victoria. The 'Ministerial Guidelines for Assessment of environmental effects under the Environment Effects Act 1978' provides a range of criteria that can be used to determine whether an Environment Effects Statement may be required for a project. This criteria relate to individual potential environmental effects and a combination of (two or more) potential environmental effects. The Project is being referred to the Victorian Minster for Planning for a decision as to whether the Project requires formal assessment under the EE Act, by way of an Environment Effects Statement.

Pipelines Act 2005

Onshore natural gas pipelines in Victoria with operating pressure above 1,050kPa require licensing under the Pipelines Act. The objectives of the Pipelines Act is to facilitate the development of pipelines for the benefit of Victoria, and to govern process for their construction including environmental considerations. APA will seek a pipeline licence under the Pipelines Act for the construction and ongoing operation of the pipeline.

Section 85 of the Pipelines Act provides an exemption from the need to obtain planning approvals under the Planning Environment Act 1987 for the use or development of land or the doing or carrying out of any matter or thing for the purpose of the pipeline. Should any aspect of the Project not occur under a pipeline licence issued under the Pipelines Act, APA will obtain any necessary consents in accordance with any local planning requirements.

Aboriginal Heritage Act 2006

Areas of registered Aboriginal Cultural heritage sensitivity were identified during the assessment of pipeline route selection as occurring across the pipeline route and the pipeline construction is considered a ‘high impact activity’ under the AH Act and the Aboriginal Heritage Regulations 2018. As such, APA is required to prepare and seek approval of a Cultural Heritage Management Plan (CHMP) for the Project, with two separate plans being prepared to relevant to the Bunurong Land Council Aboriginal Corporation (BLCAC) Registered Aboriginal Party (RAP) area and part of the pipeline route without a RAP (approval to be obtained from Aboriginal Victoria).

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders.

Consultation Program

A program of community and stakeholder engagement has been undertaken by the APA to investigate potential social effects of the Project and to inform design and planning controls for the Project. APA has also participated in a number of community consultation and stakeholder meetings held by AGL given the relationship between the projects.

In setting the foundation for engagement, the project adopted the following principles:

- **Direct**: direct (i.e. two-way channels such as face-to-face, direct mail, email, or phone calls) is the preferred means of communicating major issues to affected community members and stakeholders.

- **Open**: communications will be open, transparent, inclusive, accessible, accurate and consistent in its content, and will be planned, coordinated and timely in its delivery, to both internal and external audiences.

- **Proactive**: proactive communications and early engagement are integral parts of all project and operational planning processes.

- **Tailored**: messages and delivery channels must be tailored to the communication and information needs of their intended audiences.

A program of engagement with key stakeholders that include affected landholders, local residents, businesses and government authorities commenced in November 2017 and will continue through to the Project completion in 2020. The consultation program has been developed around different stages of the Project's development with the initial stages of consultation directed at immediately affected stakeholders to seek feedback on the proposal and assess how the pipeline activities would affect these parties.

These stages form logical phases of consultation, with distinct aspects in relation to the provision of information, the method of consultation and level of engagement required with relevant stakeholders for each stage. The relevant stages are as follows:

- Initial stakeholder engagement;

- Obtaining land access for surveys;

- Agreement on pipeline corridor;

- Completion of regulatory approvals;

- Pipeline construction; and

- Pipeline operation and maintenance.

APA has completed the initial engagement with affected landowner and is continuing consultation with external parties to inform the detailed design and matters be managed during the implementation of the project (e.g. CEMP). Specifically in relation to owners and occupiers

of land, APA is currently in discussions to better understand the current and proposed land (e.g. cultivation, deep ripping, expected vehicle weights crossing pipeline, etc.) and to acquire land tenure for the construction and operation of the pipeline.

In delivering open and pro-active engagement, APA has on numerous occasions visited communities along the pipeline route and hosted community information sessions for regional towns near the Project. These sessions have been arranged to provide further information, answer questions and gather feedback. APA personnel have also attended and participated in AGL hosted drop-in and information sessions regarding their Gas Import Jetty Project, with these occurring since January 2018. These information sessions are:

- 22 January 2018: A community drop in session in Hastings was held with representatives of AGL and APA, and AGL's environmental and marine consultants Jacobs and CEE Environment in attendance;

- 4 April 2018: AGL and APA held a town hall style presentation in Hastings;

- 19 April 2018: Neil Burgess MP hosted a Public Meeting in Blind Bight which AGL and APA attended;

- 17 May 2018: APA hosted community drop in session in Cardinia which AGL also attended;

- 22 May 2018: APA hosted community drop in session in Nar Nar Goon which AGL also attended;

- 25 June 2018: AGL hosted community presentation meeting at Balnarring;

- 27 July 2018: APA hosted community presentation meeting at Balnarring;

- 28 July 2018: APA hosted community presentation meeting at Hastings;

- 31 July 2018: APA hosted community presentation meeting at Crib Point;

- 1 August 2018: APA hosted community presentation meeting at Nar Nar Goon; and

- 2 August 2018: APA hosted community presentation meeting at Cardinia.

Further community information sessions are planned with AGL across September 2018 around the Mornington Peninsula region and southern portion of the pipeline route.

Indigenous Consultation

Consultation has occurred with the BLCAC (for areas where they are the approval authority under the AH Act) and Traditional Owners groups and Aboriginal Victoria (for non-RAP area where Aboriginal Victoria is the approval authority) as part of the Aboriginal cultural heritage assessment process.

In relation to the non-RAP area, APA has consulted and is actively involving the Boon Wurrung Foundation, BLCAC and the Wurundjeri Land and Compensation Cultural Heritage Council

Aboriginal Corporation in the development of the CHMP.

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project.

Environmental Assessments have been undertaken for the Project to support this EPBC Act referral and environmental assessment processes under relevant State legislation. The following studies have been undertaken to inform the impact assessment:

Monarc Environmental (2018a) APA Transmission Pty Limited Crib Point Pakenham Pipeline - Flora and Fauna Assessment Report

Monarc Environmental (2018b) APA Transmission Pty Limited Crib Point Pakenham Pipeline - Southern Brown Bandicoot Survey Report

Monarc Environmental (2018c) APA Transmission Pty Limited Crib Point Pakenham Pipeline - Growling Grass Frog Target Assessment

Monarc Environmental (2018d) APA Transmission Pty Limited Crib Point Pakenham Pipeline - Aquatic Survey Report

Monarc Environmental (2018e) APA Transmission Pty Limited Crib Point Pakenham Pipeline - Swamp Skink Survey Report

Monarc Environmental (2018f) APA Transmission Pty Limited Crib Point Pakenham Pipeline - Southern Toadlet Survey Report

Monarc Environmental (2018g) APA Transmission Pty Limited Crib Point Pakenham Pipeline - Acid Sulphate Soil Assessment Report

Archaeological Excavations (2018a) APA Transmission Pty Limited Crib Point Pakenham Pipeline - Aboriginal Cultural Heritage Desktop

Archaeological Excavation (2018b) APA Transmission Pty Limited Crib Point Pakenham Pipeline - Desktop Historical Report

AECOM (2018a) APA Transmission Pty Limited Crib Point Pakenham Pipeline - Greenhouse Gas Assessment Report

AECOM (2018b) APA Transmission Pty Limited Crib Point Pakenham Pipeline - Hydrology and Hydrogeological Impact Assessment

AECOM (2018c) APA Transmission Pty Limited Crib Point Pakenham Pipeline - Environmental Noise Assessment

AECOM (2018d) APA Transmission Pty Limited Crib Point Pakenham Pipeline Cumulative Impact Assessment Report

Urban Ethos (2018) APA Transmission Pty Limited Crib Point Pakenham Pipeline - Landscape and Visual Amenity Report

These technical assessments have been carried out in accordance with, or with reference to, relevant Victorian Legislation, relevant Commonwealth guidelines, and associated regulation and guidelines. In relation to matters relevant to the Commonwealth that includes the following:

- Flora and Fauna Guarantee Act 1988

- Planning and Environment Act 1987

- Catchment and Land Protection Act 1994

- Wildlife Act 1975

- Guidelines for the removal, destruction or lopping of native vegetation (DEWLP, 2017)

- Protecting Victoria's Environment – Biodiversity 2037 (DEWLP, 2017)

An Environment Effect Referral will be submitted to the Department of Environment, Land, Water and Planning.

1.15 Is this action part of a staged development (or a component of a larger project)?

No

1.16 Is the proposed action related to other actions or proposals in the region?

Yes

1.16.1 Identify the nature/scope and location of the related action (Including under the relevant legislation).

AGL is proposing to develop the LNG import facility using a Floating Storage and Regasification Unit (FSRU) continuously moored at the Crib Point Jetty. The FSRU will receive LNG from visiting LNG carriers (that will moor directly adjacent to the FSRU), store the LNG and re-gasify it as required to meet demand. The FSRU will connect to the Project via infrastructure to be constructed at the jetty, including high pressure gas unloading arms and a high pressure gas flow line connecting to a flange on the landside component, which is the location at which APA assumes responsibility for the relevant infrastructure (and gas flows).

AGL will separately refer their Gas Import Jetty Project for a decision as to whether it constitutes a controlled action under the EPBC Act. To enable a comprehensive assessment, APA and AGL have jointly prepared a cumulative assessment of the impacts of the Gas Import Jetty Project together with the Crib Point Pakenham Pipeline Project. A Cumulative Impact Assessment (AECOM, 2018) is included as an attachment to this referral (Attachment 23). This will enable a comprehensive, integrated and transparent assessment of all related activities to be undertaken. The key reasoning for the separate referral of the Gas Import Jetty Project

together with the Crib Point Pakenham Pipeline Project is as follows:

- Different Proponents: The construction and operation of the Pipeline Project will be carried out and managed by a separate entity and accordingly, will be the subject of separate assessment and approval process in accordance with relevant legislative requirements including the *Environment Effects Act 1978* and the *Pipelines Act 2005*. It is proposed that APA will own and operate the pipeline with a suitable gas transmission agreement with AGL.

- Purpose: The pipeline is a long-term asset and may in the future be used by other third parties to import/export natural gas (depending on future commercial agreement) to or from the Victorian Transmission System (VTS) connection. The Pipeline Project is proposed as a bi-directional pipeline, allowing for the commissioning of the pipeline from existing supply sources via the VTS and future supply to communities along the route.

- Timinig: the pipeline and FSRU operation have different temporal impacts given that the potential impacts of the pipeline relate to construction (less than 12 months), whereas the impacts of operating an FSRU will be approximately 20 years.

- Location and Environment: The majority of potential impacts of the FSRU will be marine based (with potential exception of noise/air emissions and social impacts) and operationally focused, whereas the impacts of the Pipeline Project will be of a linear nature and land-based and construction focused.

- Approvals and Regulation – The FSRU and pipeline activities are not subject to the same State/local regulatory regime and have no joint authorisations.

Section 2 - Matters of National Environmental Significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The interactive map tool can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest. Consideration of likely impacts should include both direct and indirect impacts.

Your assessment of likely impacts should consider whether a bioregional plan is relevant to your proposal. The following resources can assist you in your assessment of likely impacts:

• Profiles of relevant species/communities (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;

• Significant Impact Guidelines 1.1 – Matters of National Environmental Significance;

• Significant Impact Guideline 1.2 – Actions on, or impacting upon, Commonwealth land and Actions by Commonwealth Agencies.

2.1 Is the proposed action likely to have ANY direct or indirect impact on the values of any World Heritage properties?

No

2.2 Is the proposed action likely to have ANY direct or indirect impact on the values of any National Heritage places?

No

2.3 Is the proposed action likely to have ANY direct or indirect impact on the ecological character of a Ramsar wetland?

Yes

2.3.1 Impact table

Wetlands	Impact
Western Port Ramsar site	The pipeline alignment is adjacent to the western boundary of the Western Port Ramsar site between KP0 and KP4, where it follows an existing oil and gas pipeline infrastructure corridor. The alignment traverses the Western Port Ramsar site between KP4 and KP4.3, again following the existing oil and gas infrastructure corridor, and KP19 to KP19.3 at

Wetlands	Impact
	Watson Creek. The alignment also crosses five major creeks within 1 km of the Ramsar boundary: Warringine Creek, Olivers Creek, Kings Creek, Watson Creek and Langwarrin Creek. Horizontal directional drilling (HDD) will be employed from approximately KP3.9 to KP4.4 and KP18.6 to KP19.5 so that surface disturbance of the Western Port Ramsar site is entirely avoided. Given the proximity of the alignment to the Ramsar site indirect impacts caused by localised runoff from the construction footprint are possible, but are not considered likely. See Attachment 14 for additional information of Project impact on Ramsar wetlands.

