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

REFERRAL FORM

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

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

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

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

In completing a Referral Form, the following should occur:

- Mark relevant boxes by changing the font colour of the 'cross' to black and provide additional information and explanation where requested.
- As a minimum, a brief response should be provided for each item in the Referral Form, with a more detailed response provided where the item is of particular relevance. Cross-references to sections or pages in supporting documents should also be provided. Information need only be provided once in the Referral Form, although relevant cross-referencing should be included.
- Responses should honestly reflect the potential for adverse environmental effects. A Referral will only be accepted for processing once IAU is satisfied that it has been completed appropriately.
- Potentially significant effects should be described in sufficient detail for a reasonable conclusion to be drawn on whether the project could pose a significant risk to environmental assets. Responses should include:
  - a brief description of potential changes or risks to environmental assets resulting from the project;
  - available information on the likelihood and significance of such changes;
  - the sources and accuracy of this information, and associated uncertainties.
- Any attachments, maps and supporting reports should be provided in a secure folder with the Referral Form.
- A CD or DVD copy of all documents will be needed, especially if the size of electronic documents may cause email difficulties. **Individual documents should not exceed 2MB, as they will be published on the Department's website.**
- A completed form would normally be between 15 and 30 pages in length. Responses should not be constrained by the size of the text boxes provided. Text boxes should be extended to allow for an appropriate level of detail.
- The form should be completed in MS Word and not handwritten.

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

Postal address

Minister for Planning
GPO Box 2392
MELBOURNE VIC 3001

Couriers

Minister for Planning
Level 20, 1 Spring Street
MELBOURNE VIC 3001

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

PART 1 PROPONENT DETAILS, PROJECT DESCRIPTION & LOCATION

1. Information on proponent and person making Referral

Name of Proponent:	**APA GasNet Australia (Operations) Pty Ltd (APA)**
Authorised person for proponent:	Craig Bergin
Position:	Program Manager (Victoria)
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Email address:	Craig.Bergin@apa.com.au
Phone number:	03 9797 5147
Facsimile number:	03 9797 5146
Person who prepared Referral:	Colin Clay
Position:	Senior Environmental Consultant
Organisation:	Monarc Environmental
Postal address:	Suite 2, 17 Cotham Road, Kew VIC 3101
Email address:	colin.clay@monarcenviro.com
Phone number:	03 9205 0612
Facsimile number:	03 9205 0699
Available industry & environmental expertise: (areas of 'in-house' expertise & consultancy firms engaged for project)	Monarc Environmental has extensive experience in flora and fauna assessments including major infrastructure projects and has managed the environmental assessments for this project. Their resources include personnel accredited under the DELWP Vegetation Quality Assessment scheme. Other qualified sub-contractors that have completed work on the project include: • Archaeology at Tardis for cultural heritage assessments. • Grist Archaeology Heritage Management for cultural heritage assessments. • Tree Logic for arboricultural assessments • GHD for aquatic surveys • Cardno Lane Piper for geotechnical assessments. All sub-contractors used on this project have extensive experience in their field of expertise.

2. Project – brief outline

Project title: Victorian Northern Interconnect Expansion – Construction of a Transmission Gas Pipeline from Broadford to Mangalore (Back Mountain Rd, near Seymour) and Glenrowan to Barnawartha

Project location: (describe location with MGA coordinates and attach A4/A3 map(s) showing project site or investigation area, as well as its regional and local context)

The project consists of the looping (duplication) of two separate sections of the existing 300mm Wollert to Wodonga Gas Transmission Pipeline (Pipeline Licence 101 held by APA) from Broadford to Mangalore and from Glenrowan to Barnawartha. The new 400mm pipeline is to be installed within the existing easement occupied by the existing 300mm gas transmission pipeline.

The project area for the pipeline looping between Broadford and Mangalore, which is referred to as Looping 6, commences north of Strath Creek Road, Broadford to the east of the Hume Freeway (MGA Co-ord: E 337973.14 N 5903545.06) and then runs in a northerly direction to Back Mountain Road, north-east of Seymour (MGA Co-ord: E 337956.514 N 5903608.345). As the pipeline heads north from Broadford, it comes within 100m of the Hume Freeway in a couple of locations, but generally lies at least one kilometre to the east of the freeway.

The second pipeline looping between Glenrowan and Barnawartha, which is referred to as Looping 7, commences west of Glenrowan, where the existing APA pipeline easement intersects Glenrowan Boweya Road (MGA Co-ord: E 427880.99 N 5964621.04), then heads generally north easterly until it crosses the Hume Freeway north of Glenrowan. The pipeline continues in a north easterly direction east of the Hume Freeway

before again crossing the Hume Freeway south of Wangaratta and then continues northwards, passing to the east of Wangaratta, before crossing the Hume Freeway once again north of Wangaratta. The pipeline continues in a north easterly direction to again cross the Hume Freeway south west of Chiltern. The pipeline continues north-easterly into the Chiltern - Mt Pilot National Park then easterly through parts of Chiltern - Mt Pilot National Park and private land before re-entering the national park about 300m east of Chiltern-Howlong Road. It continues to travel in an easterly direction, before changing course to a north-easterly direction along Pipeline Track within the national park, for a distance of approximately 3km. Once it leaves the national park, the pipeline continues north-easterly to the Barnawartha-Howlong Road north of Barnawartha (MGA Co-ord: E 471016.565 N 6006113.621) where it terminates within the existing Barnawartha City Gate.

An overview map is provided in **Figure 1**: Looping 6 Overview Map **and Figure 2:** Looping 7 Overview Map, respectively, with detailed maps of each Looping section provided in the Flora and Fauna Assessment Reports: (Appendix B1: Looping 6 Route Maps and Appendix C1: Looping 7 Route Maps).

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

APA GasNet Australia (Operations) Pty Ltd (APA) is proposing to duplicate (or loop) two sections of the existing Wollert to Wodonga Gas Transmission Pipeline (Pipeline Licence 101), licenced under the *Pipelines Act 2005*.

The 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 distance of approximately 269km. The sections of the route to be looped consist of the following:

- Looping 6: Broadford to Mangalore (Kilometre Point or KP45.2 to KP74.3) covering about 29.1km (refer Figure 1)
- Looping 7: Glenrowan to Barnawartha (KP118.2 to KP184.6) covering about 66.4km (refer Figure 2)

[Note that for Looping 6, KP0 commences 500m south of Summerhill Road within the Wollert Compressor Station. *For Looping 7, KP0 has been set at 50m south of Back Mountain Road (Previously constructed Looping 3 commencement)]*

Each Looping is required to meet the specific demands of separate large commercial customers that in turn, supply gas to end-users throughout the eastern seaboard of Australia. The total distance of the two Looping sections is approximately 95.5km.

[Note: - Naming conventions for the pipelines take into consideration that APA has previously constructed Looping 1 Wollert to Wandong, covering approximately 27.8km, in the first half of 2014. Subsequently, Longwood to Violet Town (Looping 2), Mangalore to Longwood (Looping 3), Violet Town to Glenrowan (Looping 4) and Wandong to Broadford (Looping 5), were completed by June 2015. These loops were previously considered in a separate application].

3. Project description

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

APA is proposing to duplicate (loop) two sections of the existing Wollert to Wodonga Gas Transmission Pipeline (PL 101) between Broadford to Mangalore and Glenrowan to Barnawartha to meet contractual requirements from clients for the supply of gas along the east coast of Australia.

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

Looping of the existing 300mm pipeline will increase the pipeline system capacity for delivery of gas to the north of Victoria and interstate. The project will utilise APA's existing 35m wide easement which contains the existing 300mm gas transmission pipeline to Wodonga as allowance was made back when the easement was created for the existing 300mm pipeline, for the installation of further pipelines as and when required to meet system expansion requirements. The use of this easement will restrict the potential disturbance to the environment to that of the previously disturbed existing easement. This disturbance will predominantly be during the construction phase of the project.

An alternative route would require the acquisition of new easements and the clearing of new areas to allow construction to proceed.

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

The proposed pipeline is to be installed below the natural ground surface and the project will consist of the laying of approximately 95.5km of 400NB diameter steel gas pipeline.

The proposed construction Right of Way (ROW) is a temporary construction zone that will accommodate construction plant and equipment, allow vehicle travel along the construction route and temporary storage of trench spoil and topsoil. The width of the construction ROW also ensures that construction activities can be safely performed with minimum risk of accident or injury to construction personnel.

The ROW will lie almost entirely within the existing 35m wide easement held by APA for the existing 300mm pipeline except at specific locations where additional work space may be required adjacent to the easement to

accommodate equipment required for crossing special features, such as Horizontal Directional Drilling (HDD) equipment, or where space may be required as a temporary site depot or laydown area. The project will also require the procurement of additional easement at the Goulburn and Ovens River crossings to accommodate a slight realignment of the pipeline at these locations, to facilitate directional drilling of the river crossings.

The existing Wollert to Wodonga Gas Transmission Pipeline is located within, and approximately 7.5m from the western edge of the existing easement with the proposed pipeline to be located approximately 7m east of the existing pipeline. To avoid impacts on the existing pipeline, construction activities will largely occur east of the existing pipeline but within the existing easement. The width of the majority of the construction ROW is therefore up to 28m. This will be adjusted at certain points either:

- Where additional space is required to accommodate plant and equipment (generally an additional 50m × 30m but adjusted as required by location specific factors) or
- In sensitive areas where the construction ROW has been reduced to avoid or minimise impact to significant features.

Restoration of the construction area will aim to restore the construction ROW to its previous condition once construction of the pipeline is complete. This includes minimising the visual impact of the pipeline installation and minimising adverse impacts of the pipeline on existing land uses. However, treed vegetation will not be allowed to regrow within 3m of either side of the pipeline to maintain "line of sight" between markers posts and prevent tree roots from impacting on the pipelines.

In addition, there will be a requirement for various above ground facilities, including one line valve to be installed as part of Looping 6 and three line valves (one within the existing compressor station at Springhurst) for Looping 7. The line valve enclosures will be placed next to existing facility enclosures of the existing pipeline. The enclosures will encompass an area of no more than approximately 10m x10m. An end-of-line facility will also be installed at Barnawartha next to the existing APA compound, which will be expanded as part of this project.

Pipeline marker posts and cathodic protection test point boxes installed as part of the cathodic protection system will be required at regular intervals along the pipeline. These components are required to be installed in accordance with Australian Standard AS2885 *Pipelines – Gas and Liquid Petroleum* (AS2885) and the pipeline licence issued under the *Pipelines Act 2005.*

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

In terms of temporary facilities, access to the proposed construction ROW will utilise existing roads as much as possible and, subject to landowner approval, existing access tracks within private land. Temporary construction site depots will be required for each stage of the project as well as laydown areas for pipes and other working areas. These will be restored to previous land uses and condition once construction is complete.

Due to the proximity to populated areas, construction personnel are planned to be accommodated in existing local accommodation.

Key construction activities:

Pipeline construction is to comply with all relevant codes and standards including AS2885 and the Australian Pipelines and Gas Association Code of Environmental Practice (APIA, 2013). The construction will also be guided by the environmental requirements to be specified in a Construction Environment Management Plan (CEMP) to be prepared in compliance with the *Pipelines Act 2005* and *Pipeline Regulations 2007* and accepted by Earth Resources Regulation branch of the Department of Economic Development, Jobs, Transport and Resources (DEDJTR).

Key pipeline construction activities will include:

- Access to the construction ROW: this will generally be via existing roads, tracks and access agreements. Landholders will be consulted for permission regarding use and maintenance requirements for any access tracks on their properties, associated with project works.
- Centreline survey: this requires a survey of the centreline of the pipeline and the limits of the construction ROW. The new alignment, existing pipeline and boundaries will be marked using stakes and will be retained until ROW restoration. Any fences to be cut to allow construction will also be marked by surveyors.
- 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.
- Clear and grade: There are three different land surface types that the construction ROW will intersect: gravel, asphalt on roadways and soil with vegetative cover (grass, shrubs etc.). Where construction is to include a trench for pipe installation, proposed construction methods for the pipeline include a clear and grade process that will remove the existing surface cover (such as the vegetation and topsoil) from the construction ROW to allow trenching to proceed.