2.3.2 Do you consider this impact to be significant?

No

2.4 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?

Yes

2.4.1 Impact table

Species	Impact
Subtropical and Temperate Coastal Saltmarsh Vulnerable ecological community	The occurrence of Coastal Saltmarsh is confined to Watson Creek (KP19.1). The size of the ecological community is approximately 0.295 ha based on limited visual inspection by Monarc and modelled data. Watson Creek will be crossed by trenchless construction methods (HDD) which enables this community to be avoided entirely. No direct or indirect impacts are expected.
Isoodon obesulus obesulus - Southern Brown Bandicoot Endangered	The Southern Brown Bandicoot was recorded at eight of 35 locations where camera surveys were undertaken for the project. In addition, presence of the species has been assumed at a further 8 locations based on recent records. These 16 locations extend from Muddy Gates Lane (KP33.4) to McDonalds Drain Road (KP48.4), which generally aligns with the extent

Species	Impact
	of the former Dalmore and Koo Wee Rup swamps where traversed by the alignment. As described in Attachment 14, the alignment has been located, or trenchless crossing methods implemented, to minimize vegetation clearing in areas of known or assumed presence of the Southern Brown Bandicoot. As a result of this approach, the estimated area of direct impact on areas of known and assumed presence is less than 0.5ha, patchily distributed over approximately 14km of the alignment. Other potential direct impacts to the Southern Brown Bandicoot include injury or mortality to individuals during vegetation removal or due to entrapment within the trench. Potential indirect impacts to the Southern Brown Bandicoot include a short term reduction in habitat connectivity where patches of suitable habitat are intersected, behavioral disturbance due to temporary increases in noise and dust levels, and potential introduction and spread of weeds, pests and pathogens.
Litoria raniformis - Growling Grass Frog Vulnerable	Surveys for the Growling Grass Frog were undertaken at 12 locations along the alignment, with locations selected based on review of database records and assessment of aerial photography. The Growling Grass Frog was recorded at one location surveyed for the project, at Cardinia Creek (KP 40-40.3). In addition, the species was not recorded but may be present at the following locations which provide suitable habitat for the species: - KP 20.32 - A farm dam and roadside drainage line within private property north of South Boundary Road East - KP 23.05 - A wetland complex within private property east of Vowell Drive - KP 31.1 - The Western Outfall Drain - KP 41.5 - Deep Creek and Toomuc Creek - KP 48.55 - Pakenham Creek Trenchless crossing methods will be employed at Cardinia Creek, the wetland complex at KP23.05, Deep Creek/Tomuc Creek and Pakenham Creek so that direct impacts to Growling Grass Frog habitat will be avoided at these locations. Additionally, the farm dam at KP20.32 is avoided by the positioning of the construction footprint. An open cut crossing is proposed for the Western Outfall Drain, however the width of the construction footprint

Species	Impact
	will be reduced to 20m. The roadside drain at KP20.32 is also proposed for an open cut crossing. The estimated area of direct impact on areas of suitable habitat for the Growling Grass Frog within the Western Outfall Drain is approximately 0.07ha. The drainage line at KP20.32 was not considered to provide suitable habitat for the Growling Grass Frog at the time of survey, but if this drain is conservatively assumed to potentially provide habitat then the total area of direct impact to potential habitat of the Growling Grass Frog will be approximately 0.12ha. Injury or mortality to individuals during vegetation removal or due to entrapment within the trench is also a possible direct impact. Potential indirect impacts to the Growling Grass Frog include a short term reduction in habitat connectivity at locations where trenchless crossings or avoidance is not planned, short term increases in sediment levels during construction for waterways crossed by open trenching, and introduction and spread of weeds, pests and pathogens.
Galaxiella pusilla – Dwarf Galaxias Vulnerable	Surveys for the Dwarf Galaxias were conducted by Monarc (2018) at 16 watercourses intersected by the alignment, with watercourses selected for survey based on review of database records. No Dwarf Galaxias were recorded during targeted surveys and predatory fish were recorded in most surveyed locations. However, the Dwarf Galaxias was assessed to have a “High’ to ‘Moderate’ likelihood of occurrence, due to either being a known resident, having recent records (<5 years) or there being suitable habitat in the following 10 watercourses - Warringine Creek (avoided by HDD), Pearcedale South, Langwarrin Creek, CPT 60 (dam and Lachies Marsh), Craigs Lane Drain, Western Outfall Drain, Cardinia Creek (avoided by HDD), Toomuc Creek (avoided by HDD), Deep Creek (avoided by HDD) and Pakenham Creek (avoided by HDD). Those waterways listed above which are not crossed by HDD will experience short-term localised disturbance, including a reduction in habitat connectivity and potential short term increases in sediment levels, to suitable habitat for the Dwarf Galaxias.

Species	Impact
Prototroctes maraena – Australian Grayling Vulnerable	The Australian Grayling was assessed to have a ‘High’ to ‘Moderate’ likelihood of occurring in Cardinia Creek, based on nearby records (Monarc 2018). Cardinia Creek is also listed as an important river for the Australian Grayling under the national recovery plan for the species (Backhouse 2008). Cardinia Creek will be crossed by HDD and, as such, no direct or indirect impacts on habitat of the Australian Grayling are expected.
Eucalyptus strzeleckii — Strzelecki Gum Vulnerable	Field surveys undertaken for the project located a single adult Strzelecki gum within the construction footprint at KP21 near Langwarrin Creek. Options to avoid this individual were assessed but a feasible solution for avoidance was not available due to the proximity of houses and a road, and significant constraints that would be imposed on a HDD proposed to avoid a wetland at KP21.2. As such the project will result in the removal of an individual Strzelecki gum.
Amphibromus fluitans— River Swamp Wallaby Grass Vulnerable	This species was not recorded in the construction footprint during extensive field surveys undertaken by Monarc (2018). There is, however, a known population on an existing pipeline easement adjacent (200m away) to the construction footprint between KP14.5 and KP15. This area will not be impacted by the construction footprint. Other suitable habitat within the construction footprint near this point will be traversed by HDD to avoid impacts. As such, no direct or indirect impacts on populations or potential habitat of River Swamp Wallaby-grass are expected.
Prasophyllum spicatum — Dense Leek-orchid Vulnerable	This species is known from around eight populations ranging from south Gippsland (Wonthaggi) to the far south-east of South Australia (Duncan 2010). Duncan (2010) details two of these occur in Crib Point and one in nearby Stony Point Rail Reserve. The construction footprint follows existing oil and gas pipeline infrastructure corridors in the Crib Point and Stony Point area but also traverses an area of Damp Heathy Woodland at KP1.5, which provides suitable habitat for this species. The presence of the Dense Leek-orchid at this location is presently undetermined as surveys have not yet been conducted during the

Species	Impact
	flowering period. A targeted survey is planned at this location during spring 2018 to determine if the species is present. If the species is found to be present impacts will be avoided by using trenchless technology, or by minor realignment of the construction footprint. If the species is present and direct impacts cannot be entirely avoided, options for offsetting or translocation will be agreed with the federal regulator prior to impacts occurring.
Senecio psilocarpus — Swamp Fireweed Vulnerable	The Swamp Fireweed is considered to have a high likelihood of occurrence in suitable habitat at KP 33.5 as known populations exist nearby at Muddy Gates Lane and Manks Road, and the South Gippsland Railway line. In response to this high likelihood of occurrence, a single HDD will be used to cross from the west of the Muddy Gates Lane road reserve to the east of the South Gippsland Railway reserve. As such, there will be no direct impacts to these areas of potential habitat traversed by the HDD. The area impacted to the east of the South Gippsland Railway reserve is a paddock that aerial imagery indicates is subject to ongoing hay production, and so provides lower quality habitat. A targeted survey is planned at this location during spring 2018 to determine if the species is present. If the species is found to be present impacts will be avoided by using trenchless technology, or by minor realignment of the construction footprint. If the species is present and direct impacts cannot be entirely avoided, options for offsetting or translocation will be agreed with the federal regulator prior to impacts occurring.
Xerochrysum palustre — Swamp Everlasting Vulnerable	The Swamp Everlasting is considered to have a high likelihood of occurrence in suitable habitat at KP 33.5 as known populations exist nearby at Muddy Gates Lane and Manks Road, and the South Gippsland Railway line. In response to this high likelihood of occurrence, a single HDD will be used to cross from the west of the Muddy Gates Lane road reserve to the east of the South Gippsland Railway reserve. As such, there will be no direct impacts to these areas of potential habitat traversed by the HDD. The area impacted to the east of the South Gippsland Railway reserve is a paddock that

Species	Impact
	aerial imagery indicates is subject to ongoing hay production, and so provides lower quality habitat. A targeted survey is planned at this location during spring 2018 to determine if the species is present. If the species is found to be present impacts will be avoided by using trenchless technology, or by minor realignment of the construction footprint. If the species is present and direct impacts cannot be entirely avoided, options for offsetting or translocation will be agreed with the federal regulator prior to impacts occurring.

2.4.2 Do you consider this impact to be significant?

No

2.5 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed migratory species, or their habitat?

Yes

2.5.1 Impact table

Species	Impact
The White-throated Needletail	Foraging habitat for the White-throated Needletail is present above the construction footprint, and foraging/roosting habitat may be associated with degraded pasture and wooded vegetation. Areas of important habitat are not found within the construction footprint as the species is predominantly or exclusively aerial whilst in Australia.
Latham’s Snipe	Potential foraging habitat for Latham’s Snipe is present in the construction footprint in the form of degraded pasture. Areas of important habitat are not found within the construction footprint.

2.5.2 Do you consider this impact to be significant?

No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

No

2.7 Is the proposed action to be taken on or near Commonwealth land?

No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

No

2.9 Is the proposed action likely to have ANY direct or indirect impact on a water resource related to coal/gas/mining?

No

2.10 Is the proposed action a nuclear action?

No

2.11 Is the proposed action to be taken by the Commonwealth agency?

No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage Place Overseas?

No

2.13 Is the proposed action likely to have ANY direct or indirect impact on any part of the environment in the Commonwealth marine area?

No

Section 3 - Description of the project area

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed in Section 2).

3.1 Describe the flora and fauna relevant to the project area.

The most common habitat types intersected by the construction footprint are introduced grassland / pasture with occasional remnant native species and areas of vegetable production. Habitat comprised of remnant patches of native woodland, native forest, scattered trees and aquatic/riparian habitats provided by waterways and dams also occurs.

Flora

A total of 201 flora species were recorded during field surveys undertaken for the project. These comprised of 118 indigenous species, 13 non-indigenous natives and 70 introduced species.

One threatened flora species was recorded within the construction footprint during field surveys. A single Eucalyptus strzeleckii was recorded within the construction footprint at KP21 near Langwarrin Creek.

The EPBC Act listed Dense Leek-orchid, Swamp Fire Weed and Swamp Everlasting are considered to have a high likelihood of occurrence in the construction footprint at the following locations:

- Dense Leek-orchid in Damp Heathy Woodland between KP1 to KP2 as known populations exist in similar habitat nearby at Crib Point and Stony Point.

- Swamp Fireweed and Swamp Everlasting in suitable habitat at KP33.5 as known populations exist nearby at Muddy Gates Lane and Manks Road, and the South Gippsland Railway line.

Fauna

A total of 145 fauna species were recorded during field surveys undertaken for the Project. This included two macroinvertebrates, eight amphibians, 101 birds, 10 fish, 19 mammals and five reptiles. Twenty-three of the recorded fauna species were introduced species.

The Southern Brown Bandicoot was recorded at eight of the 35 locations where camera surveys were undertaken. In addition, presence of the species was been assumed at a further eight locations based on recent records. These 16 locations extend from the South Gippsland

Highway (KP30.3) to the Princes Freeway (KP54.4), associated with linear strips of exotic and degraded native vegetation with a dense understorey adjacent to roads, drains and a railway line.

The EPBC Act listed Growling Grass Frog, Australian Grayling and Dwarf Galaxias were either recorded during field surveys or are assessed to have a high likelihood of occurrence where appropriate habitat occurs along the alignment, as described in Section 2.

3.2 Describe the hydrology relevant to the project area (including water flows).

The alignment is entirely within the Western Port catchment. The Western Port catchment varies from the hilly regions near the Bunyip State Park and Strzelecki Ranges to the low lying, flat to undulating terrain of the former Dalmore Swamp Koo Wee Rup swamp, with surface water draining from these topographic highs to Western Port.

The alignment intersects three sub-catchments within the Western Port catchment:

- Mornington Peninsula system;

- Cardinia system; and

- Lower Bunyip, Lang Lang and Bass system.

In the Mornington Peninsula system most waterways are small creeks flowing into Western Port, Port Phillip Bay or Bass Strait; the exception being the more significant Watson Creek that flows through the project area. The system also supports a number of significant wetlands and creek estuaries.

The major waterways of the Cardinia system are constructed drains that historically did not exist or were disconnected from Western Port by the former Koo Wee Rup swamp. Estuaries like Cardinia Creek support wetland habitat, and are used for flood mitigation and recreational use, as well as providing fauna habitat.

In the Lower Bunyip, Lang Lang and Bass system the waterways are mainly rural, and used for water supply, flood mitigation and townships. Together with estuaries and waterways they also support a variety of plant and animal species.

The alignment is considered broadly to occur across two zones with respect to the surface water setting. The first zone is from Crib Point to immediately east of Pearcedale (approximately 22 km reach) which is dominated by waterways with largely intact physical form and vegetation. The second zone extends from near Pearcedale to Pakenham. This reach traverses multiple waterways subject to significant clearing and drainage works, including a number that were included in the Koo Wee Rup swamp drainage program.

The alignment intersects eight main watercourses:

- Warringine Creek;

- Rutherford Creek;

- Tributary of Rutherford Creek;

- Watson Creek;

- Western Outfall Drain;

- Cardinia Creek;

- Gum Scrub Creek; and

- Toomuc Creek.

In addition, the alignment crosses 58 named and unnamed channels / drains or waterways. It is inferred that the majority of these are ephemeral.

3.3 Describe the soil and vegetation characteristics relevant to the project area.

Geology and soils

Geological modelling (DEDJTR 2016) indicates that most of the alignment traverses sedimentary lithology, with an area of igneous lithology near the termination point east of Pakenham. Several lithology types cover the southern part of the project corridor from Crib Point to Tooradin (KP33.5) comprising marine and swamp deposits, and sandstone to swamp and lake deposits. Alluvium dominates the northern half of the alignment.

Soils traversed by the alignment that are associated with these lithologies are as follows (Monarc, 2018):

- Iron rich, sandy and acidic podsols, from KP0 to KP33 and KP48 to KP52.

- Unconsolidated, slightly gravelly rudosols, from KP22.5 to KP23.7.

- Seasonally or permanently saturated hydrosols, from KP32.5 to KP47.7.

- Strong texture contrast sodosols, from KP51.6 to KP53.4.

Given the alignment traverses drained swamps and is close to intertidal environments, there is potential for acid sulphate soils to be present. Following a desktop assessment of potential for these conditions, field surveys were undertaken to assess the potential for acid sulphate soils to occur. Results of the field surveys indicate that potential acid sulphate soils are present from around KP1 to KP2.

Vegetation

In general, extensive historical clearing associated with agriculture and horticulture has resulted in most of the construction footprint and surrounding land being largely devoid of remnant native vegetation. The construction footprint was found to intersect 91 fragmented and largely degraded patches of remnant vegetation. Of these, 46 will be impacted by the construction footprint, and 45 patches will be avoided using Horizontal Directional Drilling (HDD) and other design modifications.

Clearing of the construction footprint will require removal of up to 6.802ha of remnant vegetation. No clearing of ecological communities listed under the EPBC Act is required for the project. The following areas of vegetation communities, with relevant ecological vegetation class numbers under the Victorian vegetation classification system, are estimated to require clearance for the project:

- EVC 48, Heathy woodland - 1.098ha

- EVC 53, Swamp Scrub - 2.615ha

- EVC 83, Swampy Riparian Woodland - 0.264ha

- EVC 175, Grassy Woodland - 0.412ha

- EVC 793, Damp Heathy Woodland - 2.444ha

In addition, up to thirty seven scattered trees will require removal within the construction footprint.

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area.

Western Port Ramsar site

Designated as a wetland of international significance in 1982, the Western Port Ramsar site covers 59,950 ha of Western Port. It comprises vast intertidal mudflats with saltmarsh, seagrass and mangrove habitats as well as steep subtidal sloping banks with seagrass and deep channels that connect the north of the bay with the oceanic waters of Bass Strait in the south. Many of the animal and plant species are not specifically protected or listed for conservation value, but the combination of mangroves and seagrasses, saltmarsh, fish, birds, crustaceans, worms and other invertebrates all form the Western Port marine ecosystem.

The alignment abuts the Ramsar boundary from Crib Point (KP0) to Warringine Park (KP4.5), and horizontal directional drilling (HDD) is proposed to a depth of 14.5 m beneath the Ramsar site at Warringine Park (KP04 – KP05). The alignment is typically more than 700 m from the Ramsar boundary between the north-side of Warringine Park (KP05) to south of Watson Creek (KP20). From Watson Creek to Langwarrin Creek (KP23), the alignment is within 200 m of the Ramsar boundary. HDD is proposed for the majority of this section of pipeline.

The alignment crosses four named creeks within 1 km of the Ramsar boundary. These are Warringine Creek, Watson Creek, Kings Creek and Langwarrin Creek. Of these only the Langwarrin Creek crossing is proposed to be open trenched, with HDD proposed at the remaining three locations.

Yaringa Marine National Park

Yaringa Marine National Park is located between the mainland and Quail Island Nature Conservation Reserve in Western Port, and is contained within the Western Port Ramsar site

boundary. This park encompasses a variety of ecologically important habitats including saltmarsh, mangroves, sheltered intertidal mudflats, subtidal soft sediments and tidal channels.

The alignment in the vicinity of Watson Creek is immediately adjacent to the Yaringa Marine National Park. The northern workspace area associated with the HDD of Watson Creek is approximately 50m to the north-west of the National Park boundary. This is the closest point of construction activity to the National Park, with the construction footprint located in an agricultural setting at this location.

3.5 Describe the status of native vegetation relevant to the project area.

Remnant native vegetation within the construction footprint is representative of five EVCs: Heathy woodland (EVC48), Swamp Scrub (EVC53), Swampy Riparian Woodland (EVC83), Grassy Woodland (EVC175), Damp Heathy Woodland (EVC793). Extensive historical clearing associated with agriculture and horticulture has resulted in most of the construction footprint and surrounding land being largely devoid of remnant native vegetation (Monarc, 2018).

3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

The alignment traverses a generally flat landscape with elevations below 20m AHD between approximately KP0 and KP50, other than a section between KP11 to KP12. From KP50 the elevation increases from 20m AHD to 60m AHD at the terminal point of the pipeline, east of Pakenham.

3.7 Describe the current condition of the environment relevant to the project area.

The region traversed by the alignment has been extensively modified since European settlement. A land use history of cropping, grazing and market gardening, as well as rural and residential development, has resulted in the loss of most of the native vegetation as well as severe alterations to regional hydrology. Between approximately KP30 and KP50 the alignment traverses the area of the former Dalmore Swamp and Koo Wee Rup Swamp, which were drained and cleared between the 1870s and 1960s. Drainage channels were dug, and creeks and rivers were diverted and extensively channelised, to make the land suitable for farming. This area now forms part of the Koo Wee Rup-Longwarry Flood Protection District.

The overall surface water quality for Western Port catchment has been assessed as ‘poor’ (i.e. under considerable stress), and has rated as ‘poor’ since this scoring system commenced in 2000-2001 (https://yarraandbay.vic.gov.au/report-card/report-card-2017/western-port-and-catchment/western-port-catchment). This is mostly due to runoff from agricultural land of the former swamp areas carrying sediments, nutrients and other pollutants (including metals) to rural drainage channels.

Results for the five monitoring locations most relevant to the alignment show the water quality

as ‘poor’ (Olivers Creek and Toomuc Creek) and ‘very poor’ (Watsons Creek, Wylies Drain and Lower Gum Scrub Creek). These water quality scores were driven by the water quality parameters dissolved oxygen, salinity, nutrients and metals.

3.8 Describe any Commonwealth Heritage Places or other places recognised as having heritage values relevant to the project area.

A Historical Heritage Desktop assessment was completed by Archeological Excavation (2018) to determine the presence and relevance of heritage places that may be impacted by the pipeline. This assessment has identified that there are no Commonwealth, National and World heritage listed places along or in close proximity to the alignment. The closest World Heritage property to the project is the Royal Exhibition Building and Carlton Gardens, some 57km northwest of the pipeline alignment.

There are no plausible direct or indirect impacts to this property arising from the Project.

3.9 Describe any Indigenous heritage values relevant to the project area.

The AH Act provides protection for all Aboriginal cultural heritage in Victoria. The Aboriginal Heritage Regulations 2018 gives effect to the AH Act. The construction of the proposed pipeline is considered to be a high impact activity under the Aboriginal Heritage Regulations 2018 and part of the proposed pipeline is in areas of cultural heritage sensitivity. Accordingly, APA is required to prepare a CHMP prior to the construction of the pipeline.

APA has completed a desktop assessment (Archaeological Excavations, 2018) in relation to potential impacts to Aboriginal cultural heritage. This assessment identified four registered Aboriginal places within the activity area (affected by the Project) and a further 132 Aboriginal places/place components within 2km of the alignment. The data from the Victorian Aboriginal Heritage Register for the registered Aboriginal places show that place types are predominantly Low Density Artefact Distributions (51.5%) and artefact scatters (37.1%). Some areas of cultural heritage sensitivity within the area of the alignment have been subject to previous ground disturbance that is likely to have impacted Aboriginal cultural heritage, including historic agricultural practices and development of land for residential, transport and industrial uses.

APA is currently in the process of completing the necessary standard and complex field investigations to prepare and seek approval of two CHMPs for project, the survey envelope falls within both a Registered Aboriginal Parties (RAP) area and a non-RAP area. BLCAC is the evaluating authority for the CHMP that extends from Crib Point (KP0) to Tooradin (KP35.5). The CHMP covering the non-RAP area will be evaluated by Aboriginal Victoria in consultation with three Aboriginal stakeholder groups that have interest in the area (refer to Section 1.12). To date, APA has identified 10 new cultural heritage places, with 7 of these within the area of the BLCAC (5 artefact scatters and 2 low density artefact distributions) and 3 within the area without a RAP (1 artefact scatter and 2 low density artefact distributions). In total, 178 surface and sub-surface artefacts have been identified through the complex assessment process.

The CHMP will provide the framework in which to manage Aboriginal cultural heritage potentially affected by the pipeline and contingencies should Aboriginal cultural heritage be

discovered during the construction of the pipeline. Archaeological Excavations (2018) have concluded that the CHMP will allow for any impact to Aboriginal cultural heritage to be appropriately managed.

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area.

Current Tenure

The alignment is primarily within freehold land (owned by private persons), though significant sections are also proposed in public land (land owned by or vested in public authority) and Crown land. A summary of the different land tenure intersected by the alignment is as follow:

- Freehold Land: Approximate length of this tenure is 43.5km with an approximate total area of temporary construction of 133ha. This includes a final easement area of approximately 65 ha after construction is completed.

- Crown Land: Approximate length of this tenure is 4.2km with an approximate total area of temporary construction of 13.9ha. This includes a final easement area of approximately 7.6 ha after construction is completed.

- Public Land: Approximate length of this tenure is 8.5km with an approximate total area of temporary construction of 7.3ha. This includes a final easement area of approximately 4.3 ha after construction is completed. Note that for the purpose of this referral Public Land is land owned by or vested in public authorities.

A review of the National Native Title Register and Register of Native Title Claims of current registered native title claims and claimant applications has shown that there are currently no native title determinations or claimant applications that would be affected by the pipeline route.