  In vegetated areas, clear and grade will involve the grading of up to 100mm depth of topsoil, depending on the soil profile, using bulldozers and graders. The topsoil will be stockpiled in a separate windrow along the edge of the construction ROW to permit safe and practical construction access whilst preserving the topsoil

for later reinstatement.

Where potential sedimentation of water courses may occur, erosion and sediment control measures will be installed on stockpiles and spoil at these locations. Erosion and sediment control measures will be inspected and maintained on a regular basis and following rain events for the entire duration of construction.

Wherever practicable, vegetation clearing will be minimised. Trimming overhanging branches may be necessary. Vegetation cleared from the construction ROW will be stockpiled separately from the clear and grade, and excavated trench material to ensure successful reinstatement of the construction ROW following construction.

- Trenching: the trench for pipe laying will be approximately 700mm wide and provide a minimum depth of cover of 1200mm deep. It will be excavated using a range of specialised equipment depending on conditions. Trench depth will be increased at road and watercourse crossings as appropriate and trench spoil stockpiled on the construction ROW and returned to the trench during the backfilling stage.
- Horizontal Directional Drilling (HDD) will involve drilling beneath major watercourses, utilising trenchless technology. Entry and exit pits are required on each side of the waterway. The exit pit is approximately 3m x 3m x 3m in size. It is located on the opposite side to where the drilling rig is set up to contain drilling fluids. A smaller entry pit, approximately half the size of the exit pit, is excavated on the drilling rig side. A bore hole is then drilled several metres beneath the invert of the waterway from one side to the other and the pipe pulled back through the bore hole. The drilling fluids that are used to assist the process are monitored through the logging of fluid inputs and returns. A separate HDD Management Plan will be prepared by the Construction Contractor prior to works for approval by DEDJTR prior to commencement of the drilling.
- Horizontal boring In general, bitumen roads will be bored to minimise disturbance to traffic movements and avoid any impact on road-surface integrity. Each rail crossing is to be bored using micro tunnelling techniques.
- Pipe stringing: pipe will be delivered to the construction ROW by semi-trailer and laid out end-to-end alongside the trench centreline. The pipes are up to 18m long and are placed on raised timber skids and sandbags to protect the pipe from damage and allow it to be welded into continuous lengths (pipestrings). Gaps will be provided for public or private access such as the movement of farm equipment or livestock.
- Bending: this may be required to enable the pipe to conform to topographic contours. Pipe may either be 'cold bent' in the field or by heat induction in a factory to produce the desired bend angle.
- Welding, radiography and joint coating: pipe lengths are welded into continuous pipe strings before being laid in the trench. Welded joints will be x-ray tested, sand blasted to remove surface scale and rust and then coated with a high build epoxy (HBE) to provide a continuous external coating to prevent corrosion.
- Lowering in: refers to the placement of the pipe strings into the trench by side-boom tractors. Prior to lowering-in, it may be necessary to dewater the trench: any such water will be discharged to land in accordance with regulatory requirements and not into watercourses. Artificial or natural sediment filters and energy dissipaters will be installed to prevent sediment and erosion.

  Note that bedding or padding materials may be required to protect the coating where subsurface conditions may damage the pipe coating (e.g. rock). This may utilise quarried sand or alternatively mechanically sieved fine material may be sourced from the trench material if appropriate. Any bedding materials imported, will be in accordance with Environmental Protection (Industrial Waste Resource) Regulations, 2009 and relevant EPA IWRG soil guidelines;
- As-built survey: prior to backfilling, a survey will be conducted to record the location of the pipeline and other details such as pipe numbers, welds and crossings.
- Backfilling: involves the replacement of stockpiled trench spoil and its compaction. Excess spoil will be removed from site and transported to an appropriate landfill.
- Hydrostatic testing: the whole of the pipeline will be pressure tested with water in accordance with AS2885 to verify the integrity of the pipeline. Water for hydrostatic testing will be sourced from recycled sources where possible and disposed of following completion of testing in accordance with relevant regulatory requirements and approvals. Approval of the discharge plan will be sought from the relevant catchment management authorities, should there be a requirement to discharge to waterways, prior to disposal.
- Clean-up and rehabilitation: all temporary infrastructure, equipment and construction waste will be removed from the site following backfilling. Topsoil removed during clear and grading will be re spread over the construction ROW. Rehabilitation of the ROW will aim to reinstate contours, minimise the potential for erosion, minimise any impact on drainage patterns, minimise weed establishment, minimise the visual impact of the pipeline installation and minimise adverse impacts of the pipeline on existing land uses. Erosion and sediment control structures (diversion berms, sediment traps) may be put in place to protect water quality at water or drain crossings and to divert run-off away from potentially unstable areas. Revegetation of the ROW will be based on specialist advice and consultation with landholders and will continue to be monitored during pipeline operations. Timing of the removal of temporary gates and reinstatement of fences will be negotiated with each landholder.

Key operational activities:

The topography of the area will be restored as much as possible to its original form and the land returned to its prior use once the pipeline has been installed and restoration work has been completed. A few indications of the

presence of the pipeline will be visible: these will include line valve enclosures, marker posts and cathodic protection test points.

When commissioned, the pipeline will be owned and maintained by APA. Routine ground patrols will be undertaken to monitor the pipeline easement for any operational or maintenance issues. Monitoring will include the same activities as those undertaken for the existing 300mm pipeline and will cover issues such as:

- Easement stability
- Revegetation
- Weed invasion
- Cover at watercourse crossings
- Third-party activities

The pipelines will also be constructed so that in-line inspection equipment (known as intelligent pigs) can be used to inspect the integrity of the pipeline as required.

Key decommissioning activities (if applicable):

There are no decommissioning activities required for this construction project.

At the end of its useful life, decommissioning of the pipeline will be undertaken in accordance with the regulatory requirements of the day. The *Pipelines Act 2005* currently requires the preparation of a Decommissioning Plan for approval by regulatory authorities. Improvements in technology are increasing the lifetime of pipelines all the time but the pipeline is expected to have a physical life of at least 60 years.

In the event that the pipeline is no longer required, it will either be decommissioned or abandoned, as follows:

- Decommissioning - depressurising the pipeline, then capping and filling it with an inert gas such as nitrogen. The cathodic protection would be maintained to prevent the pipe corroding, or
- Abandonment - purging the pipe of natural gas, disconnecting it from the manifolds and removing above ground facilities. The pipe would be cut at intervals to prevent inadvertent transfer of groundwater from one area to another. The pipe would then be left in place to corrode.

Both decommissioning and abandonment have the potential for small scale temporary environmental impacts that will need to be carefully managed. Recovering the pipe from the ground is unlikely to be a commercially viable option and would result in significant and unnecessary environmental impacts.

Pipeline surface facilities would be similarly decommissioned and the above-ground components removed from site, allowing the surface to be rehabilitated to the existing surrounding land conditions.

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

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

As described above, the project consists of the looping (duplication) of two sections of the existing 300mm Wollert to Wodonga Gas Transmission Pipeline.

Construction of the pipeline is scheduled to commence in January 2016 and be completed by December 2016.

The timing of construction of each Looping stage will be negotiated with the successful construction tenderer(s) when they are engaged by APA.

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

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

Five separate looping projects have been completed, for sections of the existing pipeline between Wollert (KP0) and Broadford (KP45.2) and Mangalore (KP0) to Glenrowan (KP118.2). These looping sections were:

- Wollert to Wandong (Looping 1) from KP0 to KP27.8
- Wandong to Broadford (Looping 5) from KP27.8 to KP45.2 and covering about 17.4km
- Mangalore to Longwood (Looping 3) from KP0.0 to KP33.8
- Longwood to Violet Town (Looping 2) from KP33.8 to KP67.4 and covering about 33.6km
- Violet Town to Glenrowan (Looping 4) from KP67.4 to KP118.2 and covering about 50.8km

Looping 6 is located between Looping 5 and Looping 3 and connects these two loops together while Looping 7 continues on from Looping 4 to Barnawartha.

Construction on any section, or loop, is dependent on the pipeline system modelling that will enable APA to meet the gas supply agreements negotiated with commercial customers. The decision to construct each looping section is therefore driven by the individual gas requirements of each customer and only those lengths of the pipeline required to meet customer requirements are constructed.

Loopings 2 to 5 were constructed to meet the requirements of commercial gas transportation contracts that had been negotiated by APA at that stage. Loopings 6 and 7 are required to meet separate commercial gas

transportation contracts recently executed.

4. Project alternatives

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

The proposed route is largely controlled by the location of the existing pipeline and easement between Wollert and Wodonga. An alternative route would require the acquisition of new easements and the clearing of vegetation and habitat in new areas to allow construction to proceed. However, space is available for a new pipeline within the existing, previously disturbed easement and the use of the existing easement will minimise the potential disturbance to the environment of the region as well as minimise the societal impact of the project.

However, there are two locations where additional easement will be required to be negotiated with landowners. The Goulburn River HDD in Looping 6 and the Ovens River HDD in Looping 7 will require a realignment of each river crossing due to constructability and environmental constraints of maintaining the new pipeline within the existing easement at these locations (refer to Figure 3 and 6).

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

5. Proposed exclusions

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

The construction of Loopings 6 and 7 will completely duplicate the existing 300mm pipeline between Wollert and Barnawartha where the NSW Interconnect commences. There are therefore no further project stages envisaged for the pipeline.

6. Project implementation

Implementing organisation (ultimately responsible for project, i.e. not contractor)**:**

APA GasNet Australia (Operations) Pty Ltd

Implementation timeframe:

Construction of the pipeline is scheduled to commence in January 2016 and be completed by December 2016.

The timing of construction of each looping will be negotiated with the successful construction tenderer(s) when they are engaged by APA. The entire project for Loopings 6 and 7 is required to be commissioned by December 2016.

Proposed staging (if applicable):

As above.

7. Description of proposed site or area of investigation

Has a preferred site for the project been selected?

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

The proposed site for the pipeline is within the existing easement for the existing 300mm pipeline between Wollert and Wodonga. Additional temporary workspace may be required for laydown areas, turnaround bays and HDD sites. These areas will be negotiated with the respective landowners where required.

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

Detailed maps of each looping are provided in the Flora and Fauna Assessment Reports (Appendix B1: Looping 6 Route Maps and Appendix C1: Looping 7 Route Maps). These show aerial/satellite image(s) with an overlay of the project footprint and key environmental features such as waterways, native vegetation, scattered trees, threatened species locations and targeted survey locations.

For the purposes of the assessment, three broad landform units have been identified along the construction ROW. These are:

- Foothills and forests on the northern slopes of the Victorian section of the Great Dividing Range

- Northern Victorian plains between the Great Dividing Range and the Murray River; and
- The northern inland slopes which consist of low hills of mixed geology that lie to the north of the Great Dividing Range. These are an extension of the NSW South Western Slopes, a large area of scattered foothills and minor ranges from the western fall of the Great Dividing Range that continue across the Murray River into Victoria.

While bioregion boundaries cannot be considered as rigid, based on current mapping, the construction ROW intersects three bioregions:

• Broadford to Mangalore (Looping 6)	KP45.2 to KP61.9	*Central Victorian Uplands (CVU)*
	KP61.9 to 63.9	*Victorian Riverina (VRiv)*
	KP63.9 to 69.5	*Central Victorian Uplands*
	KP69.5 to 73.7	*Victorian Riverina*
	KP73.7 to KP74.3	*Central Victorian Uplands*
• Glenrowan to Barnawartha (Looping 7)	KP118.2 to KP124.4	*Northern Inland Slopes (NIS)*
	KP124.4 to 153.3	*Victorian Riverina*
	KP153.3 to 169.5	*Northern Inland Slopes*
	KP169.5 to 172.5	*Victorian Riverina*
	KP172.5 to 182.6	*Northern Inland Slopes*
	KP182.6 to KP184.7	*Victorian Riverina*

Looping 6 commences in the foothills of the north-western slopes of the Great Dividing Range within the *Central Victorian Uplands Bioregion*. The topography along the construction ROW consists of low rolling hills commencing at about 240m AHD at Strath Creek Road east of Broadford before dropping gradually through the foothills to about 150m AHD at the Goulburn River. The construction ROW then continues through undulating country to finish south of Back Mountain Road at about 180m AHD.