Proposed Tenure

APA propose to obtain an easement in gross for the construction and operation of the pipeline, which will be registered on the title of freehold land. The easement will afford APA certain rights in relation to the accessing the land for the ongoing and safe operation of the pipeline. APA will obtain an easement of generally 15m in width where landowners agree to conditions. This is the minimum area necessary to undertake any operations and maintenance activities.

3.11 Describe any existing or any proposed uses relevant to the project area.

The alignment traverses through a number of different land uses with the land use. The potential to affect existing productive land uses has been a key consideration in the pipeline route selection and is a matter that has been raised with affected landowners/occupiers as well as local councils.

The southern portion of the alignment between Crib Point and Pearcedale is generally within rural residential, road corridors and industrial land. Areas of the alignment in this section also intersect a conservation reserve (Warringine Park) as well as horse studs and hobby farms. In the northern portion (Pearcedale to Pakenham), the alignment is within more open agricultural land with the predominant land use being grazing (typically cattle) or fodder harvesting.

In relation to the future development of the land for urban purposes, it is recognised that the alignment is proximate to areas planned for urban expansion (notably the Pakenham East Precinct Structure Plan). The Cardinia Western Port Green Wedge Management Plan and the draft Casey Western Port Green Wedge Management Plan identify a preference for limited urbanisation and sub-division of these areas, which represent a large portion of the alignment (approximately 46%).

Western Port and the drainage areas around the Koo Wee Rup-Longwarry Flood Protection District are well recognised for their agricultural and economic values due to rich agricultural soils. The alignment avoids existing high-value horticultural production areas (e.g. market produce) within this area. APA has identified a small number of proposed future market gardens, which will be taken into account during the detailed design of the pipeline and associated construction methodology with the objective of minimising impact to these productive uses.

The alignment is co-located with adjacent existing oil, gas and water pipelines for approximately a third (34%) of its length. This was a key objective of the route selection process to minimise the creation of new corridors seen as having a higher social impact than abutting existing infrastructure. Much of this co-location is with the Esso Australia oil and gas pipelines between the north of Hastings (Long Island Point) and the crossing of the South Gippsland Highway, north-west of Tooradin. When co-location of the pipeline with road reserves (in and adjacent to), drainage/levee bank channels and rail reserves are added, the alignment is co-located with linear infrastructure for the majority of its length (approximately 55%).

Section 4 - Measures to avoid or reduce impacts

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action.

The Project will be designed, constructed and operated in accordance with AS2885. Environmental management measures for the Project will be consistent with the APGA Code of Environmental Practice, 2017. The mitigation measures have been structured by project activity and they are described below.

Pre-construction Phase

All Project personnel will undertake an induction that will include environmental management requirements and an overview of the environmental features and proposed controls of the Project.

The approved clearing extent, including environmental features within the construction footprint, will be identified with survey pegs and at some locations with flagging, marking tape or similar.

Construction Phase

Clearing of woody vegetation will be undertaken with a suitably qualified Wildlife handler present to:

- Inspect habitat in advance of clearing. This will include a walk-through of the habitat to be removed immediately prior to clearance to flush out individuals.

- Advise on clearing techniques that will minimise fauna impact.

- Keep records of important fauna interactions, listing the species concerned, the nature of the interaction and its GPS coordinates.

- As soon as practicable following clearing, fencing suitable to exclude the Southern Brown Bandicoot will be installed at the edges of the construction footprint adjacent to areas of known or assumed presence to reduce the likelihood of animals entering the construction footprint. Fencing will be monitored and repaired as required.

- As soon as practicable following clearing, frog-proof fences will be installed between areas of

identified Growling Grass Frog habitat and the construction footprint.

- Structures to enable the Southern Brown Bandicoot to egress the trench will be provided every at regular at locations where exclusion fencing is installed, and elsewhere along the alignment at the end of the construction day.

- A Wildlife handler will be available for the duration of construction activities.

- In the event that Southern Brown Bandicoot or Growling Grass Frog are discovered within the construction footprint, all construction works in the surrounding area, including movement of vehicles, will cease. Works will not recommence until the Wildlife handler has removed the individual. Salvaged individuals will be removed to nearby habitat areas away from the construction area.

- Inspections of open trenches will be undertaken each morning. If any trapped fauna are identified, they will be retrieved and translocated to suitable nearby habitat by a Wildlife handler.

- Standard daytime construction hours, 7 days a week, will be applied, excluding travel to and from work areas along the construction footprint and noting that the following activities are likely to extend beyond standard construction hours: HDD, hydrotesting, pipe transport from port to laydown areas, and extenuating circumstances beyond the control of the Project.

- If night time activities are required within or adjacent to areas of known or assumed presence for the Southern Brown Bandicoot or identified Growling Grass Frog habitat, a Wildlife handler will be present and monitor the construction site.

- Initial construction (clearing / grade) is not to occur within 100 metres of identified Growling Grass Frog habitat adjacent to the construction footprint during the breeding season (Spring and Summer), unless two nocturnal, pre-clearance frog surveys have been undertaken immediately prior to works commencing.

- A 40km speed limit will apply for all vehicles within the construction footprint.

- Refuse containers will be located at each worksite to enable collection of waste, with regular removal from worksites to designated areas.

- Refuse containers will be lidded to mitigate fauna access.

Watercourses / drains – specific construction mitigations

Specific erosion and sediment controls will be described in the CEMP and developed in general accordance with the IECA Australasia, Appendix P - Land-based pipeline construction.

Construction mitigation measures to be implemented for water crossings are:

- Installation of flume pipes across access tracks to allow flow and minimise damage to the bed and banks of the waterway;

- Installation of steel plates to block the flow across the water crossing together with high or low flow pumps to maintain flow during the installation of the pipeline. A grate, mesh or similar will be installed over the pump head to reduce the potential for vegetation disturbance or fish to travel into the pipe;

- Salvage of aquatic fauna after plates have been installed and prior to construction or excavation;

- Divert water to a dam or back to the waterway through a filtration system to prevent turbidity and sedimentation (e.g. rock drain or drain lined in geofabric).

- Implementation of suitable sedimentation control measures (such as silt curtains) where appropriate to minimise impacts to water quality; and

- Reinstate works area and re-establish vegetation as soon as possible.

Post Construction

- Rehabilitation of the construction footprint will commence as soon as practicable after completion of construction, with the aim of restoration of groundcover within 6 months after works have been completed.

- Dense cover of suitable native shrubs, or vegetation of similar structure as agreed with the relevant landholder, will be reinstated in any of the 35 locations of potential Southern Brown Bandicoot habitat impacted by the construction footprint, other than directly above the pipeline and a narrow track to allow ground access for surveillance patrols.

- Rapid re-establishment of dense ground cover will be achieved at all 16 sites of known or assumed presence for the Southern Brown Bandicoot impacted by the construction footprint by planting of semi mature native shrubs at an appropriate density during rehabilitation. The aim is to re-establish dense understory vegetation in the 0.2–1m height range, as soon as practicable.

- Monitoring of the condition of the construction footprint and other disturbed areas will be completed post construction and remedial measures undertaken, as required (minimum period of 24 months), with the aim that all disturbed areas are re-profiled to a stable landform consistent with original contours and drainage lines and vegetated with a self-sustaining, non-pest species groundcover.

- Habitat features removed during construction such as large hollow logs and large rocks will be returned to the construction during rehabilitation if consistent with rehabilitation objectives at a particular location. Landholder requirements will be considered prior to returning habitat features to the ROW.

Biosecurity Measures

The following biosecurity measures will be applied:

- Satisfaction of AQIS regulatory requirements for any vehicles and equipment sourced from overseas.

- Inspection and certification of all vehicles, equipment and materials will occur either prior to or upon arrival at site. Vehicles and equipment cannot access the ROW until certified as clean.

- After arrival at the Project site all vehicles, plant and equipment will remain within the construction footprint and on approved roads and tracks.

- Vehicles and equipment leaving the ROW, laydown areas or approved access routes and accessing vegetated land are to be re-certified prior to re-entry

- Any topsoil imported for easement maintenance will be of an appropriate quality and weed and disease free.

Note on trenchless crossing committments

Committments to undertaking trenchless crossing at a number of locations and reduction of construction footprint (ROW), as decribed are not shown in a number of the figures included in this referral and reflected in the ecological reports. The locations are:

- KP 33.4-33.5 Muddy Gates Drain, Muddy Gates Lane and South Gippsland Railway Line: Single HDD/bore beneath this area

- KP 34.6 Adjacent to Manks Road: Construction footprint will be reduced (to 20m) south of Manks Road (KP33.6-34.0). Disturbance to SBB habitat associated with access across Manks Road is to be limited to 10m wide access track.

- KP 35.4 Adjacent to Tooradin Station Road: Works limited to an access track of 10m in width across road reserve.

- KP43.0 Paddock drain to the west of Hobson Road, south of Soldier’s Road: Construction footprint will be reduced (to 20m) in area of Southern Brown Bandicoot habitat.

- KP48.4 Deep Creek/Pakenham Creek/ McDonalds Drain Road: HDD/bore and no access to Deep Creek/Pakenham Creek drainage/levee bank reserve. Access from McDonalds Drain to be from existing access locations or without impact to blackberry and understory growth within road reserve.

4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved.

The environmetal outcome that the project aims to achieve avoidance of signifcant impact on MNES.

Section 5 – Conclusion on the likelihood of significant impacts

A checkbox tick identifies each of the matters of National Environmental Significance you identified in section 2 of this application as likely to be a significant impact.

Review the matters you have identified below. If a matter ticked below has been incorrectly identified you will need to return to Section 2 to edit.

5.1.1 World Heritage Properties

No

5.1.2 National Heritage Places

No

5.1.3 Wetlands of International Importance (declared Ramsar Wetlands)

No

5.1.4 Listed threatened species or any threatened ecological community

No

5.1.5 Listed migratory species

No

5.1.6 Commonwealth marine environment

No

5.1.7 Protection of the environment from actions involving Commonwealth land

No

5.1.8 Great Barrier Reef Marine Park

No

5.1.9 A water resource, in relation to coal/gas/mining

No

5.1.10 Protection of the environment from nuclear actions

No

5.1.11 Protection of the environment from Commonwealth actions

No

5.1.12 Commonwealth Heritage places overseas

No

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action.

Western Port Ramsar wetland

The pipeline alignment is adjacent to the western boundary of the Western Port Ramsar site between KP0 and KP4, where it follows an existing oil and gas pipeline infrastructure corridor. The alignment traverses the Western Port Ramsar site between KP4.0 and KP4.3, again following the existing oil and gas infrastructure corridor, and KP19.0 to KP19.3 at Watson Creek. The alignment crosses five major creeks within 1 km of the Ramsar boundary: Warringine Creek, Olivers Creek, Kings Creek, Watson Creek and Langwarrin Creek.

The project is not considered likely to have a significant impact on the ecological character of the Western Port Ramsar site for the following reasons:

- Horizontal directional drilling (HDD) will be employed from approximately KP3.9 to KP4.4 and KP18.6 to KP19.5 so that surface disturbance of the Western Port Ramsar site is entirely avoided. Appropriate management of fuels and drilling fluids will be implemented at HDD locations to mitigate the risk of accidental releases. As such there is no plausible risk that the project will cause areas of the wetland to be destroyed or substantially modified.

- No substantial and measurable change to the hydrological regime of the Western Port Ramsar site is expected to occur as a result of the project. The movement of water through the Western Port Ramsar site is dominated by semi-diurnal tides, and neither evaporation nor freshwater inputs are sufficient to affect flushing or to generate strong or persistent estuarine circulation patterns (Lee 2011). There is no plausible risk that the project will cause a substantial or measurable change to tidal patterns which dominate the hydrological regime of the Western Port Ramsar site.

The project is considered unlikely to seriously affect the habitat or lifecycle of native species, including invertebrate fauna and fish species, dependent upon the Western Port Ramsar site. The ecological character description addendum for the Western Port Ramsar site (Hale 2016) identifies six species of waterbirds for which the wetland regularly supports greater than 1% of the global population. These species, which are listed below, are comprised of three non-breeding spring-summer visiting shorebirds, an oystercatcher, a tern and a gull.