Looping 7 commences just west of Glenrowan on the plains to the north of Benalla at about 180m AHD. The construction ROW then rises to approximately 250m AHD as it passes around the south-western perimeter of the Warby Range on the northern edge of the Glenrowan township. As the construction ROW heads in a north-easterly direction it drops to an elevation of about 150m AHD on the floodplain to the east of Wangaratta before entering rolling hills just south of Springhurst. Here it rises to about 270m AHD before dropping back to about 200m AHD near the fourth Hume Freeway crossing. The construction ROW then rises again to a maximum of about 270m AHD as it passes through the Chiltern - Mt Pilot National Park to the north of Chiltern before dropping back again to about 170m AHD at Barnawartha.

Notable ecological features of the bioregions are summarised below:

- The *Central Victorian Uplands,* which border the northern edge of the Victorian Highlands, is part of a larger region known as the Victorian Midlands which stretches east-west across central Victoria. This region has undulating terrain and was formerly dominated by foothill forest, some of which is still found on the upper slopes. The flatter and more fertile areas are largely cleared for agriculture. Dry Foothill Forest Complexes dominated the *Central Victorian Uplands*, but large areas of Moist Foothill Forest Complexes and Valley Grassy Woodland Complexes also occurred.
- The Victorian Riverina consists of a flat to gently sloping riverine plain formed from Quaternary alluvial deposits associated with the eight river basin tributaries of the Murray River. Prior to European settlement, the vegetation of the Victorian Riverina was a mixture of grasslands and low open woodland, dominated by box species (Grey Box *Eucalyptus microcarpa* and Yellow Box *E. melliodora)*, red gum and Murray-pine (C*allitris*), with a sparse grassy understorey. A number of small freshwater wetlands of various types were also scattered across the region with concentrations of large and shallow wetlands adjacent to the major rivers in a few locations, such as around Wangaratta.

  Today, over 90% of the area is cleared, mainly for dryland farming involving grazing and mixed cropping. As a result, the once-extensive woodlands are largely cleared, the remnants containing predominantly Grey Box with grassy understorey and scattered shrubs. Networks of vegetated roadsides and creeklines now play an important role in sustaining biodiversity across this highly modified landscape (GBCMA, 2003). Creekline vegetation remnants can retain good connectivity, while the networks of road reserves and associated vegetation can not only provide important habitat for native bird species but also for colonies of gliders and other mammals. Other threatened fauna in the area includes Bush Stone-curlew (*Burhinus grallarius*), Swift Parrot (*Lathamus discolor)*, Tree Goanna (*Varanus varius*) and Brush-tailed Phascogale (*Phascogale tapoatafa tapoatafa*) which are often found along connected creeklines and roadsides with large, old, hollow-bearing trees.
- The Northern Inland Slopes are comprised of the lower foothills north of the Great Dividing Range with minor ranges separated by river valleys. The pre-European vegetation primarily consisted of box ironbark forest (though notably lacking ironbark species) in the hills, with grassy woodland on the lower slopes and areas of gilgai plain woodland / wetland mosaic fringing the riverine plain (GBCMA, 2003). The remaining hills vegetation was dominated by Grey Box (*Eucalyptus microcarpa*) Red Box (*Eucalyptus .polyanthemos*) and White Box (*Eucalyptus. albens*), with an understorey frequently dominated with wattles, and a sparse ground

layer.

Much of the land intersected by the existing easement is freehold. In general, areas of crown land are restricted to those associated with National Parks, roads or watercourses. Between KP175.0-178.8, the project corridor also intersects parts of the Chiltern – Mt Pilot National Park north of Chiltern along an area known as pipeline track. Pipeline track was created in or around 1975 when the existing pipeline was constructed through what was then known as Chiltern State Forest.

Potential assets that have been identified along the project corridor include numerous natural waterways. In general, natural waterways and drainage lines (designated waterways under the Victorian *Water Act 1989*) are the responsibility of the Goulburn Broken Catchment Management Authority (GBCMA) and the North East Catchment Management Authority (NECMA). In summary:

- Broadford to Mangalore (Looping 6) intersects 24 designated waterways of which 5 are named. This includes the Goulburn River (Figure 3) and Dabyminga Creek.
- Glenrowan to Barnawartha (Looping 7) intersects 48 designated waterways of which 14 are named including Ovens (Figure 6) and King Rivers (Figure 4), Yanko Creek (Figure 5), near Wangaratta and Indigo and Black Dog Creeks near Chiltern.

Named waterways are summarised in Table 1.

Many of these waterways are ephemeral and generally flow only when rainfall conditions are sufficient. Perennial waterways include the Goulburn River (Looping 6) and King and Ovens Rivers in Looping 7.

Table 1: Named waterways intersected by the project

Looping	Name	Location (KP)	Flow status	Crossing Method
Broadford to Mangalore (Looping 6)	Dabyminga Creek (crossing #1)	55.6	Intermittent	Open cut
	Dabyminga Creek (crossing #2)	58.55	Perennial	Open cut
	Goulburn River	62.9	Perennial	HDD
	Whiteheads Creek	70.8	Intermittent	Open cut
	Back Creek	71.95	Intermittent	Open cut
Glenrowan to Barnawartha (Looping 7)	Fifteen Mile Creek	125.7	Intermittent	Open cut
	Three Mile Creek	129.7	Ephemeral	Open cut
	One Mile Creek	132.2	Ephemeral	Open cut
	King River	135.1	Perennial	HDD
	Yanko Creek (Moloney's Creek)	137.3	Perennial	HDD
	Ovens River	138.1	Perennial	HDD
	Yellow Creek	138.3	Intermittent	Open cut
	Reedy Creek	140.2	Intermittent	Open cut
	Diddah Diddah Creek	162.2	Ephemeral	Open cut
	Rocky Waterholes Creek	164.5	Ephemeral	Open cut
	Black Dog Creek	172.8	Intermittent	Open cut
	Stockyard Creek	180.4	Ephemeral	Open cut
	Frying Pan Creek	183.0	Intermittent	Open cut
	Indigo Creek	183.4	Perennial	Open cut

All waterways will be crossed in accordance with relevant guidelines for creek and river crossings. Approval to traverse these assets has been received with letters of approval from both the GBCMA (Looping 6 and 7) and NECMA (Looping 7),following the submission and acceptance of a Site Environmental Management Plan which includes construction plans and drawings along with appropriate methods of construction and rehabilitation.

APA, GBCMA and NECMA have undertaken inspections of critical waterways and have commenced the process for the protection and management of these assets during construction.

The project corridor also crosses a large number of roads. This includes four crossings of the Hume Freeway (all within Looping 7 at KP123, 131.5, 142.4 and 168.1), one crossing of the Goulburn Valley Highway (within Looping 6 at KP67.2) as well as numerous local major and minor roads and a number of reservations set aside for future roads but yet to be developed. In addition, the project corridor crosses the main railway line between Melbourne and Sydney twice (within Looping 7 at KP122.5 and KP169.36) and the Great Victorian Rail Trail (within looping 6 at Upper Goulburn Road KP59.5) and the Murray to Mountains Rail Trail at Bowser Londrigan Lane (KP144.5).

Site area (if known): Approx 267.4 hectares (consisting of the construction footprint of 28m to the east of the existing pipeline and allowing for equipment laydown, pipe stringing and temporary support facilities)

Route length (for linear infrastructure) 95.5 km **and width** 20 - 28 m (except in Chiltern Mt Pilot National Park where the ROW has been reduced to 16.5 m)

Table 2 provides a breakdown of the area of the construction ROW by Loopings.

Table 2: Maximum area of ROW

Looping	Length (km)	Width of ROW (m)	Total Area (approx. ha)
Broadford to Mangalore (Looping 6)	29.1	20-28	82
Glenrowan to Barnawartha (Looping 7)	66.4	16.5-28	186
TOTAL	95.5	20-28	268

NB: Calculations are based on the construction ROW being 28m wide

Current land use and development:

The current land use for the majority of Looping 6 and 7 is of an agricultural nature such as grazing or cropping. Other land uses intersected by the route include roads and rail lines, waterways, hobby farms, horse studs, crown land such as national parks, water treatment and storage and low density housing. The specific land uses for each loop are summarised in Table 3.

Table 3: Current Land Use across Looping 6 & 7

Looping	Land Use	KP (approx)
Broadford to Mangalore (Looping 6)	Grazing/cropping	45.7 - 65.7 67.2 – 70.8 71.3 – 74.3
	Rural living/hobby farms	45.2 - 45.7 65.7 - 67.2 70.8 – 71.3
	Roads	various
	Crown Land (other than waterways)	59.5 (Great Victorian Rail Trail)
	Watercourses	various
Glenrowan to Barnawartha (Looping 7)	Grazing/cropping	118.2 - 120, 122.5 - 176.4, 178.8 - 180.4, 184 -184.6
	Rural living/hobby farms	120 - 122.4, 133.5 – 134.75, 183.7 – 184.0
	Hume Freeway	123.0 131.9 142.4 168.1
	Roads	various
	Rail line	122.55 169.4
	Water Treatment facility	141.65 – 142.35
	Waterways	various
	Crown Land (other than waterways)	121.4 – 121.65 144.5 (Murray to Mountains Rail Trail)
	Chiltern - Mt Pilot NP	175.1 – 175.35, 175.5 – 175.7, 176.3 – 177.0, 177.4 – 178.8

About 90% of the land intersected by the Looping 6 and 7 construction ROW is used for primary production purposes with about 3% for conservation reserves and less than 7% for small rural lots (Victorian Land Use Information System 2012).

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

Land immediately surrounding the project corridor is predominantly of an agricultural nature.

The project corridor does not pass directly through any urban areas but does approach to within one to three kilometres from rural townships at a number of locations. The following is noted:

• Broadford to Mangalore (Looping 6)	Passes over 700m to the east of the outer limits of Broadford at KP45.1-45.5 (the Hume Freeway being located between ROW and the township); Passes within 1000m of the outer limits of Tallarook at KP58.3; Passes within 50m to 500m of houses on small holdings between KP 58.3 and KP63; Passes within 30m of a Free Range Egg Farm at KP63.5; Passes within 20m and 60m south of houses on small holdings between KP 63.5 and KP 68.5; Passes within 20m and 60m south of houses on small holdings between KP 63.5 and KP 68.5; Passes within 30m and 200m of houses on small holdings between KP70.2 and KP74.4;
• Glenrowan to Barnawartha(Looping 7)	Passes within 200m of the outer limits of Glenrowan at KP119.1; Passes within 20m and 150m of houses on the edge of Glenrowan township KP118.5 to KP123.0; Passes within 30m to 280m of houses on small holdings between Glenrowan and Wangaratta KP123 to KP134.7; Passes within 250m of the outer limits of Wangaratta at KP 134.7; Passes within 30m to 300m of houses on small holdings to the south of Wangaratta between KP134.7 and KP143.3; Passes within 100m to 200m of houses on small holdings northeast of Wangaratta between KP144 to KP150.27; Passes within 60m to 340m of houses on small holdings northeast of Wangaratta between KP152.18 to KP155.21; Passes within 60m of a Quarry at KP 156.39; Passes within 400m to 500m of houses on small holdings between KP158.03 to KP168.9; Passes within 50m to 400m of houses on small holdings north of Chiltern Township between KP169.66 to KP173.6; Passes within 1000m of the outer limits of Chiltern Township between KP 173.6 and KP 176.5; Passes within 28m to 250m of houses on small holdings north of Chiltern Township between KP173.6 to KP177.04; Passes through Chiltern Mt Pilot National Park KP175.1 to KP175.3, KP175.5 to KP175.7, KP176.4 to KP178.8, Passes within 68m to 381m of houses on small holdings between KP178.83 to KP182.33; Passes within 18m to 217m of houses on small holdings between KP182.33 to KP183.95; Passes within 1000m of Barnawartha Township between KP182.33 and KP 183.95.
Access to the construction ROW will be via existing local roads or designated access tracks.	

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

The project will require approval pursuant to a licence granted under the Victorian *Pipelines Act 2005*. The Act is administered by the Earth Resources Regulation branch of DEDJTR for new facilities together with Energy Safe Victoria (ESV) for existing facilities. Key steps in the granting of approvals under the *Pipelines Act* include:

- Approval to construct, following acceptance of a Construction Safety Management Plan (CSMP) by ESV and a CEMP by DEDJTR. Consent to construct will not be issued until ESV and DEDJTR are satisfied that all relevant issues are appropriately resolved;
- Consent to operate, following successful construction and testing of the facility, and acceptance of an

amended operating safety case and an approved Operations Environmental Management Plan (OEMP) from ESV.

The CEMP and OEMP are assessed by DEDJTR and ESV, respectively, following consultation with appropriate state and local government agencies and other interested stakeholders.

Section 85 of the *Pipelines Act* provides an exemption from the need to obtain planning approvals under the *Planning and Environment Act 1987* (P&E Act). The project is however, subject to any other relevant Victorian environmental legislation. The regulator is also required to pay regard to state biodiversity policies before granting approvals including policies relating to native vegetation management.

Land usage in the area is predominantly rural with the majority of the land classed as a Farming Zone. There are some low density residential or rural living zones where the easement passes near regional towns (Broadford, Tallarook, Seymour, Glenrowan, Wangaratta and Chiltern). The planning zones that apply to parcels of land traversed by the existing easement are summarised below in Table 4.

Table 4: Planning Zones applicable to the construction ROW

Looping	Local Government Area	Zone	Location (approx KP)
Broadford to Mangalore (Looping 6)	Mitchell Shire	Farming Zone 1 (FZ)	Most rural areas which the construction ROW traverses.
		Road Zone 1 (RDZ1)	Strath Creek Road (45.2) Upper Goulburn Road (59.5) Goulburn Valley Highway (67.19)
		Township Zone (TZ)	Tallarook (58.55 – 59.5)
		Public Conservation and Resource Zone (PCRZ)	Telegraph Road (66.1)
		Rural Living Zone (RLZ)	Corner Telegraph and Kobyboyn Road (69.50)
		Low Density Residential Zone (LDRZ)	Whiteheads Creek – Highlands Road (70.8 – 71.34)
		Public Use Zone - Service and Utilities (PUZ1)	South of Back Mountain Road (73.79 – 74.3)
Glenrowan to Barnawartha (Looping 7)	Rural City of Benalla	Farming Zone (FZ)	All of LGA that easement traverses
	Rural City of Wangaratta	Farming Zone 1 (FZ)	Most of the rural areas which the easement traverses
		Road Category 1 (RDZ1)	Hume Freeway (123.0 - 123.15; 131.83 - 131.93; 142.35 – 142.5) Glenrowan-Myrtleford Road (126.8) Greta Road (130.3) Wangaratta-Whitfield Road (134.8) Great Alpine Road (139.0)
		Road Category 2 (RDZ 2)	Glenrowan Boweya Road (118.2) Oxley Flats Road (137.84 – 137.9) Detour Road (140.8) Wangaratta-Eldorado Road (143.25)
		Rural Living Zone 2 (RLZ2)	Glenrowan (120.55 - 122.45)
		Township Zone (TZ)	Glenrowan (121.6)
		Public Use- Transport (PUZ4)	Bowser-Londrigan Lane (Murray to Mountains Rail Trail) (144.5)
		Public Conservation and Resource Zone (PCRZ)	Ovens River (138.1)
		Industrial 1 (IN1Z)	Wangaratta (140.5-140.8; 140.9-141.65)
		Public Use- Service and Utilities (PUZ1)	Bourke Rd, Wangaratta (141.7 – 142.35)
	Indigo Shire	Farming Zone 1 (FZ)	Most of the rural areas the easement traverses
		Road Category 1 (RDZ1)	Hume Freeway (168.1 – 168.18) Chiltern - Rutherglen Road (174.1) Chiltern - Howlong Road (176.05)
		Public Use- Transport (PUZ4)	Railway Access Road (169.4)

		Public Conservation and Resource Zone (PCRZ)	Black Dog Creek (172.7-172.8) Chiltern - Mt Pilot NP (175.08 - 175.3; 175.5-175.7; 176.4-177.0; 177.4-178.9) Indigo Creek (183.4 – 183.45)
		Rural Living Zone (RLZ)	Chiltern - Howlong Road (175.7-176.0) Barnawartha (181.5 - 183.4)
		Low Density Residential (LDRZ)	Bill Tanners Road (183.45-184.0)

The existing easement intersects a number of areas with Vegetation Protection, Environmental Significance, Landscape Significance or Heritage Overlays. Apart from the Heritage Overlays, these overlays have been primarily applied to protect areas of potentially important native vegetation along roadsides. In the area near Glenrowan (Looping 7), some overlays have been applied to areas that are believed to support Brush-tailed Phascogale, Bush Stone-curlew, Grey-crowned Babbler, Regent Honeyeater and Spotted Quoll.

Table 5: Planning Overlays applicable to the construction ROW

Local Government Area	Overlay	Name	KP and Location	Description
Mitchell Shire	VPO1	Vegetation Protection Overlay 1	45.2 Strath Creek Rd 48.4 Davis Rd 59.3 – 59.5 Upper Goulburn Rd 66.2 – 69.55 Telegraph / Kobyboyn Rd	VPOs are applied to recognise vegetation of local significance and minimise loss from these areas. VPO1 is applied to vegetation on linear reserves such as roadsides or other potential habitat corridors.
	VPO2	Vegetation Protection Overlay 2	50.0 – 50.8, 53.6 – 54.2, 55.2 – 55.4 (approx) Adjacent to Hume Freeway	VPO2 is applied to protect habitat and environs around Freeways.
	ESO3	Environmental Significance Overlay 3	55.7, 58.55 Dabyminga Creek 62.8 Goulburn River 70.8 Whiteheads Creek 71.9 Back Creek	ESOs are applied to identify areas where the development of land may be affected by environmental constraints. ESO3 is applied to protect the quality of waterways and associated habitat.
	SLO2	Significant Landscape Overlay 2	56.1 – 58.24 south of Clearview Court	SLOs are applied to identify significant landscapes and enable the conservation of the character of such landscapes. SLO2 is applied to significant areas around Tallarook.
Rural City of Benalla	VPO3	Vegetation Protection Overlay 3	118.2 – 118.6 (east of Glenrowan-Boweya Road)	VPO3 is applied to areas considered to provide potential habitat for Regent Honeyeater.
Rural City of Wangaratta	VPO1	Vegetation Protection Overlay 1	118.2 - 119.35 119.37 – 119.9 121.4 – 121.69	VPO1 is applied to vegetation of local significant within the area of Glenrowan Township.
	VPO2	Vegetation Protection Overlay 2	119.4— Upper Taminick Rd 122.4–122.5 – Old Hume Hwy 123.65 – Dundas Rd 124.6 – Greens Rd 138.0 – Oxley Flats Rd 144.5 – Bowser-Londrigan La (Murray to Mountains RT) 145.1 – Clear Creek Rd 145.6 – Byawatha Rd 145.9 – Ellen Rd 160.4 – Vipond Rd 163.8 – Sanderson Rd	VPO2 is applied to roadside vegetation considered to be of conservation significance.
	SLO	Significant Landscape Overlay	121.3 – 121.4, 121.7 – 122.4 - Old Hume Highway, Glenrowan	SLO1 is applied to protect the visual values and character of the Warby Ranges landscape.
Indigo Shire	ESO3	Environmental Significance Overlay 3	168.2 – 183.4, 184.0 – 184.65 – From Hume Freeway, through Chiltern - Mt Pilot National Park to Barnawartha-Howlong Road	ESO3 is applied to allow consideration of impacts on drainage issues during development in the area of Black Dog Creek.

	HO98	Heritage Overlay 98	177.01 – 177.4 – Chiltern - Mt Pilot NP	HOs are applied to conserve heritage places of natural or cultural significance. HO98 applies to Magenta Road, No. 145, Magenta Quartz Mine (VHR – H1873)
	HO451	Heritage Overlay 451	175.1 - 175.3, 175.5 – 175.7, 176.4 – 177.0, 177.4 - 178.9 – Chiltern - Mt Pilot NP	HO451 applies to Old Indigo Lead, Howlong Rd [west of], Chiltern

Conservation Management Plans have been prepared by GBCMA to identify priorities for native biodiversity conservation in the region. These have been prepared in accordance with the former Department of Sustainability and Environment (now DELWP) Biodiversity Action Planning objectives as part of the Victorian State biodiversity strategy.

- One landscape zone has been identified by GBCMA which applies to the area of Looping 6 – South-west Goulburn Landscape Zone. Key biodiversity assets identified in the plans included examples of Grassy Woodlands, Grassy Dry Forests, Granite Country, Box Ironbark and Damp Forests (which include Herb-rich Foothill Forest), waterways and their riparian margins, wetlands and roadside vegetation.
- One landscape zone has been identified by GBCMA which applies to the area of Looping 7 – Chesney Landscape Zone. Key biodiversity assets identified in the vicinity of the ROW include examples of Plains Grassy Woodland and Granitic Hills Box Ironbark.

Local government area(s):

The project passes through the following local government areas:

Table 6: Local Government Areas applicable to the construction ROW

Looping	LGA	Location (KP)
Broadford to Mangalore (Looping 6)	Shire of Mitchell	45.2 to 73.8
Glenrowan to Barnawartha (Looping 7)	Benalla Rural City	118.2 to 118.5
	Wangaratta Rural City	118.5 to 166.2
	Indigo Shire Council	166.2 to 184.6

Meetings have been held with each of these Councils to assist in project planning, determine Council requirements for management of local issues such as roads and provide information on project status.

8. Existing environment

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

The ROW intersects a number of areas of native vegetation that may be classed as an ecological vegetation class (EVC) under the Victorian Government Biodiversity Strategy and have been considered in accordance with Victoria's Permitted Clearing Guidelines. It is noted that the former Department of Environment and Primary Industries released the *Biodiversity assessment guidelines* in December 2013 which replaced the former Native Vegetation Management Framework (NVMF). Offsets required for this project have been assessed in accordance with the current guidelines.

An assessment of the vegetation occurring within the proposed construction ROW has been undertaken in accordance with the Vegetation Quality Assessment Manual prepared by the former Department of Sustainability and Environment (2004). This is further discussed in later sections of this referral.

Fauna surveys were undertaken in Looping 6 and some of the vegetation and waterways assessed provide habitat for species listed on the DELWP Fauna Advisory List, such as the Brown Treecreeper, Hardhead and Long-necked Turtle. Flora surveys were also undertaken to determine the species present within the construction ROW. Two listed species were recorded: Late-flower Flax-lily (DELWP Flora Advisory List) and Plump Swamp Wallaby-grass (*Flora and Fauna Guarantee Act 1988* (FFG Act) and DELWP Flora Advisory List).

In Looping 7 some of the waterways and vegetation provide habitat for fauna species listed under the FFG Act, Nine (9) FFG Act listed fauna species were identified during the field surveys. The species include the Murray Spiny Crayfish, Murray Cod, Diamond Firetail, Eastern Great Egret, Grey-crowned Babbler, Latham's Snipe (nominated), Painted Honeyeater, Regent Honeyeater and Squirrel Glider. Five (5) species listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* were recorded during the field surveys. These were Murray Cod, Eastern Great Egret, Latham's Snipe, Rainbow Bee-eater and White-throated Needletail. These results are discussed in later sections of this referral.

All surveys, including the results of flora and fauna surveys and obligations applicable to any vegetation clearing requirements have been incorporated into the Flora and Fauna Management Plan to be submitted to DELWP for

review.