- Australian fairy tern Sternula nereis

- Australian pied oystercatcher Haematopus longirostris

- Curlew sandpiper Calidris ferruginea

- Eastern curlew Numenius madagascariensis

- Pacific gull Larus pacificus

- Red-necked stint Calidris ruficollis

Important habitat for migratory and resident shorebirds in Western Port comprises 27,000 ha of intertidal mudflat, used for foraging, and adjacent higher areas used for roosting (Dann 2011). The Australian pied oystercatcher forages in similar intertidal habitats to shorebirds, as well as beaches, and breeds on beaches on French Island and the north shore of Phillip Island (Dann 2011). The Fairy Tern is piscivorous and forages in the marine water column, and breeds regularly at Rams Island on the southern coast of French Island, and occasionally has been reported breeding at Tortoise Head (French Island) and Observation Point (Phillip Island) (Dann 2011). The Pacific Gull is a common resident of the Ramsar site, but breeds on islands off Wilsons Promontory or in Bass Strait not within the Ramsar site (Kellogg Brown & Root, 2010).

The alignment avoids all intertidal mudflat and shorebird roosting areas, and does not result in surface disturbance to the Ramsar wetland. Breeding sites for the Australian pied oystercatcher and Fairy Tern are on islands, and are at least 6km from the alignment. As such, there is no plausible risk that the project will seriously affect the foraging, roosting or breeding habitat of the birds listed above.

Other habitats within the Western Port Ramsar site, notably seagrass beds, act as important nursery habitat for a range of fish and crustacean species (Hale 2016). Western Port is a key breeding area for some species such as elephant fish (Callorhinchus milii), school shark (Galeorhinus australis) and Australian anchovy (Engraulis australis), and a nursery area for other species such as King George whiting (Sillaginodes punctatus), yellow-eye mullet (Aldrichetta forsteri) and Australian salmons (Arripis spp.) (Jenkins 2011).

The Western Port Ramsar site also supports a number of fish species that migrate between fresh, estuarine and marine waters as part of their life cycles, including the Australian Grayling, black bream (Acanthopagrus butcheri) and the short-finned eel (Anguilla australis).

Australian Grayling rely upon the Western Port Wetland for migration between fresh, estuarine and marine waters as part of their life cycles (DELWP 2017). Cardinia Creek is known as a key watercourse for movements between fresh and estuarine waters for this species. Impacts to Cardinia Creek will be avoided through using HDD between KP40-40.3.

As the alignment does not result in surface disturbance to the Western Port Ramsar site there is no plausible risk that the project will seriously affect the habitat or lifecycle of any fish or crustacean species dependent upon the wetland.

The water quality of Western Port Ramsar site is primarily controlled by extensive tidal flushing, residence time of water, resuspension of sediments by tidal movement and importation of nutrients and pollutants in river discharge during periods of above average rainfall (Lee 2011).

There is no plausible risk that the project will cause changes to these process.

As mentioned above, the alignment crosses five major creeks within 1 km of the Ramsar boundary: Warringine Creek, Olivers Creek, Kings Creek, Watson Creek and Langwarrin Creek. Of these, Warringine Creek, Kings Creek and Watson Creek will be crossed by HDD to avoid disturbance of the watercourse bed and banks, and the associated potential for mobilized sediment to enter the Western Port Ramsar site.

To mitigate the potential for localised runoff from the construction footprint entering the Western Port Ramsar site, standard erosion sediment controls for pipeline construction, in accordance with the APGA Code of Environmental Practice, 2017 and Appendix P - Land-based pipeline construction, and as described in Section 4 of the referral, will be incorporated in the project Construction Environmental Management Plan. Additionally, appropriate management of fuels and drilling fluids will be implemented at HDD locations to mitigate the risk of accidental releases. Following construction, the construction footprint will be rehabilitated to a stable, vegetated landform.

As such, no substantial or measurable changes to the water quality of the Western Port Ramsar site are considered likely to occur as a result of the project.

Standard biosecurity control measures for overland pipelines, as described in Section 4 of the referral, will be incorporated in Construction Environmental Management Plan. With these measures in place there is no real chance or possibility that the project will cause an invasive species that is harmful to the ecological character of the wetland being established (or an existing invasive species being spread) in the Western Port Ramsar site.

Species

Subtropical and Temperate Coastal Saltmarsh - vulnerable ecological community

The occurrence of Coastal Saltmarsh is confined to Watson Creek (KP19.1). The Coastal Saltmarsh at Watson Creek is characterised by Shrubby Glasswort Tecticornia arbuscular, a shrubby succulent, Beaded Glasswort Sarcocornia quinqueflora, Marsh Saltbush Atriplex paludosa subsp. paludosa, Sea Rush Juncus krausii, Rounded Noonflower Disphyma crassifolium ssp. clavellatum, Shiny Swamp-mat Selliera radicans, Prickly Spear-grass Austrostipa stipoides, and Australian Salt-grass Distichlis distichophylla.

The size of the ecological community avoided by HDD is of approximately 0.295 ha based on limited visual inspection by Monarc and modelled data. The area at and near Watson Creek was not surveyed due to the presence of significant mud and water. The construction technique utilized (i.e. HDD) in this area avoids this community entirely and no direct or indirect impacts are expected.

Southern Brown Bandicoot – endangered

The Southern Brown Bandicoot was recorded at eight of 35 locations where camera surveys were undertaken for the project. In addition, presence of the species has been assumed at a

further 8 locations based on recent records. These 16 locations extend from Muddy Gates Lane (KP33.4) to McDonalds Drain Road (KP48.4), which generally aligns with the extent of the former Dalmore and Koo Wee Rup swamps where traversed by the alignment.

The 8 locations where the Southern Brown Bandicoot was recorded are listed below:

- KP 34.6 – Adjacent to Manks Road

- KP 35.4 – Adjacent to Tooradin Station Road

- KP 37.1 – Tooradin Inlet Drain

- KP 40.0 - Cardinia Creek

- KP 40.4 to 41.3 – Lower Scrub Gum Creek drain complex

- KP 41.6 – Deep Creek

- KP 43.0 - Paddock drain south of Soldiers Road (east of Hobson Road)

- KP 46.3 – East of Koo Wee Rup Road

There were a further 8 locations where the construction footprint intersects or is adjacent to habitat where the Southern Brown Bandicoot is presumed present, as follows:

- KP 33.4 - Muddy Gates Drain

- KP 33.4 - Muddy Gates Lane

- KP 33.5 - South Gippsland Rail Line

- KP 37.5 - Adjacent to Ridgeways Drain

- KP 46.25 - Hagelthornes Drain

- KP 46.5 - East of Koo Wee Rup Rd (#2). This site is adjacent to Koo Wee Rup Road, and 160m south of the alignment. A project access track is proposed in the vicinity of this area but an existing track will be used to cross the road reserve and no clearing of vegetation in the road reserve is required.

- KP 48.4 - Pakenham Creek

- KP 48.4 - McDonalds Drain Road reserve

The structural habitat component that is present at all of these locations is a dense understorey. Dense understory vegetation was present at these locations as a range of condition states with varying floristic composition including shrubby weeds (Blackberry Rubus fruticosus agg.), dense stands of exotic grasses typically Phalaris spp., Common Reed Phragmites australis, plantings of native shrubs, weedy patches of remnant native vegetation and dense planted shadelines of

exotic trees.

These findings are consistent with other studies in the area (Ecology Australia 2009, Maclagan 2016, Ecology Australia 2017) which have found that the Southern Brown Bandicoot has low association with variables which typically indicate better habitat quality for native fauna such as areas of higher native vegetation cover, quality and connectivity. Similarly, Packer (2014) found the Southern Brown Bandicoot to be nearly three times as abundant at sites dominated by blackberry than at sites with intact native vegetation without blackberry in the Mount Lofty Ranges of South Australia. Furthermore, a trapping study of seven sites proximal to the alignment (Maclagan et al. 2018) demonstrated that bandicoot abundance was higher within weedy linear vegetation patches associated with roadsides and railways than large (>100ha) areas of remnant vegetation, with the highest abundance at the roadside with the most urbanised surroundings. The majority of bandicoots at roadside and railway sites were resident (present at a site over two breeding seasons), and breeding activity, recruitment of first-year adults, and survival of mature adults was observed at all such sites. Female body condition was also similar between roadside/railway and remnant sites, suggesting that despite the higher abundance of bandicoots at roadside/railway sites, there were apparently enough resources (e.g. food and/or shelter) to support equivalent body condition to bandicoots in remnant habitat.

As such, the ability to exploit degraded linear habitats with dense ground cover appears to facilitate the ongoing viability, and even localized abundance, of the Southern Brown Bandicoot population in the peri-urban and agricultural landscape traversed by the alignment. Available evidence suggests that the narrow strips of native and exotic vegetation following the network of drainage channels, roadsides and railway lines in the former Dalmore and Koo Wee Rup swamps forms core habitat for the species in this landscape matrix.

Whilst tracking studies in the local area indicate that site fidelity of the Southern Brown Bandicoot is high and activity is concentrated in the linear vegetated strips, it is acknowledged that habitat use may extend beyond these areas into adjacent cleared paddocks and gardens. Such agricultural and peri-urban habitat is extensive in the area traversed by the alignment and availability of this habitat cannot be materially reduced by the narrow construction footprint, and temporary disturbance, associated with the project.

The primary mitigation measure employed by the project to reduce impacts on the Southern Brown Bandicoot is to minimise vegetation clearing in areas of known or assumed presence. The most important design measure which has been implemented to achieve this minimisation, as far as practicable for a long linear footprint, is positioning of the construction footprint to avoid areas of remnant vegetation or exotic vegetation with a dense understorey. In addition trenchless crossing methods have been extensively used to minimise impacts where such areas of known or assumed presence are intersected, such as along roads, watercourses and drains.

Attachment 14 provides further information on the project impact and design measures that will be put in place to minimize impact on Southern Brown Bandicoot. The outcome of these measures is that the estimated area of direct impact on areas of known and assumed presence is less than 0.5ha, patchily distributed over approximately 14km of the alignment. As such direct impacts to known or assumed habitat will be minor, localized and temporary.

Measures will also be employed during construction to reduce the potential for other direct or indirect impacts to the Southern Brown Bandicoot. These measures, which will be incorporated

into the CEMP for the Project, are described in Section 4 of the referral and include exclusion fencing adjacent to areas of known or assumed habitat and inspections of open trenches each morning. Additionally, rapid re-establishment of dense ground cover in the less than 0.5ha of known or assumed habitat impacted by the construction footprint will be achieved by plantings of semi mature native shrubs at an appropriate density during rehabilitation.

Biosecurity protocols to be employed by the project will be as described in Section 4 of the referral. These measures will be incorporated into the project CEMP and OEMP as relevant. In addition, it is noted that the key feral predators of the Southern Brown Bandicoot are cats and foxes (Threatened Species Scientific Committee 2016). These species are abundant across the landscape traversed by the project, as noted by extensive camera trapping undertaken from 2011 to 2017 by Ecology Australia (2017) as well as the results of Monarc (2018) for this project. The activities of the project can have no meaningful impact on the current distribution and abundance of these predators.

With mitigation measures in place, given the linear and temporary nature of disturbance associated with the project and contemporary research that demonstrates that the species is capable of sustaining populations in the fragmented landscape traversed by the alignment, it is not considered likely that the project will significantly impact the Southern Brown Bandicoot.

Growling Grass Frog – vulnerable

The Growling Grass Frog tends to be associated with permanent still or slow flowing waterbodies such as streams, farm dams and billabongs. They can also use temporarily inundated waterbodies for breeding purposes, provided that they contain water over the breeding season. Typically, the species prefers well vegetated water bodies that support extensive areas of emergent, submerged and floating vegetation as these provide both basking sites and protection from predators as well as areas for egg deposition (DEWHA 2009). Typical vegetation includes Typha sp. (Cumbungi), Phragmites australis (Common Reed) and Eleocharis sp. (Spike-rush) in or at the edge of water bodies. The species breeds between November and March.

Surveys for the species were undertaken at 12 locations along the alignment, with locations selected based on review of database records and assessment of aerial photography. The Growling Grass Frog was recorded at one location surveyed for the project, at Cardinia Creek (KP 40-40.3). In addition, the species was not recorded but may be present at the following locations which provide suitable habitat for the species:

- KP 20.32 - A farm dam and roadside drainage line within private property north of South Boundary Road East

- KP 23.05 - A wetland complex within private property east of Vowell Drive

- KP 31.1 - The Western Outfall Drain

- KP 41.5 - Deep Creek and Toomuc Creek

- KP 48.55 - Pakenham Creek

The primary mitigation measure employed by the project to reduce impacts on the Growling Grass Frog is to minimize disturbance in and adjacent to areas of known or potential habitat. Of the locations of known presence or suitable habitat, direct impacts to Cardinia Creek, the wetland complex at KP23.05, Deep Creek/Tomuc Creek and Pakenham Creek are entirely avoided by use of trenchless crossing methods. Additionally, the farm dam at KP20.32 is avoided by the positioning of the construction footprint.

An open cut crossing is proposed for the Western Outfall Drain, however the width of the construction footprint will be reduced to 20m. The roadside drain at KP20.32 is also proposed for an open cut crossing.

The outcome of these measures is that the estimated area of direct impact on areas of suitable habitat for the Growling Grass Frog within the Western Outfall Drain is approximately 0.07ha. The drainage line was not considered to provide suitable habitat for the Growling Grass Frog at the time of survey, but if this drain is conservatively assumed to potentially provide habitat then the total area of direct impact to potential habitat of the Growling Grass Frog will be approximately 0.12ha.

It is recognized that the chytrid fungus presents a threat to populations of the Growling Grass Frog (DEWHA 2009). The chytrid fungus is a virulent pathogen of amphibians and is capable of causing sporadic deaths in some populations, and 100 per cent mortality in other populations. As such the biosecurity protocols listed in Section 4 of the referral will be implemented to mitigate the risk of introduction of the diseases. These measures will be incorporated into the project CEMP and OEMP as relevant.

Measures that will be implemented to mitigate the potential for other direct or indirect impacts to the Growling Grass Frog are described in Section 4 of the referral. With these measures in place it is not considered likely that the project will significantly impact the Growling Grass Frog.

Dwarf Galaxias - vulnerable

The Dwarf Galaxias (Galaxiella pusilla) is a small native fish species (maximum size of 50 mm) which has an exclusive freshwater lifecycle. The Dwarf Galaxias is a short lived species, with only a few individuals surviving through to a second year. The spawning period is mainly between winter and spring, but can extend throughout summer when conditions are favorable. The Dwarf Galaxias occurs in waters which have an array of native aquatic vegetation, typically preferring swampy floodplain environments, but can also be found in creeks and rivers.

Surveys for the Dwarf Galaxias were conducted by Monarc (2018) at 16 watercourses intersected by the alignment, with watercourses selected for survey based on review of database records. No Dwarf Galaxias were recorded during targeted surveys and predatory fish were recorded in most surveyed locations. However, the Dwarf Galaxias was assessed to have a ‘High’ to ‘Moderate’ likelihood of occurrence, due to either being a known resident, having recent records (<5 years) or there being suitable habitat in Warringine Creek (avoided by HDD), Pearcedale South, Langwarrin Creek, CPT 60 (dam and Lachies Marsh), Craigs Lane Drain, Western Outfall Drain, Cardinia Creek (avoided by HDD), Toomuc Creek (avoided by HDD), Deep Creek (avoided by HDD) and Pakenham Creek (avoided by HDD).

The Action Statement for the species under the Flora and Fauna Guarantee Act 1988 (DELWP

2015) suggests that important populations of this species may occur within Cardinia Creek, Watson Creek and Deep Creek. All of these watercourses will be crossed by HDD so direct impacts to habitat of these important populations will be entirely avoided. The likelihood of occurrence of the species in Watson Creek is considered to be low as the latest record was in 2010 and some 7.7km away from the alignment. As such the Project is not expected to significantly impact an important population of the species.

Those waterways listed above which are not crossed by HDD will experience short-term localised impacts to suitable habitat for the Dwarf Galaxias as a result of the project. However important populations of the species are not likely to occur in these watercourses. Measures to mitigate direct impacts to watercourse bed and banks, and indirect impacts associated with temporary barriers to movement through watercourses, release of sediment, or introduction of biosecurity risks are as described below in Section 4 of the referral. With these measures in place the project is not expected to significantly impact the Dwarf Galaxias.

Australian Grayling - vulnerable

The Australian Grayling (Prototroctes maraena) is a small fish that migrates between fresh and marine waters. Most of its life is spent in freshwater, but at least part of the larval and/or juvenile stages are spent in coastal seas. Spawning occurs in fresh water, from late summer to winter, the timing varying with location and between years. The species occurs in south-eastern Australia, in coastal rivers and streams. In Victoria it occurs widely across the State, from the Genoa River system in the east to the Hopkins River system in the west (Backhouse 2008). The Australian Grayling was assessed to have a ‘High’ to ‘Moderate’ likelihood of occurring in Cardinia Creek, based on nearby records (Monarc 2018). Cardinia Creek is also listed as an important river for the Australian Grayling under the national recovery plan for the species (Backhouse 2008).

Cardinia Creek will be crossed by HDD and, as such, no direct or indirect impacts on habitat of the Australian Grayling are expected.

Strzelecki Gum - vulnearble

The Strzelecki gum (Eucalyptus strzeleckii) ia a medium to tall forest tree which is a member of the swamp gum group. The species is endemic to the Strzelecki Ranges, in Gippsland, Victoria. It extends north to Neerim South, south to Foster, east to Woodside – Yarram area, and west to Western Port Bay – Bass River area. Habitat where the species occurs is variable, including ridges, slopes and along the banks of streams, but particularly foothills and flats. Preferred soils are grey, deep, fertile loams which are seasonally waterlogged (Carter 2006).

Field surveys undertaken for the project located a single adult Strzelecki gum within the construction footprint at KP21 near Langwarrin Creek. Options to avoid this individual were assessed but a feasible solution for avoidance was not available due to the proximity of houses and a road, and significant constraints that would be imposed on a HDD proposed to avoid a wetland at KP21.2. As such the individual Strzelecki gum is proposed for removal.

This individual Strzelecki gum is not considered to be an important population as no other adults or juveniles were present in the immediate area. The closest stand is near the mouth of the Bass River into Westernport (DSE 2008). Additionally, no significant populations identified in the

national recovery plan for the species (Carter 2006) or important populations identified in the Action Statement for the species under the Flora and Fauna Guarantee Act 1988 (DSE 2008a) are proximal to the alignment. Given the absence of an important population the project will not:

- Lead to a long-term decrease in the size of an important population of a species

- Reduce the area of occupancy of an important population

- Fragment an existing important population into two or more populations

- Disrupt the breeding cycle of an important population

Additionally, removal of a single, isolated Strzelecki gum is not considered likely to:

- Adversely affect habitat critical to the survival of a species

- Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

- Interfere substantially with the recovery of the species

River Swamp Wallaby-grass - vulnerable

The River Swamp Wallaby-grass (Amphibromus fluitans) is an aquatic perennial with 1 m long aerial stems growing horizontally. River Swamp Wallaby-grass grows mostly in permanent swamps and also lagoons, billabongs, dams and roadside ditches. In southern Victoria, it is known from several localities in south Gippsland and has also been reported at Cranbourne (Department of the Environment, 2018).

This species was not recorded in the construction footprint during extensive field surveys undertaken by Monarc (2018). There is, however, a known population on an existing pipeline easement adjacent (200m away) to the construction footprint between KP14.5 and KP15. This area will not be impacted by the construction footprint. Other suitable habitat within the construction footprint near this point will be traversed by HDD to avoid impacts. As there are no direct impacts to populations or potential habitat of River Swamp Wallaby-grass there is no plausible risk of a significant impact to this species.

Dense Leek-orchid - vulnerable

The Dense Leek-orchid (Prasophyllum spicatum) is a deciduous, perennial, terrestrial orchid emerging annually from an underground tuber. A single leaf emerges in late autumn, following the seasonal rainfall. Flowering commences in early October and is usually completed by early November. About four weeks after flowering finishes, the leaf has shriveled and the species survives the dry summer and early autumn as a dormant tuber that is replaced annually (Duncan 2010).

The species generally occurs on sandy soils, with some sites seasonally waterlogged. 80 individuals are known from around eight populations ranging from south Gippsland (Wonthaggi) to the far south-east of South Australia (Duncan 2010). Duncan (2010) details two of these

occur in Crib Point and one in nearby Stony Point Rail Reserve.

The construction footprint follows existing oil and gas pipeline infrastructure corridors in the Crib Point and Stony Point area but also traverses an area of Damp Heathy Woodland at KP1.5, which provides suitable habitat for this species. The presence of the Dense Leek-orchid at this location is presently undetermined as surveys have not yet been conducted during the flowering period. If Dense Leek-orchid did occur at this location it would be considered part of an important population given the low numbers of the species across its' distribution and proximity to the Stony Point and Crib Point sites which contribute 27% of the total population .

A targeted survey is planned at this location during spring 2018 to determine if the species is present. If the species is found to be present impacts will be avoided by using trenchless technology, or by minor realignment of the construction footprint. If the species is present and direct impacts cannot be entirely avoided, options for offsetting or translocation will be agreed with the federal regulator prior to impacts occurring.

Given this approach, the project is not considered likely to significantly impact the Dense Leek-orchid.

Swamp Fireweed - vulnerable

The Swamp Fireweed is an erect, native, rhizomatous perennial herb. This species typically occurs on high-quality herb-rich wetlands on plains. Swamp Fireweed is known from approximately 14 sites with the recorded population in the Westernport being one of the most easterly recorded (DEWHA 2008).

The Swamp Fireweed is considered to have a high likelihood of occurrence in suitable habitat at KP 33.5 as known populations exist nearby at Muddy Gates Lane and Manks Road, and the South Gippsland Railway line. In response to this high likelihood of occurrence, a single HDD will be used to cross from the west of the Muddy Gates Lane road reserve to the east of the South Gippsland Railway reserve. As such, there will be no direct impacts to these areas of potential habitat traversed by the HDD. The area impacted to the east of the South Gippsland Railway reserve is a paddock that aerial imagery indicates is subject to ongoing hay production, and so provides lower quality habitat.

The presence of the Swamp Fireweed at this location is presently undetermined as surveys have not yet been conducted during the flowering and fruiting period, which are necessary to distinguish this species from other similar species. A targeted survey is planned at this location during spring and early summer 2018 to determine if the species is present. If the species is found to be present, impacts will be avoided by using trenchless technology, or by minor realignment of the construction footprint. If the species is present and direct impacts cannot be entirely avoided, options for offsetting or translocation will be agreed with the federal regulator prior to impacts occurring.

Given this approach, the project is not considered likely to significantly impact the Dense Leek-orchid.

Swamp Everlasting - vulnerable

The Swamp Everlasting (Xerochrysum palustre) is a perennial, erect herb to 100 cm tall. Flowering occurs from November to March. Swamp Everlasting occurs in Victoria, Tasmania and New South Wales within lowland swamps and wetlands, usually on black cracking clay soils. Swamp Everlasting is known from about 35 populations with an estimated abundance of over 10,000 plants (Carter and Walsh 2011). The Action Statement for the species under the Flora and Fauna Guarantee Act 1988 (DSE 2008b) indicates that an important population of this species occurs within the 'South Gippsland Clyde Manks Road Rail Reserve'.

The Swamp Everlasting is considered to have a high likelihood of occurrence in suitable habitat at KP 33.5 as known populations exist nearby at Muddy Gates Lane and Manks Road, and the South Gippsland Railway line. In response to this high likelihood of occurrence, a single HDD will be used to cross from the west of the Muddy Gates Lane road reserve to the east of the South Gippsland Railway reserve. As such, there will be no direct impacts to these areas of potential habitat traversed by the HDD. The area impacted to the east of the South Gippsland Railway reserve is a paddock that aerial imagery indicates is subject to ongoing hay production, and so provides lower quality habitat.

The presence of the Swamp Everlasting at this location is presently undetermined as surveys have not been yet conducted during the flowering and fruiting period, which are necessary to distinguish this species from other similar species. A targeted survey is planned at this location during spring and early summer 2018 to determine if the species is present. If the species is found to be present, impacts will be avoided by using trenchless technology, or by minor realignment of the construction footprint. If the species is present and direct impacts cannot be entirely avoided, options for offsetting or translocation will be agreed with the federal regulator prior to impacts occurring.

Given this approach, the project is not considered likely to significantly impact the Dense Leek-orchid.