The proposed pipelines cross 72 mapped watercourses, the majority of which has been assessed to be ephemeral water features. All crossings of designated waterways are being discussed with both GBCMA and NECMA who will be provided with a Site Environment Management Plan detailing construction and mitigation measures to be employed at the various waterways.

9. Land availability and control

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

☐ No ☒ Yes If yes, please provide details.

The ROW intersects:

- Roads and associated road reserves. These include the Hume Freeway, major highways, rural roads and a number of undeveloped and unnamed road reservations, some with rough tracks
- Rail lines managed by Victrack (Looping 7: KP 122.6, KP 169.4)
- Land associated with a number of major waterways intersected by the easement classed as water frontage reserve (Looping 6 at Dabyminga Creek (KP58.55) and the Goulburn River (KP62.8); Looping 7 at Ovens River (KP138.1), Black Dog Creek (KP172.7-172.8), Indigo Creek (KP183.4 – 183.45))
- Murray to Mountains Rail Trail (KP 144.55), categorised as a recreation reserve
- Uncategorised Public Land such as that surrounding the Great Victorian Rail Trail (KP59.5)
- Chiltern - Mt Pilot National Park north of Chiltern (various sections between KP 175.1 to 178.9)

Current land tenure (provide plan, if practicable):

Freehold and Crown Land (as described above). Approximate number of parcels of land applicable to each loop are provided below:

Looping	Freehold Land	Crown Land
Broadford to Mangalore (Looping 6)	74	7
Glenrowan to Barnawartha (Looping 7)	189	17

About 96% of the land intersected by the Looping 6 and 7 construction ROW is freehold land and about 4% is Crown land (Victorian land Use Information System 2012).

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

APA intends to maintain the existing easement for the pipelines in conjunction with the ESV approved APA Operations Environment Management Plan. Areas of temporary disturbance outside of the existing easement required to facilitate the construction of the project will be negotiated with landowners under temporary workspace agreements.

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

There are no native title claims applicable to any areas of land intersected by the easement.

There are a few other services that parallel parts of the gas pipeline easement including a water pipeline in parts of Looping 6, a powerline easement that runs along the north-western side of the pipeline easement within a section of the Chiltern-Mt Pilot National Park and an optic fibre cable that runs within the western side of the easement through to Wodonga.

10. Required approvals

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

There are a number of approvals that are required for each Looping. These are summarised below in Table 7.

Table 7: Summary of Potential Environmental Approvals

Legislation	Permit, Licence, Consent or Approval Sought	Authority	Status
Commonwealth			
Environment Protection and Biodiversity Conservation Act 1999	Determination as to whether the project is a Controlled Action under the EPBC Act	Department of the Environment	Not a controlled action if undertaken in a particular manner
State			
Aboriginal Heritage Act 2006	Approved Cultural Heritage Management Plans	Registered Aboriginal Parties Office of Aboriginal Affairs Victoria (OAAV)	In preparation
Country Fire Authority Act 1958	Permit to use fire in the open air, in support of operation of construction equipment in the open air during a total fire ban	Country Fire Authority	Prior to construction
Flora and Fauna Guarantee Act 1988	Permit to disturb protected flora, listed flora or fauna species or habitat on Crown Land	DELWP	Prior to construction
Heritage Act 1995	Approval to disturb or destroy known heritage sites	Heritage Victoria	Under assessment
	Permit Exemptions for disturbance to places on the Heritage Register	Heritage Victoria	In preparation
Local Government Act 1989	Works permit for construction across or beneath roads	LGA	Prior to construction
Pipelines Act 2005	Consent for works where APA has assets on land governed by the *Crown Lands (Reserves) Act 1978, Forests Act 1958, Lands Act 1958* and *National Parks Act 1975 (*Agreement with Governor in Council concerning APA Operations on Crown Land) Consent for grant of licence for pipeline within a National Park	DELWP/ DEDJTR	Looping 6 Agreement received. Looping 7 Agreement pending.
	Approval of the alteration to the pipeline licence	DEDJTR	In preparation
	Acceptance of CEMP prior to construction of pipeline	DEDJTR	In preparation
	Approval of Vegetation Offset requirement for removal of native vegetation	DEDJTR	Prior to clearance of vegetation
	Approval to construct the pipeline	DEDJTR & Energy Safe Victoria	Prior to construction
	Approval to operate the pipeline	Energy Safe Victoria	Prior to operation
National Parks Act 1975	Consent for works as a public authority in a National Park	Minister for the Environment	In preparation
Rail Safety Act 2006	Works permit for construction across or beneath a railway	VicTrack	Prior to construction

Road Management Act 2004	Permit to conduct works on or in a roadway including a Traffic Management Plan	VicRoads	Prior to construction
Water Act 1989	Approval of proposal for crossing of designated waterways	GBCMA / NECMA	Received
	Permit to Work on Water Ways (Acceptance of a Site Environmental Management Plan (SEMP))	GBCMA / NECMA	Received
Wildlife Act 1975	Management Authorisation to salvage protected fauna	DELWP	Prior to construction

The primary act governing the construction of the pipeline is the *Pipelines Act 2005*.

While Section 85 of the *Pipelines Act* provides an exemption from the need for a pipeline licensee to secure permits pursuant to the *Planning and Environment Act 1987*, approval still needs to be sought from DELWP for the removal of native vegetation and acceptance of the vegetation offset requirement.

DELWP have provided approval for all works on Crown Land within Looping 6. DELWP have provided provisional approval for works on Crown Land within Looping 7 subject to addressing Parks Victoria's conditions of management for works within the National Park. Final approval is expected to be received shortly. These will provide proof of access to Crown lands for pipeline construction.

Discussions have been held with Parks Victoria to determine the required conditions of management and these have been incorporated into a final management plan. Parks Victoria and DELWP have subsequently given approval of the Chiltern - Mt Pilot National Park Management and Rehabilitation Plan and the Flora and Fauna Assessment for Looping 6 and 7.

A referral has been submitted to the Commonwealth Department of the Environment to determine whether the project as a whole, or any of the two proposed sections, will constitute a Controlled Action under the EPBC Act. A decision on the referral was received on 3 December 2015. This found that the project is 'not a controlled action if undertaken in particular manner.' Conditions regarding the particular manner were included in the decision document.

Have any applications for approval been lodged?

☒ No ☐ Yes If yes, please provide details.

Applications for approval have not yet been lodged (refer to project approval status in the above table).

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

Agencies consulted to date are:

- Department of Economic Development, Jobs, Transport and Resources
- Department of Environment, Land, Water and Planning
- Parks Victoria
- Goulburn Broken Catchment Management Authority
- North East Catchment Management Authority
- Office of Aboriginal Affairs Victoria
- Heritage Victoria
- Vicroads
- Victrack
- Department of the Environment (Commonwealth)

Other agencies consulted:

To date, these include:

- Local Government Authorities (being Shire of Mitchell, Rural City of Benalla, Rural City of Wangaratta and Indigo Shire)
- Registered Aboriginal Parties (being Taungurung Clans Aboriginal Corporation and Yorta Yorta Nation Aboriginal Corporation)

PART 2 POTENTIAL ENVIRONMENTAL EFFECTS

11. Potentially significant environmental effects

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

Environmental studies for the project have included flora, fauna and vegetation assessments as well as cultural heritage studies.

The most significant effect will be the removal of native vegetation from areas along the proposed construction ROW. In many instances this has regrown following the construction of the existing Wollert to Wodonga pipeline in 1975. Over 150 vegetation surveys have been undertaken, across both Loopings, to determine the presence and quality of native vegetation within the proposed construction ROW and where impacts to vegetation within this area can be successfully avoided or minimised.

The minimisation measures to be implemented were determined based on the findings of the surveys for threatened species, communities or cultural heritage within the construction ROW. Generally disturbance to sensitive areas will, at a minimum, be mitigated by the narrowing of the construction ROW to 20m except in Chiltern - Mt Pilot NP where the ROW has been further narrowed to 16.5m. In other areas (where feasible), such as significant waterways, impact to the area has been avoided by measures such as HDD. Following construction, the ROW will be reinstated to a condition that allows continuation of the pre-existing use. These measures are expected to significantly reduce impacts.

12. Native vegetation, flora and fauna

Native vegetation

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

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

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

Investigations have included a preliminary walkthrough of the whole project corridor covering Loopings 6 & 7 to identify areas of native vegetation within the proposed construction ROW. This was followed by a vegetation quality assessment (VQA) by accredited VQA assessors of each of the 152 remnant patches and all scattered trees identified (Monarc. 2015. *Flora and Fauna Report for VNIE Looping 6 & 7*. Monarc Environmental, Melbourne, VIC).

Targeted flora surveys have also been undertaken in order to determine the presence of any listed species within the proposed construction ROW (Monarc. 2015. Flora and Fauna Report for VNIE Looping 6 & 7. Monarc Environmental, Melbourne, VIC).

An Arborist assessment of the Loopings has also been completed to assess impacts of construction, such as the determination of Tree Protections Zones (TPZ) of trees to be retained, within and adjacent to, the proposed construction ROW (Tree Logic 2015. Arboricultural Assessment: APA Gas line duplication, Broadford to Mangalore (Looping 6) and Glenrowan to Barnawartha (Looping 7). Prepared for Monarc Environmental, Melbourne).

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

☒ NYD Estimated area 15.70 (hectares)

After the initial VQAs were undertaken, the maximum area of native vegetation to be cleared was determined to be approximately 22ha for the whole of the proposed construction ROW between Broadford to Mangalore and Glenrowan to Barnawartha (that is, the 28m of the easement that lies east of the existing pipeline). After avoidance and minimisation measures have been factored in, the total area to be cleared in the two Loopings is 15.70ha, meaning an approximate 29% reduction in native vegetation to be removed.

The distribution of this vegetation across each of the Looping projects is provided in Table 8 below. In accordance with the triggers included in the '*Ministerial guidelines for assessment of environmental effects under the EE Act*' (DSE 2006), this includes a breakdown of vegetation according to its Bioregional Conservation Status (BCS) and its conservation significance as determined by criteria provided in the former NVMF. Note that, as triggers for the assessment of effects under the EE Act are based on the former NVMF, figures included in the table are based on the definition of native vegetation provided in the NVMF.

It should be noted that vegetation clearance is only of a temporary nature because the construction ROW will be reinstated and rehabilitated to its previous uses. Where it existed prior to construction, vegetation will be re-established over the ROW. In accordance with licence conditions, however, regrowth of treed vegetation will not be allowed over the existing or new pipeline.

Table 8: Summary of Potential Native Vegetation Clearance.

Looping Section	Native vegetation (ha) occupying construction ROW (after avoidance and minimisation)			
	Total Area Endangered Vegetation#	Total Area Other Vegetation	Combined Total Area	Very High Conservation Significance#
Broadford to Mangalore (Looping 6)	3.1	1.8	4.9	2.1
Glenrowan to Barnawartha (Looping 7)	4.9	5.9	10.8	5.3
Total (ha)	8.0	7.7	15.7	7.4

per definition included within the Native Vegetation Management Framework

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

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

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

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

The project lies within the Central Victorian Uplands and Victorian Riverina bioregions in Looping 6 and the Victorian Riverina and Northern Inland Slopes in Looping 7.

A significant amount of the vegetation that is proposed to be cleared, in both Loopings, occurs along roadsides, waterways and other Crown Land. Other substantial areas of native vegetation occur on two private properties in Looping 6 at KP47.5 - 47.8 (0.78ha) and KP53.3 – 53.7 (0.79ha) while in Looping 7, the most significant area of native vegetation (~4ha) lies within Chiltern - Mt Pilot National Park or on private property adjacent to the park. The EVC's that are affected in both Loopings are summarised in Table 9 below.

Most areas, however, have been subject to invasion by exotic species to varying extent except for those parts within Chiltern - Mt Pilot National Park. As a result, the quality of native vegetation within the ROW varies greatly and includes areas of native grasses, herbs and shrubs with very little or no native canopy that have established over previously cleared land (eg 'native pasture'), patches of remnant woodland with very little native understorey and patches of remnant woodland with a good cover of native understorey species. In a number of cases, native vegetation has re-established over the existing pipeline, particularly in areas that were largely occupied by native grasses and other low growing vegetation. This vegetation does not require ongoing maintenance (or removal) in order to comply with pipeline operating licence conditions and therefore has been allowed to re-establish over the ROW despite potentially qualifying as native vegetation (and therefore subject to vegetation offsets should it be removed). Taller vegetation has also been allowed to re-establish on the ROW, where it does not contravene licence requirements, in order to minimise impacts to habitat. All vegetation that can be classified as native vegetation under the former Native Vegetation Management Framework has been included in the figures, regardless of its quality (or exemption from vegetation offsets as determined by discussions between DELWP and DEDJTR that are applicable to construction works within an existing pipeline easement/licence area).

Consequently, approximately 8.0 ha of the vegetation intersected by the ROW across both Loopings (including vegetation that has re-established over areas disturbed by construction works for the previous pipeline) consist of vegetation types classified as Endangered under the former Native Vegetation Management Framework. The total area of vegetation that is of sufficient quality to qualify as having a Very High Conservation Significance (under the former NMVF) is slightly less at 7.4ha. This is mostly due to the quality of native vegetation that is found in those EVCs identified as vulnerable, such as Box Ironbark Forest that is found in the national park, including the area that has regenerated over the previously disturbed portion of the ROW.

Table 9: Summary of EVCs to be impacted.

Looping	Bioregion	EVC Number and Name	Total Area (Ha)	Status
Broadford to Mangalore (L6)	Central Victorian Uplands	55 Plains Grassy Woodland	0.268	Endangered
		56 Floodplain Riparian Woodland	0.121	Endangered
		61 Box Ironbark Forest	1.403	Vulnerable
		68 Creekline Grassy Woodland	0.107	Endangered
		175_61 Low-rises Grassy Woodland	2.095	Endangered

	Victorian Riverina	55_62 Riverine Plains Grassy Woodland	0.495	Endangered
		61 Box Ironbark Forest	0.288	Vulnerable
		68 Creekline Grassy Woodland	0.116	Endangered
Glenrowan to Barnawartha (L7)	Northern Inland Slopes	20 Heathy Dry Forest	1.259	Least Concern
		22 Grassy Dry Forest	0.255	Depleted
		47 Valley Grassy Forest	0.070	Endangered
		61 Box Ironbark Forest	3.058	Vulnerable
		68 Creekline Grassy Woodland	0.511	Endangered
		80 Spring Soak Woodland	0.048	Endangered
		175_61 Grassy Woodland (Low Rises)	0.236	Endangered
		803 Plains Woodland	0.061	Endangered
	Victorian Riverina	55_61 Plains Grassy Woodland	0.094	Endangered
		67 Alluvial Terraces Herb-rich Woodland	0.071	Endangered
		68 Creekline Grassy Woodland	0.011	Depleted
		175_61 Grassy Woodland (Low Rises)	0.069	Endangered
		235 Plains Woodland/Herb-rich Gilgai Wetland Mosaic	2.597	Endangered
		803 Plains Woodland	0.349	Endangered
		56 Floodplain Riparian Woodland	0.853	Vulnerable
		813 Intermittent Swampy Woodland	0.630	Depleted
		55_62 Riverina Plains Grassy Woodland	0.292	Endangered
		295 Riverine Grassy Woodland	0.345	Endangered

[1] Bioregional conservation status assigned to each EVC under the NVMF (DNRE 2002)

Have potential vegetation offsets been identified as yet?

☐ NYD ☒ Yes If yes, please briefly describe.

Native vegetation to be impacted by the project has been assessed in accordance with the *Biodiversity assessment guidelines* (DEPI 2013) and Biodiversity Impact and Offset Requirement reports have been obtained from DELWP for both Looping 6 and 7. These have identified a requirement for general vegetation offsets (GBEU) within Looping 6 and both general and specific (SBEU) offsets for Looping 7 (associated with Mugga) as a result of vegetation to be cleared for the project.

An audit of works carried out on Loopings 1-5 on Pipeline Licence 101 (or PL101 being the pipeline corridor between Wollert to Barnawartha), has determined that APA has a vegetation credit owing from works on the previous project. APA has been advised by DELWP (via DEDJTR) that this credit may be applied against the whole licence area for PL101. This credit is expected to fully meet the general offsets (GBEU) required for both Looping 6 and 7.

Discussions with DELWP, Local Governments, Registered Offset Brokers and other third parties have been initiated to determine appropriate specific offset sites.

APA is currently in negotiation with the owners of a freehold property that has habitat for Mugga but is currently unregistered as an offset site. Preliminary assessment indicates that this site holds sufficient specific offsets (SBEU) to cover the whole of the requirement for specific offsets for looping 7.

Other information/comments? (e.g. accuracy of information)

Flora and Fauna

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

A summary of the surveys undertaken as part of the Project's development are summarised in Table 10. Surveys were targeted towards identifying any threatened flora and fauna that occurs within the proposed construction footprint and identifying any threatened species that may potentially occupy habitat (i.e. species listed under state and federal legislation).

Table 10: Summary of Threatened Flora and Fauna Surveys undertaken per Looping.

Survey Type	Number of Survey Locations per Looping	
	Looping 6	Looping 7#
Golden Sun Moth*	2	-
Growling Grass Frog*	5	6
Nocturnal fauna	10	28
Birds (Spring)	9	27
Reptiles	9	27
Brown Toadlet	6	7
Hooded Mosquito Orchid and Tick Indigo (Winter)	-	15
Flora (Spring)	56	95
Spiny Rice Flower (Winter)	10	-
Striped Legless Lizard*	10	-
Regent Honeyeater and Swift Parrot (Winter)*	-	16
Aquatic fauna	2	6

* EPBC Listed Species

Surveys were not undertaken in Chiltern - Mt Pilot NP, except for winter bird and flora surveys, as presence of threatened species known to be in the park was assumed.

The following surveys for flora and vegetation have been undertaken for the project:

- A review of state managed databases for records of flora species recorded within 5km of the proposed ROW
- A walk-through survey of all sections of the project (Loopings 6 and 7) to identify potential habitat for threatened flora species or communities, all patches of remnant native vegetation within the ROW and any scattered indigenous trees not part of a patch
- Surveys of all patches of remnant native vegetation identified within the ROW to determine habitat quality in accordance with the Vegetation Quality Manual prepared by Department of Sustainability and Environment (Habitat hectares method)
- Targeted surveys for threatened species with the potential to occur within the construction ROW

The timings for these targeted surveys were:

- VQAs of 151 remnant patches, identified during the first walk-through, during October-November 2013
- Targeted surveys for spring flowering species during the VQAs in spring 2013
- Targeted surveys for winter flowering species such as Spiny Rice-flower (*Pimelea spinescens spinescens*) were conducted in Looping 6 during winter 2013 while Tick Indigo (*Indigofera adesmiifolia*) and Hooded Mosquito Orchid (*Acianthus collinus*) were undertaken in winter 2014 in Looping 7

The following surveys for threatened fauna species have been undertaken for the project:

- A review of state managed databases for records of fauna species within 5km of the proposed ROW
- A walk-through survey of all sections of the project (Loopings 6 and 7) to identify potential habitat for threatened fauna species
- A total of 55 sites were surveyed for the various fauna across the two Loopings. The numbers of sites for survey type, per Looping are shown in Table 10 above.

The timings for these targeted surveys were:

- Targeted surveys of two locations in Looping 6 for Golden Sun Moth (*Synemon plana*) during December 2013 – January 2014
- Targeted surveys at six locations within Looping 6 and seven locations in Looping 7 for Brown Toadlet

(*Pseudophryne bibronii*) during autumn 2015

- Targeted surveys at 11 locations within Loopings 6 and 7 for Growling Grass Frog (*Litoria raniformis*) during late November to December 2013
- Targeted surveys for threatened birds and reptiles were undertaken in 36 locations in the two Loopings during summer 2013/2014 for species such as Grey-crowned Babbler (*Pomatostomus temporalis*), Bush Stone-curlew (*Burhinus grallarius*) and Lace Monitor (*Varanus varius*)
- Targeted surveys for winter bird species namely Regent Honeyeater (*Anthochaera phrygia*) and Swift Parrot (*Lathamus discolour*) were undertaken at 16 locations during winter 2014
- Targeted surveys of 38 locations within Loopings 6 (10) and 7 (28) for threatened mammal species during spring-early summer of 2013 for species such as Squirrel Glider (*Petaurus norfolcensis*) and Brush-tailed Phascogale (*Phascogale tapoatafa*)

It should be noted that most of the fauna surveys were not undertaken in Chiltern - Mt Pilot NP as presence of threatened species has been assumed.

All surveys were undertaken in accordance with state or federal guidelines, where available, and included consideration of survey timing and survey effort (e.g. number and length of surveys required for each targeted species). Survey effort was also discussed with regulatory authorities, and other professionals, where available records were limited.

After discussions with regional DELWP officers, aquatic surveys were also considered prudent at several locations including a number where populations of threatened aquatic species were known to be located well upstream of the easement. With this in mind, aquatic surveys were undertaken at rivers/creeks that are planned to be crossed by HDD, as a contingency measure, as well as other significant waterways identified in the discussions with DELWP.

In addition, discussions with Hume DELWP staff and an independent local expert on Striped Legless Lizard (SLL) suggested that a large portion of the country through which the Looping 6 construction ROW passes is likely to be potential (although sub-optimal) habitat for SLL. Field assessments undertaken by Monarc also identified areas of potential habitat within Looping 6 during surveys.

Targeted surveys of Looping 6 were therefore undertaken using the DELWP approved 'Winter Search Method' in association with a local expert on SLL in 2015. No SLL were found during the surveys but five properties/sites were identified within the ROW containing potentially suitable habitat for SLL (based on characteristics identified at known SLL sites). Whilst it is considered unlikely that the species will be encountered during construction works, it was agreed with DELWP that management measures for the species will include a pre-construction salvage program at the five sites with the most suitable habitat for the species.

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

☐ NYD ☐ No ☒ Yes If yes, please:

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

Threatened species (listed under the FFG Act) that have been recorded within 5 kilometres of the proposed construction ROW according to the VBA database managed by DELWP are listed in Table 11. The date of the latest record and status of the species on the DELWP Species Advisory Lists (2009, 2013, 2014) are also included in Table 11.

This relatively extensive list is largely a result of the length of the search transect being the project corridor between Broadford to Mangalore and Glenrowan to Barnawartha. Some records consist of only one sighting.