Section 6 – Environmental record of the person proposing to take the action

Provide details of any proceedings under Commonwealth, State or Territory law against the person proposing to take the action that pertain to the protection of the environment or the conservation and sustainable use of natural resources.

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Please explain in further detail.

APA has satisfactory constructed multiple pipeline projects, including those listed in section 6.4.1.

APA has a dedicated in house team of environmental and approvals experts as well as drawing on specialist environmental constrictors as and when required.

In October 2016, APA received the Golden Gecko Award for a program that monitored the endangered small marsupial, the Sandhill Dunnart, during development of the Eastern Goldfields Pipeline. The award is presented by the Western Australia Department of Mines and Petroleum to recognise excellence and leadership, and acknowledge the outstanding contribution recipients have made to develop WA's resources in a responsible manner.

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application.

Two Penalty Infringement Notices were issued to East Australia Pipeline Pty Ltd (which is a related company of the proponent) in January 2017 under the New South Wales *Environmental Planning and Assessment Act 1979*. These notices were given in relation to the failure to implement suitable erosion and sediment controls following significant rainfall events in southern New South Wales in mid to late-2016.

6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation's environmental policy and framework?

Yes

6.3.1 If the person taking the action is a corporation, please provide details of the corporation's environmental policy and planning framework.

APA is committed to responsible safety and environmental management. This is formalised in a Health, Safety and Environment (HSE) Policy, which outlines the requirements of all APA

employees including contractors. The HSE Policy sets out APA's commitment, strategic intent, direction, and an overview of supporting strategies to achieve the aims of the policy.

APA's HSE Strategy aims to identify actions that, when implemented, will reduce risks to health, safety and the environment across APA's business activities. In summary, it aims to:

- Identify and understand HSE risks within our work environment;

- Implement and maintain strategies and improvement programs which prevent and/or reduce consequences of harm; and

- Monitor and review the effectiveness of our HSE programs to continually learn and improve.

The HSE Management System is called 'Safeguard' and provides a framework by which the processes relating to APA's HSE activities are written, approved, issued, communicated, implemented and controlled. Additionally, Safeguard is subject to review and ongoing improvement to ensure objectives and obligations are continually satisfied.

Key attributes of Safeguard include:

- Work is conducted in a planned and systematic way;

- Variation is minimised and outcomes are predicable;

- Process-based and draws on commit-plan-do-check-review principles;

- Requirements are documented and deployed;

- Risk is reduced, assurance is increased; and

- Supports APA fulfilling its HSE legislative obligations.

APA will implement plans and procedures in relation to the proposed pipeline project lifecycle that conform to the Safeguard Protocols, HSE Group Procedures, HSE Elements and the overarching HSE Policy Framework.

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

Yes

6.4.1 EPBC Act No and/or Name of Proposal.

Members of the APA Group have undertaken a number of projects that have been referred under the EPBC Act. They include:

2017/7894 Western Slopes Pipeline

The Western Slopes Pipeline involves the construction and operation of an approximately 450km buried, steel, gas transmission pipeline between the Narrabri Gas Project and the existing Moomba Sydney Pipeline. The pipeline has a diameter ranging from 400-450mm. An EPBC referral for the Western Slopes Pipeline was submitted in March 2017. The project will be assessed under the assessment bilateral agreement with NSW.

2017/7888 Reedy Creek to Wallumbilla Pipeline

The Reedy Creek to Wallumbilla Pipeline involves the construction and operation of a high pressure, buried steel, gas transmission pipeline from the Australian Pacific LNGs (APLNGs)Reedy Creek gas processing plant (which connected to the APLNGs export pipeline system) and APA's existing facility at Wallumbilla, located in southern Queensland. The pipeline will be approximately 50 kilometers in length with a diameter of approximately 460mm. An EPBC referral for the Reedy Creek to Wallumbilla Pipeline was determined to be not a controlled action.

2015/7580 - Victorian Northern Interconnect Expansion (VNIE) Looping 6 -7

The project consists of the installation of a second pipeline (looping) or several sections of the existing Wollert to Wodonga pipeline. The 300mm Wollert to Wodonga gas transmission pipeline was constructed in 1975 and runs in an approximately north easterly direction from the Wollert Compressor Station on the northern outskirts of Melbourne through to Wodonga, a total distance of approximately 269km.

Looping 6 commences on the north side of Strath Creek Road to the east of Broadford and the Hume Freeway. It then heads north to pass under the Goulburn River and diverts to the east of Seymour to finish about 50m south of Back Mountain Road (about four kilometres north-east of Seymour).

Looping 7 commences on the north side of the Glenrowan-Boweya Road about 3km west of Glenrowan and skirts the north side of the township before crossing the Hume Freeway. It then heads in a north easterly direction, crossing the Hume Freeway twice more, as it passes to the east of Wangaratta. Keeping to the east of the Freeway, the pipeline then heads in a northerly direction before crossing the Freeway a fourth time to the south west of Chiltern. The easement then heads around the northern side of Chiltern township, passing through the eastern side of the Chiltern section of the Chiltern - Mt. Pilot National Park, before heading in a north-easterly direction to finish at Barnawartha at about KP184.6.

2014/7186 - Victorian Northern Interconnect Expansion (VNIE) Looping 2-5 Project

The existing 300NB Wollert to Wodonga gas transmission pipeline runs in an approximate north easterly direction from the Wollert Compressor Station on the northern outskirts of Melbourne through to Wodonga West; a total distance of approximately 269km. The project commenced in October 2014 and was completed in June 2015. The project was deemed as Not a Controlled Action if undertaken in a particular manner, conditional to appropriate mitigation measures to avoid impacts to matters of NES. A CEMP, SEMP and Flora and Fauna Management Plan were prepared prior to commencement of construction to meet the obligations under the EPBC Act.

2011/6159 - Sunbury Pipeline Looping Project

The 8.4km Sunbury pipeline runs from Brooklyn Lara Pipeline at the corner of Hopkins and Middle Roads, Truganina to the Plumpton Pressure Regulating Station at Taylors Road, Plumpton. The entire pipeline route is located within the 2010 expanded Melbourne Urban Growth Boundary and was constructed in 2012 prior to the recent declaration of the Biodiversity Conservation Strategy. However removal of native vegetation was offset in accordance with the prescriptions for native vegetation loss.

2009/5036 - Wollert Compressor Station

APA owns a 193 hectare property at Wollert approximately 27 kilometres north of Melbourne.The project in 2009 involved upgrading the Natural Gas Compressor station at Wollert and the building of two additional compressors behind the existing compressors to expand the supply of gas to the north of Victoria.

The property contains Natural Temperate Grasslands of the Victorian Volcanic Plain and also has a significant population of Golden Sun Moths. The EPBC referral was ‘NOT a controlled action if undertaken in a particular manner’ due to the protection measures applied to the Golden Sun Moth population and ongoing protection of this population.

2006/3093 Brooklyn to Lara Pipeline Project

This 57 kilometre gas pipeline was constructed from October 2007 to March 2008 utilising previously disturbed easement as well as a “Greenfield section”. The route included the crossing of two native grassland sections through private property as well as the crossing of the Derrimut Grasslands. Management plans were in place to minimise the impact on the grasslands. An offset property was secured and an approved land management plan set up to satisfy net gain obligations. In addition, APA entered into a three year plan with Parks Victoria for the improvement of native vegetation within the vicinity of the pipeline crossing of the Derrimut Grasslands. The environmental performance was monitored and audited during and after construction. The project was completed without any major environmental incidents and to the satisfaction of DPI.

2006/2930 - Bonaparte Gas Pipeline

The 286km Bonaparte gas pipeline runs from Wadeye to Ban Ban Springs, through aboriginal land and pastoral leases and was constructed from April 2008 to October 2008. The EPBC referral decision placed conditions for the protection of a number of threatened and migratory species. Audits and regular inspection reports were carried out by environmental consultants, fauna monitors and an independent auditor against the CEMP during construction. An independent audit immediately following construction determined that there had been no effect on the EPBC listed species. A detailed report on fauna mortality and the types of species identified was forwarded to the Northern Territory Government and Commonwealth Government following construction.

Section 7 – Information sources

You are required to provide the references used in preparing the referral including the reliability of the source.

7.1 List references used in preparing the referral (please provide the reference source reliability and any uncertainties of source).

Reference Source	Reliability	Uncertainties
Backhouse, G., Jackson, J. and O'Connor, J. 2008. National Recovery Plan for the Australian Grayling Prototroctes maraena. Department of Sustainability and Environment, Melbourne.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.
DELWP 2015. Action statement No.258 Dwarf Galaxias Galaxiella pusilla Flora and Fauna Guarantee Act 1988. Department of Environment, Land, Water and Planning 2015	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.
Carter, O. and Walsh, N., 2011. National Recovery Plan for the Swamp Everlasting Xerochrysum palustre. Department of Sustainability and Environment, Melbourne.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.
DEWHA, 2008. Approved Conservation Advice for Senecio psilocarpus (Swamp Fireweed). Canberra: Department of the Environment, Water, Heritage and the Arts. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/64976-conservation-advice.pdf.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.
DSE 2008b. Action statement No.229 Swamp Everlasting Xerochrysum palustre Flora and Fauna Guarantee Act 1988. Department of Sustainability and Environment	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is

Reference Source	Reliability	Uncertainties
2008	recent and reliable.	recent and reliable.
Dann, P. 2011. Birds and Marine Mammals. In Understanding the Western Port Environment: A summary of current knowledge and priorities for future research. Edited by Melbourne Water. Melbourne Water, Melbourne. pp. 156–169.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.
Hale, J. 2016. Ecological Character Description Addendum - Western Port Ramsar Site. Department of Environment, Land, Water and Planning. East Melbourne.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.
Jenkins, G. 2011. Fish. In Understanding the Western Port Environment: A summary of current knowledge and priorities for future research. Edited by Melbourne Water. Melbourne Water, Melbourne. pp. 142–155.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.
Kellogg Brown & Root, 2010, Western Port Ramsar Wetland Ecological Character Description. Report for Department of Sustainability, Environment, Water, Population and Communities, Canberra.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.
Lee, R. 2011. Physical and chemical setting. In Understanding the Western Port Environment: A summary of current knowledge and priorities for future research. Edited by Melbourne Water. Melbourne Water, Melbourne. pp. 50–79	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.
Maclagan. S. 2016. Ecology and conservation of the Southern Brown Bandicoot in an urbanising landscape. Victorian Naturalist. 133 (3) 2016.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.

Reference Source	Reliability	Uncertainties
Maclagan. S. J., Coates. T and Ritchie. E. G. 2018. Don't judge habitat on its novelty: Assessing the value of novel habitats for an endangered mammal in a peri-urban landscape. Biological Conservation 223 (2018) 11–18	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.
Threatened Species Scientific Committee (2016). Conservation Advice Isoodon obesulus obesulus southern brown bandicoot (eastern). Canberra: Department of the Environment. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/68050-conservation-advice-05052016.pdf. In effect under the EPBC Act from 02-May-2016.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.	The information is the most current available and has been the subject of technical, scientific, public and peer review, as well as quality controls. The information is recent and reliable.

Section 8 – Proposed alternatives

You are required to complete this section if you have any feasible alternatives to taking the proposed action (including not taking the action) that were considered but not proposed.

8.0 Provide a description of the feasible alternative?

In selecting the proposed pipeline route, APA has undertaken detailed consideration of alternatives to meet the purpose of the proposed pipeline. This process included consideration of the best connection points to the VTS and alternatives to the proposed connection locations on the VTS taking account of environmental, safety, social, constructability and cost values (a full list of criteria is provided below).

The requirement for the pipeline to connect into the VTS was determined by the need to cater for the proposed volume of gas flows proposed for the pipeline, which ruled out the use of existing pipeline infrastructure. It is not feasible to transport the quantity of gas proposed to be imported as part of the AGL Gas Import Jetty Project by an alternative method (e.g. by road, rail, etc.).

APA subsequently continued optimisation and review of the pipeline route through consultation and engagement with relevant stakeholders and owners and occupiers of land. This refinement process resulted in a number of alignment revisions, which sought to continue avoidance and minimisation of the potential impacts to the environment and social and safety impacts of the proposed pipeline.