Table 11: Records of Flora, Fauna & Communities

Scientific name	Common Name	Regulatory Status FFG / DELWP Adv	Last Recorded Date	Looping
Flora				
Acacia deanei subsp. *deanei*	Deane's wattle	Listed / e	2006	7
Acianthus collinus	Hooded Mosquito-orchid	Listed / v	2005	7
Allocasuarina luehmannii	Buloke	Listed / -	1981	7
Austrodanthonia richardsonii	Straw Wallaby-grass	- / v	1935	7
Brachyscome gracilis	Dookie Daisy	Listed / v	2000	7
Caladenia concolor	Crimson Spider-orchid	Listed / e	2006	7
Cassinia ozothamnoides	Cottony Cassinia	- / v	1992	7
Chloris ventricosa	Plump Windmill Grass	- / v	1925	7
Digitaria divaricatissima	Umbrella Grass	- / v	1995	7
Dipodium hamiltonianum	Yellow Hyacinth-orchid	Listed / e	2004	7
Diuris palustris	Swamp Diuris	Listed / v	1977	6

Diuris punctata var. *punctata*	Purple Diuris	Listed / v	2009	7
Eucalyptus cadens	Warby Range Swamp-gum	Listed / v	2007	7
Eucalyptus sideroxylon s.s.	Mugga	- / r	2008	7
Fimbristylis dichotoma	Common Fringe-sedge	- / v	1992	7
Goodenia macbarronii	Narrow Goodenia	Listed / v	2007	7
Indigofera adesmiifolia	Tick Indigo	- / v	2005	7
Isoetes pusilla	Small Quillwort	Listed / e	1979	7
Isolepis congrua	Slender Club-sedge	Listed / v	1996	7
Lipocarpha microcephala	Button Rush	- / v	1994	7
Pultenaea foliolosa	Small-leaf Bush-pea	- / r	2004	7
Santalum leptocladum	Southern Sandalwood	Listed / e	2001	7
Senecio garlandii	Woolly Ragwort	Listed / e	2005	7
Senecio macrocarpus	Large-headed Fireweed	Listed / e	unknown	6
Sporobolus creber	Western Rat-tail Grass	- / v	1972	6
Swainsona murrayana	Slender Darling-pea	Listed / e	1897	7
Swainsona recta	Mountain Swainson-pea	Listed / e	2001	7
Fauna				
Acrodipsas myrmecophila	Small Ant Blue	Listed / CR	1954	6
Synemon plana	Golden Sun Moth	Listed / CR	2012	6
Euastacus armatus	Murray Spiny Crayfish	Listed / NT	2014*	7
Maccullochella peelii peelii	Murray Cod	Listed / VU	2014*	7
Macquaria australasica	Macquarie Perch	Listed / EN	1970	6
Nannoperca australis	Southern Pygmy Perch (Murray-Darling lineage)	- / VU	1990	6
Litoria raniformis	Growling Grass Frog	Listed / EN	1964	6/7
Pseudophryne bibronii	Brown Toadlet	Listed / EN	2005	6/7
Delma impar	Striped Legless Lizard	Listed / EN	2003	6
Morelia spilota metcalfei	Carpet Python	Listed / EN	1997	7
Pogona barbata	Common Bearded Dragon	- / V	2010	6/7
Varanus varius	Lace Monitor	- / EN	2012	6/7
Vermicella annulata	Bandy Bandy	Listed / VU	1987	7
Actitis hypoleucos	Common Sandpiper	- / VU	2007	6
Accipiter novaehollandiae novaehollandiae	Grey Goshawk	Listed / VU	2003	7
Anas rhynchotis	Australasian Shoveler	- / VU	2008	6/7
Anthochaera phrygia	Regent Honeyeater	Listed / CR	2010	7
Anseranas semipalmata	Magpie Goose	Listed / NT	1978	6
Ardea intermedia	Intermediate Egret	Listed / EN	2007	7
Ardea modesta	Eastern Great Egret	Listed / VU	2012	6/7
Ardeotis australis	Australian Bustard	Listed / CR	1898	7
Aythya australis	Hardhead	- / VU	2012	6/7
Biziura lobata	Musk Duck	- / VU	2008	6/7
Botaurus poiciloptilus	Australasian Bittern	Listed / EN	1982	7
Burhinus grallarius	Bush Stone-curlew	Listed / EN	1999	6
Calamanthus pyrrhopygius	Chestnut-rumped Heathwren	Listed / VU	2013	7
Calyptorhynchus lathami lathami	Glossy Black-Cockatoo	Listed / VU	1984	7
Chthonicola sagittata	Speckled Warbler	Listed / VU	2013	6/7
Coracina maxima	Ground Cuckoo-shrike	Listed / VU	1978	7
Egretta garzetta nigripes	Little Egret	Listed / EN	2007	7

Falco subniger	Black Falcon	- / VU	1999	7
Gallinago hardwickii	Latham's Snipe	Nom / NT	2008	6/7
Geopelia cuneata	Diamond Dove	Listed / NT	1985	7
Grantiella picta	Painted Honeyeater	Listed / VU	2013	6
Grus rubicunda	Brolga	Listed / VU	2008	7
Haliaeetus leucogaster	White-bellied Sea-Eagle	Listed / VU	2011	7
Hirundapus caudacutus	White-throated Needletail	- / VU	2007	6/7
Ixobrychus minutus dubius	Australian Little Bittern	Listed / EN	1968	7
Lathamus discolor	Swift Parrot	Listed / EN	2010	6/7
Lewinia pectoralis pectoralis	Lewin's Rail	Listed / VU	2008	7
Lophocroa leadbeateri	Major Mitchell Cockatoo	Listed / VU	1977	7
Lophoictinia isura	Square-tailed Kite	Listed / VU	2011	6/7
Melanodryas cucullata cucullata	Hooded Robin	Listed / NT	2012	6/7
Neophema pulchella	Turquoise Parrot	Listed / NT	2011	7
Ninox connivens connivens	Barking Owl	Listed / EN	2013	6/7
Ninox strenua	Powerful Owl	Listed / VU	1996	7
Oxyura australis	Blue-billed Duck	Listed / EN	2006	6/7
Pedionomus torquatus	Plains-wanderer	Listed / CR	1983	6
Polytelis swainsonii	Superb Parrot	Listed / EN	2000	7
Pomatostomus temporalis temporalis	Grey-crowned Babbler	Listed / EN	2013	6/7
Porzana pusilla palustris	Baillon's Crake	Listed / VU	1987	6/7
Stagonopleura guttata	Diamond Firetail	Listed / NT	2012	6/7
Stictonetta naevosa	Freckled Duck	Listed / EN	2005	6/7
Struthidea cinerea	Apostlebird	Listed / -	1999	7
Tringa glareola	Wood Sandpiper	- / VU	1999	7
Tringa nebularia	Common Greenshank	- / VU	1998	7
Tringa stagnatilis	Marsh Sandpiper	- / VU	2011	7
Turnix velox	Little Button-quail	- / VU	1982	7
Tyto novaehollandiae novaehollandiae	Masked Owl	Listed / EN	1968	7
Dasyurus maculatus maculatus	Spot-tailed Quoll	Listed / EN	1961	6
Petaurus norfolcensis	Squirrel Glider	Listed / EN	2012	6/7
Phascogale tapoatafa tapoatafa	Brush-tailed Phascogale	Listed / VU	2013	6/7
Pteropus poliocephalus	Grey-headed Flying-fox	Listed / VU	1962	7
Communities of flora and fauna (listed under the FFG Act)				
Creekline Grassy Woodland (Goldfields) Community				
Grey Box – Buloke Grassy Woodland Community				
Lowland Riverine Fish Community of the southern Murray-Darling Basin				
Victorian Temperate Woodland Bird Community				

KEY: Species Status – Flora: e= Endangered, v=vulnerable, r=rare
Species Status – Fauna: CR=Critically Endangered, EN= Endangered, VU=vulnerable, R=rare

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

Six threatening processes listed under the FFG Act could be applicable to the project if appropriate management measures are not implemented to avoid or minimise the potential impacts:

- Degradation of native riparian vegetation along Victorian rivers and streams
- Habitat fragmentation as a threatening process for fauna in Victoria

- Increase in sediment input into Victorian rivers and streams due to human activities
- Infection of amphibians with Chytrid fungus resulting in chytridiomycosis
- Invasion of native vegetation by 'environmental weeds'
- Loss of hollow-bearing trees from Victorian native forests

Part of the existing easement was cleared for the construction of the existing 300mm pipeline in 1975. While removal of some vegetation will be required to allow the project to proceed, the placement of the new pipeline within the existing easement will minimise the potential for removal or fragmentation of existing habitat that would occur with the creation of a new alignment.

Measures will also be implemented where possible to minimise impacts to existing vegetation and habitat. For instance:

- The ROW has been narrowed to 20m where the ROW intersects native vegetation, regardless of whether listed species and/or communities have been recorded, in order to minimise impacts. In Chiltern - Mt Pilot NP the ROW has been further narrowed to 16.5m in order to minimise impacts.
- Emphasis has been placed on the retention of large trees wherever possible in recognition of their value as habitat and landscape features. The whole ROW has been carefully inspected, and steps taken to avoid or minimise impacts to patches of native vegetation and significant trees (i.e. old, large, hollow bearing) that currently exist within the easement.
- The construction ROW will be rehabilitated following construction to restore the construction area to its previous use and ensure the restoration of land and waterways crossed by the project to avoid degradation of habitat.
- Site Environmental Management Plans have been prepared specifically for the crossing of waterways for approval by the GBCMA (Loopings 6 and 7) and NECMA (Looping 7). These provide details on construction methods to be employed at all designated waterways from minor drainage lines to major creeks and rivers. Methods of waterway restoration are described as well as methods to be utilised to rehabilitate the bed of the waterways and margins.
- A Construction Environment Management Plan (CEMP) has been prepared for the project for approval by DEDJTR that stipulates management measures to mitigate impacts from construction. This includes:
    - Measures to mitigate impacts to any of the listed species recorded within the ROW;
    - Measures to control the introduction or spread of 'environmental weeds';
    - Measures to ensure the potential for spread of chytrid fungus between waterways is minimised;
    - A Flora and Fauna Management Plan for Loopings 6 & 7.
- A separate Management Plan has been prepared for the Chiltern - Mt Pilot National Park. This provides detail on construction methods to be employed throughout the National Park. Methods of rehabilitation have been described as well as methods to minimise impact to the flora and fauna within the park. The management plan was provided to DELWP and Parks Victoria for approval. A meeting was held between APA and Parks Victoria on 16 November 2015 to discuss management methods and approval of the Management Plan was received on 24 November 2015.

It is therefore considered that impact to any of the FFG listed species and communities intersected by the ROW are not significant. Overall impact to listed communities is also not considered significant.

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

☐ NYD ☐ No ☒ Yes If yes, please:

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

Flora and fauna

A number of the threatened flora and fauna species mentioned in Table 11 were recorded within the ROW, or nearby, from various locations across the project area during the various surveys that have been undertaken along the project alignment. These flora and fauna species are summarised in Table 12.

Some of the vegetation intersected by the construction ROW has been found to provide habitat for threatened species or communities of conservation significance. Hollow-nesting/roosting species like Squirrel Glider, Brush-tailed Phascogale may potentially be impacted if the trees they inhabit are to be cleared as part of this project. Additionally, mid-layer species such as Grey-crowned Babbler could be impacted by the clearance of shrubs and immature trees, while ground-nesting species, particularly Bush Stone Curlew could be impacted by earthworks along the project corridor.

Table 12: Species Identified During Flora and Fauna Surveys

Scientific Name	Common Name	Looping (number of locations)	
		6	7
Flora			
Allocasuarina luehmannii	Buloke	-	1 (plantation)
Amphibromus pithogastrus	Plump Swamp Wallaby-grass	1	-
Dianella tarda	Late-flowering Flax Lily	1	7
Pultenaea foliolosa	Small-leaf Bush-pea	-	5
Fauna			
Euastacus armatus	Murray Spiny Crayfish	-	1
Maccullochella peelii peelii	Murray Cod	-	2
Varanus varius	Lace Monitor	-	1
Ardea modesta	Eastern Great Egret	-	1
Aythya australis	Hardhead	2	-
Gallinago hardwickii	Latham's Snipe	-	1
Grantiella picta	Painted Honeyeater	-	2
Hirundapus caudacutus	White-throated Needletail	-	1
Merops ornatus	Rainbow Bee-eater	-	4
Pomatostomus temporalis temporalis	Grey-crowned Babbler	-	2
Stagopleura guttata	Diamond Firetail	-	3
Petaurus norfolcensis	Squirrel Glider	-	9
Threatened Communities			
Creekline Grassy Woodland (Goldfields) Community		1	-
Lowland Riverine Fish Community of the southern Murray-Darling Basin		1	1
Victorian Temperate Woodland Bird Community		-	2 (C-Mt.P NP)

Most of the flora species identified in the project area (refer to Table 12) occur within relatively thin corridors along roadsides or waterways, except for where the ROW passes through Chiltern - Mt Pilot National Park, where measures will be implemented to minimise impacts to vegetation in these locations. Site specific adjustments to the construction footprint (including adjustments to the width of the ROW), and other measures taken to minimise impacts through the Park, will therefore significantly reduce the total area of clearing of native vegetation or habitat for this project.