Route selection criteria

The analysis criteria applied to the route selection process included the following (in no particular order of preference):

- Pipeline route length;

-Terrain complexity and difficulty;

- Extent of areas of environmental sensitivity (e.g. flora, fauna and waterways);

- Extent of areas of conservation and nature reserves;

- The number of land parcels and landowners;

- Extent of areas of cultural heritage significance;

- Extent of areas of good to high quality agricultural land;

- Impacts to operation of the transport network;

- Co-existence challenges or opportunities in respect of other utilities / assets (e.g. rail, other pipelines and power corridors);

- Population density levels, including proximity to residential and industrial estates;

- Public and worker safety (during construction and operation); and

- Accessibility for pipeline construction and operation.

As identified above, the selection criteria were utilised to review multiple pipeline routes between Crib Point and a connection point on the VTS. APA has selected the pipeline route based on the above criteria and the key constraints and opportunities afforded by existing and proposed land use and infrastructure along each alternative route, with reference to the overarching considerations of public safety, environmental, social and economic impacts of the proposed pipeline.

Pipeline route alternatives – connection to the VTS

An initial assessment identified two potential corridors for the proposed pipeline based on two potential connection points on the VTS:

- A western corridor direct to APA's Dandenong South LNG Facility; and

- An eastern corridor direct to the Dore Road Mainline Valve (MLV) on the Longford Dandenong Pipeline, near Pakenham.

The corridor between Crib Point and Dandenong South is highly constrained due to the pattern of development, urban growth and industrial sub-division in these areas. Comparatively, the corridor north-east from Tyabb to Pakenham is less constrained. The corridor to APA's Dandenong South LNG Facility was initially considered due to it having the shortest pipeline route, but further investigation and field verification identified the social impacts associated with land use and tenure would have resulted in a high impact to these existing communities.

Existing linear infrastructure corridors including oil and gas pipeline corridors exist between Crib Point / Hastings and Dandenong South. However, these are occupied with existing assets and the ability to widen the corridors to co-locate with this infrastructure is limited. For this reason, and the significant disruption to traffic, businesses and third party asset owners with pipeline alternatives to APA's Dandenong South LNG Facility, they were not favoured.

The termination of the pipeline at the existing Dore Road MLV was initially assessed by APA as a logical connection point due to the requirement for additional above-ground pipeline facilities associated with the pipeline and the ability to co-locate these with existing gas infrastructure.

Following detailed assessment and consultation with affected stakeholders, review of the availability of land to achieve this outcome and the suitability of pipeline routes to this location, it was subsequently discounted.

The primary reason for this relates to the location of the Urban Growth Boundary and preparation by the State Government of the recently released Pakenham East Precinct

Structure Plan, which encompasses this existing pipeline facility. Due to the designation of land for the future urban development, advanced planning of urban development within this area and the lack of availability of land for the Pakenham Delivery Facility, a connection point to the east of Pakenham in Nar Nar Goon North has been selected as the connection point to the VTS and the terminal point of the pipeline. This connection location is outside the area of the Pakenham East Precinct Structure Plan.

Pipeline route alternatives – Crib Point to east of Pakenham

APA assessed several route alternatives between Crib Point and APA's proposed connection to the VTS, east of Pakenham (both to the existing Dore Road MLV and the proposed connection point at Nar Nar Goon North). Initially, APA considered six route alternatives between Crib Point and Pakenham. This was refined to five following a desktop assessment against the relevant route selection criteria and field verification of the alternative pipeline routes.

APA assessed the potential environmental, social and safety impacts of the pipeline routes of these route options to then validate the selection of a preferred pipeline route. Engagement with relevant stakeholders, including public and private entities, resulted in further refinement of the pipeline route with APA adopting a further eight pipeline route modifications prior to determining the route which informs this referral.

In relation to Matters of National Environmental Significance, the pipeline routes assessed were considered to have manageable potential impacts with consideration of specific design and avoidance measures. One pipeline route alternative was discounted due to potential significant impacts to the Western Port Ramsar site. This pipeline route utilised an offshore sub-sea pipeline from Crib Point to a location near Koo Wee Rup, which intersects the boundary of the Western Port Ramsar site for approximately 29km.

8.1 Select the relevant alternatives related to your proposed action.

8.27 Do you have another alternative?

Yes

8.27.1 Describe the details of the proposed alternative proposal.

APA has been undertaking a process of pipeline route refinement (refer to above) and is currently taking all reasonable steps to reach agreement for an easement with owners of land through which the proposed pipeline passes. Through continued easement negotiations, progression of the detailed pipeline design and limiting impacts to landowners' properties there is potential for minor changes to the pipeline route.

Any future alteration to the pipeline route will be assessed for potential environmental or other impacts prior to any route revision, which will include but not be limited to, the following:

-Ecological assessment;

-Habitat hectare assessment;

- Arboriculture assessment for any affected trees in the construction footprint or easement;

- Cultural heritage assessment; and

- Targeted fauna assessment, if required.

The alternative will be accepted if there is to be less or equal environmental impact to the alignment assessed in this referral.

Specifically with regards to Matters of National Environmental Significance, the following criteria will apply when assessing alternative alignments:

- The construction footprint will avoid the Western Port Ramsar site and there will be no significant indirect impact to this wetland;

- No clearing of Threatened Ecological Communities;

- Not more than 0.5 ha of impact to known or assumed Southern Brown Bandicoot habitat, as described by Monarc (2018); and

- No significant impact to any other EPBC listed threatened or migratory species.

Should additional habitat be identified for listed threatened flora and fauna avoidance and mitigation measures consistent with those described in this referral will be implemented for these areas.

Section 9 – Contacts, signatures and declarations

Where applicable, you must provide the contact details of each of the following entities: Person Proposing the Action; Proposed Designated Proponent and; Person Preparing the Referral. You will also be required to provide signed declarations from each of the identified entities.

9.0 Is the person proposing to take the action an Organisation or an Individual?

Organisation

9.2 Organisation

9.2.1 Job Title

Group Executive Transmission

9.2.2 First Name

Rob

9.2.3 Last Name

Wheals

9.2.4 E-mail

Rob.Wheals@apa.com.au

9.2.5 Postal Address

580 George Street
Sydney NSW 2000
Australia

9.2.6 ABN/ACN

ABN

84603054404 - APA TRANSMISSION PTY LIMITED

9.2.7 Organisation Telephone

+61 3 86288400

9.2.8 Organisation E-mail

9.2.8 Organisation E-mail

cribpointpakenham@apa.com.au

9.2.9 I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

Not applicable

Small Business Declaration

I have read the Department of the Environment and Energy's guidance in the online form concerning the definition of a small a business entity and confirm that I qualify for a small business exemption.

Signature:..... Date: .....

9.2.9.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations

No

9.2.9.3 Under sub regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made

Person proposing the action - Declaration

I, Robert Wheals, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

Signature: Rwheal Date: 12/9/2018

I, Robert Wheals, the person proposing the action, consent to the designation of APA Transmission Pty Ltd as the proponent of the purposes of the action describe in this EPBC Act Referral.

Signature: Rwheal Date: 12/9/2018

9.3 Is the Proposed Designated Proponent an Organisation or Individual?

Organisation

9.5 Organisation

9.5.1 Job Title

Group Executive Transmission

9.5.2 First Name

Rob

9.5.3 Last Name

Wheals

9.5.4 E-mail

cribpointpakenham@apa.com.au

9.5.5 Postal Address

580 George Street
Sydney NSW 2000
Australia

9.5.6 ABN/ACN

ABN

84603054404 - APA TRANSMISSION PTY LIMITED

9.5.7 Organisation Telephone

+61 3 8626 8400

9.5.8 Organisation E-mail

cribpointpakenham@apa.com.au

Proposed designated proponent - Declaration

I, Robert Wheals, the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.

Australian Government
Department of the Environment and Energy

Signature:..... Date: 12/9/2018

9.6 Is the Referring Party an Organisation or Individual?

Organisation

9.8 Organisation

9.8.1 Job Title

Project Licensing and Environmental Approvals Lead

9.8.2 First Name

Marisa

9.8.3 Last Name

Feher

9.8.4 E-mail

Marisa.Feher@apa.com.au

9.8.5 Postal Address

Level 13, IBM Building, 60 City Road
Southbank VIC 3000
Australia

9.8.6 ABN/ACN

ABN

84603054404 - APA TRANSMISSION PTY LIMITED

9.8.7 Organisation Telephone

+61 3 86268400

9.8.8 Organisation E-mail

cribpointpakenham@apa.com.au

Referring Party - Declaration

Australian Government
Department of the Environment and Energy

I, Marisa Feher, I declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence.

Signature:..... Date: 12/09/2018

Appendix A - Attachments

The following attachments have been supplied with this EPBC Act Referral:

1. attachment_1_-_project_bounding_coordinates.pdf
2. attachment_2_-_project_overview_plan.pdf
3. attachment_3_-_property_details.pdf
4. attachment_4_-_pipeline_route_proposed_easements_part1.pdf
5. attachment_4_-_pipeline_route_proposed_easements_part2.pdf
6. attachment_4_-_pipeline_route_proposed_easements_part3.pdf
7. attachment_4_-_pipeline_route_proposed_easements_part_1.pdf
8. attachment_4_-_pipeline_route_proposed_easements_part_2.pdf
9. attachment_4_-_pipeline_route_proposed_easements_part_3.pdf
10. attachment_5_-_pipeline_construction_row_part1.pdf
11. attachment_5_-_pipeline_construction_row_part2.pdf
12. attachment_5_-_pipeline_construction_row_part3.pdf
13. attachment_5_-_pipeline_construction_row_part_1.pdf
14. attachment_5_-_pipeline_construction_row_part_2.pdf
15. attachment_5_-_pipeline_construction_row_part_3.pdf
16. attachment_6_-_pipeline_construction_methodology_part1.pdf
17. attachment_6_-_pipeline_construction_methodology_part2.pdf
18. attachment_6_-_pipeline_construction_methodology_part3.pdf
19. attachment_7-_ecological_mapping_part1.pdf
20. attachment_7-_ecological_mapping_part2.pdf
21. attachment_7-_ecological_mapping_part3.pdf
22. attachment_7_-_ecological_mapping_part_1.pdf
23. attachment_7_-_ecological_mapping_part_2.pdf
24. attachment_7_-_ecological_mapping_part_3.pdf
25. attachment_8_-_warringine_creek_-_hdd.pdf
26. attachment_9_-kings_creek_hdd.pdf
27. attachment_10_-_watson_creek_hdd.pdf
28. attachment_11_-toomuc_creek_hdd.pdf
29. attachment_12_-_warringine_park_hdd.pdf
30. attachment_13_-_flora_and_fauna_report_2018a_part1.pdf
31. attachment_13_-_flora_and_fauna_report_2018a_part2.pdf
32. attachment_13_-_flora_and_fauna_report_2018a_part3.pdf
33. attachment_14_-_epbc_referral_-_significant_impact_assessment_v0.pdf
34. attachment_15_-_southern_brown_bandicoot_2018b.pdf
35. attachment_16_-_ggf_survey_report_2018c.pdf
36. attachment_17_-_aquatic_survey_2018d.pdf
37. attachment_18_-_monarc_ass_report_2018g_part_1.pdf
38. attachment_18_-_monarc_ass_report_2018g_part_2.pdf
39. attachment_19_-_desktop_historical_report_2018b.pdf
40. attachment_20_-_ae_cultural_assessment_2018a.pdf
41. attachment_21-_hydrology_hydrogeological_impact_report_2018b_part_2.pdf
42. attachment_21_-_hydrology_hydrogeological_impact_report_2018b_part1.pdf
43. attachment_21_-_hydrology_hydrogeological_impact_report_2018b_part2.pdf
44. attachment_21_-_hydrology_hydrogeological_impact_report_2018b_part3.pdf
45. attachment_21_-_hydrology_hydrogeological_impact_report_2018b_part4.pdf

46. attachment_21_-_hydrology_hydrogeological_impact_report_2018b_part_1.pdf
47. attachment_21_-_hydrology_hydrogeological_impact_report_2018b_part_3.pdf
48. attachment_21_-_hydrology_hydrogeological_impact_report_2018b_part_4.pdf
49. attachment_22_-_apa_hse_pol_001_health_safety_and_environment_policy.pdf
50. attachment_23_-_cumulative_impact_assessment.pdf
51. cpt_construction_footprint_row_rev8.zip
52. cpt_pipeline_ln_rev8.zip