Further information on the threatened fauna and flora species recorded, and their locations, are outlined in the appended Flora and Fauna Assessment report. However, further information is provided below with regard to significant species that may occur in the vicinity of the construction ROW and the likelihood of effects or impacts from construction:

- There are no significant impacts to threatened species expected to occur within Looping 6
- The most significant area where potential impacts could occur within Looping 7 is considered to be the portion of the project that passes through Chiltern Mt Pilot National Park. Species listed under the FFG Act that are known to use the National Park include:
    - Regent Honeyeater, Painted Honeyeater, Swift Parrot
    - Squirrel Glider, Brush-tailed Phascogale

    Within the National Park, vegetation within the existing pipeline licence area can be broadly characterised as two types:

    - Shrubs and herbs over the existing pipeline and previously disturbed/maintained area
    - Treed vegetation over the portion of the licence area that was not disturbed during the construction of the existing pipeline (consisting of Red Box, Grey Box, White Box, Red Ironbark, Red Stringybark, River Red Gum and Blakely's Red Gum)

    The ROW is to be reduced to 16.5m in width through the National Park and will extend from 1m within the western boundary of the licence area over the existing pipeline to about 3m east of the new pipeline. Construction will require the removal of vegetation from all of the previously disturbed area and approximately 2m (width) of treed vegetation that lies outside this area. It is intended however, to retain as

many of the larger trees (>40cm dbh) as possible within this zone in order to minimise impacts to habitat (trees less than 40cm dbh that lie within the construction ROW, and the associated understorey, may be removed). As a result, up to 23 trees over 40cm dbh will be removed within the construction ROW through the National Park.

With regard to the significant species listed in the region and their potential to be impacted by construction, the following is noted:

- Regent Honeyeaters occur mainly in dry box ironbark open-forest and woodland areas inland of the Great Dividing Range. They spend much of their time feeding on nectar from eucalypts (including Mugga, White Box, Yellow Box and Blakeley's Red Gum) but also feed on insects and spiders, as well as native and cultivated fruits.

  The species is highly mobile and undertakes a series of migratory movements that vary according to the location. These are thought mainly to be governed by the flowering of a number of Eucalypt species. In the area of Chiltern, they move from the high country of north-eastern Victoria in late autumn to breeding areas on the inland slopes of the Great Dividing Range before returning in early spring to the high country for breeding. The Chiltern area is therefore used for feeding only in the winter months when the Box Ironbark flowering season is at its peak.

  The eastern most area of the ROW (treed vegetation) is therefore likely to provide reasonable foraging habitat for Regent Honeyeater during the period that they are present in the National Park, particularly along the edge of the treed area where greater access to sunlight is likely to lead to greater flowering of the gums in this part. Regent Honeyeaters have been observed feeding from mature Ironbark trees on the south eastern edge of the ROW along Pipeline Track in 2010 and 2013 (G. Johnson *pers.comm* 2015).

- Painted Honeyeater are found in dry open forests and woodlands and specialise in foraging at the flowers of parasitic mistletoes that grow in trees but will also feed on nectar and invertebrates, usually in eucalypts. As a result, they often also follow regular seasonal movements coinciding with the times when different species of mistletoes are blooming.

  The eastern portion of the construction ROW (treed vegetation) therefore potentially forms foraging habitat (when mistletoe is flowering).

- Swift Parrot is a winter migrant to the mainland from Tasmania. It has a restricted breeding area in the east of Tasmania, arriving on the mainland in autumn to spend the winter period foraging in groups within forests and woodlands in south-east Australia. They feed in gregarious flocks on nectar where eucalypts are in blossom or where lerps/psyllids are common. These consist primarily of the winter-flowering Grey Box, Red Ironbark, Mugga, Yellow Gum and White Box.

  The eastern portion of the construction ROW (treed vegetation) therefore potentially forms foraging habitat when the box and ironbark species are flowering.

- Squirrel Glider is an arboreal, nocturnal, gliding possum occurring in patches through northern and central Victoria through eastern New South Wales and eastern Queensland. Tree-hollows are essential to Squirrel Gliders for den and breeding sites and hollows with a tight-fitting entrance hole are preferred. Mugga, Yellow Gum, White Box, Long-leaved Box and Red Ironbark are an important nectar and pollen source for Squirrel Gliders because they flower in the cooler months, providing alternative food sources when many other species are not flowering. Breeding occurs between June and January.

  The eastern portion of the construction ROW (treed vegetation) therefore potentially forms foraging habitat when the box and ironbark species are flowering and may form nesting habitat where tree hollows are present.

- Brush-tailed Phascogale (BTP) is a small, nocturnal, arboreal, carnivorous marsupial. Their diet consists predominantly of large insects, spiders and centipedes on the trunks and major branches of rough-barked trees and fallen logs. Eucalypt nectar may be taken when ironbarks or boxes are flowering. The breeding season covers the period from early winter to early summer when juveniles disperse. However, most adult males die shortly after breeding in winter while females rarely survive a second year. Females can nest in as many as 30 different sites each year and these may be in hollows in dead or live trees, under flaking bark, or in tree stumps.

  The eastern portion of the construction ROW (treed vegetation) therefore potentially forms foraging habitat when the box and ironbark species are flowering and may form nesting habitat where tree hollows are present. However, it is noted that the majority of recent records for BTP occur within the Mt Pilot section and not the Chiltern section of the Park through which the construction ROW passes (851 records since 2000 in the Mt Pilot section, 41 records in the Chiltern section between 1990-2005).

All species tend to rely on the tree species that occur within the National Park as foraging habitat when the trees are in flower. Hollow-nesting/roosting species like Squirrel Glider, Brush-tailed Phascogale may potentially be impacted if any hollow bearing trees they inhabit are to be cleared as part of this project. However, the Chiltern section of the park was mostly cleared during the gold mining era of the late 1800s (Parks Vic 2008). As a result, much of the vegetation now present is largely due to regrowth and this clearing is evident in the lack of large old trees in this section of the National Park, including the area within the boundary of the pipeline licence.

Within the pipeline licence area that traverses the National Park, the arborist assessment identified a total of 427 trees that were greater than 40cm dbh and 24 stags of various sizes. However, only 13 of these trees were considered to contain hollows, cracks or flaking bark that may form potential habitat for small mammals.

Mitigation measures have therefore taken account of all potential impacts and have been designed specifically to minimise impacts. These are discussed in the next section. However, the timing of construction works through the National Park is of particular importance as it is planned to be undertaken in mid to late summer at a time that has least impact on the threatened fauna that are considered to be a feature of the park. These species are known to be not breeding or absent during these months. Reinstatement of the ROW is planned to be completed before these species return to the licence area in the park in the late autumn, early winter months (depending on weather conditions.

Significant impact to threatened species that may utilise the area, or occur within the vicinity of, the construction ROW, is therefore not expected.

Threatened communities

A small remnant of the listed community 'Creekline Grassy Woodland (Goldfields) Community' occurs at one location intersected by the ROW, while both the 'Lowland Riverine Fish Community of the southern Murray-Darling Basin' and 'Victorian Temperate Woodland Bird Community' is assumed to occur in Loopings 6 and 7 along the floodplains of the Goulburn and Ovens Rivers, and within and adjacent to Chiltern - Mt Pilot National Park, respectively. These are summarised in Table 13.

Table 13: Summary of Threatened Communities found within the ROW

Looping	Threatened Community	Location	Impact	
			Area (Ha)	VQA score
Broadford - Mangalore (L6)	Creekline Grassy Woodland (Goldfields) Community	Sunday Creek Tributary (KP45.7)	0.038	59
	Lowland Riverine Fish Community of the southern Murray-Darling Basin	Goulburn River (KP 62.8)	0.00*	NA
Glenrowan – Barnawartha (L7)	Lowland Riverine Fish Community of the southern Murray-Darling Basin	Ovens River (KP 138.1)	0.00*	NA
	Victorian Temperate Woodland Bird Community	Chiltern – Mt Pilot National Park and adjacent wooded private properties (KP175.1 – 175.8)	1.15	NA
		Chiltern – Mt Pilot National Park and adjacent wooded private properties (KP176.4-178.9)	3.4	NA

*Due to mitigation measures (HDD) planned for the Goulburn and Ovens Rivers (Looping 6 & 7 respectively), it is expected that there will be no impact on these waterways.

It is anticipated that none of the species or communities would be subjected to a major or extensive impact from the construction works. These works are short-term and temporary in nature with most areas returning to pre-construction conditions following restoration.

One uncertainty is the potential for "frac-outs" while undertaking HDD of waterways. With this in mind, geotechnical investigations have been undertaken at the waterways identified for HDD to help inform the planning of these crossings and allow for mitigation measures to reduce this risk (Cardno. 2015. Geotechnical Assessment for Victorian Northern Interconnect Expansion Project Loopings 6 and 7. Broadford to Barnawartha, Central and Northern Victoria. Cardno, Melbourne VIC). Suitable controls and management measures will be implemented through a specific HDD management plan to limit the potential for a frac-out. This will be prepared by the construction contractor for approval by the regulatory authority prior to commencement of the crossing. The HDD management plan will also detail contingency and response procedures to minimise any environmental harm as a result of any unplanned releases.

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

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

The linear nature of the project will require the removal of only relatively narrow areas of native vegetation from the previously disturbed existing easement. At least some of this vegetation will be allowed to regrow over the

easement following construction. No significant impact via fragmentation of habitat is therefore expected.

The following measures are to be undertaken to minimise the impacts of this project on indigenous flora and fauna at selected locations along the construction ROW:

- Horizontal Directional Drilling of some watercourses where there could be significant impact to vegetation, flora or fauna. The watercourses to be drilled using this technique are described in Section 13. This includes the two locations where Murray Cod were recorded during surveys undertaken for the project (Ovens River and Yanko Creek). Impacts to this species will therefore be avoided.
- The minimisation of the construction ROW where it intersects native vegetation (generally to 20m except in Chiltern - Mt Pilot NP where the ROW has been narrowed to 16.5m). This will reduce the amount of flora and therefore fauna habitat required to be cleared by approximately 30%.
- Extensive planning to reduce the number of large and very large old trees (hollow-bearing trees and therefore potential habitat) that are required to be felled.
- Where feasible, transferring the working side of construction to above the existing pipeline (trench side) in areas where there is significant remnant vegetation on the 'eastern' portion of the construction ROW (e.g. Chiltern - Mt Pilot NP).
- Reinstatement of the ROW as soon as practicable following construction to allow the land to be used for its previous purpose.

A construction footprint that defines the extent of the ROW will be included as part of the tender documentation to be provided to the pipeline contractor. This together with a CEMP and audit schedule approved by the regulator will ensure that proposed mitigation measures are achieved.

The CEMP to be prepared for the project and approved by DEDJTR will stipulate management measures to mitigate impacts from construction (refer to Section 18).

A Flora and Fauna Management Plan to reduce the impact on threatened flora and fauna, hollow-dependant fauna and other wildlife has also been prepared as part of the CEMP for review by DELWP. This will include the following mitigation measures:

- Threatened flora to be salvaged prior to construction eg, removal of plants/collection of seed and deposited at DELWP approved locations
- Where hollow bearing trees are to be removed, nest boxes will be installed in adjacent non-impacted vegetation at least several days prior to tree removal
- An appropriately qualified zoologist/wildlife handler to carefully inspect hollows for fauna using an elevated work platform and endoscope (where required) prior to, and after, felling of hollow-bearing trees
- Hollows to be removed wherever possible at time of inspection to avoid any further use prior to felling of the tree
- Removed hollows to be salvaged and given to local landcare or environment groups for redistribution
- Local authorities (such as GBCMA or NECMA) or landowners to be contacted where large trees are to be felled for possible use in areas off the construction ROW
- Hollow-bearing trees to be removed carefully by qualified arborists under the direction of an appropriately licensed and qualified zoologist/wildlife handler
- Salvaging of aquatic fauna species prior to waterway crossings
- Undertaking pre-construction salvage works for Striped Legless Lizard within the Looping 6 ROW at five properties that, in consultation with DELWP, were identified to contain potentially the most suitable habitat for SLL.

Mitigation measures have been designed specifically to minimise impacts, particularly within the area of Chiltern Mt Pilot National Park. Measures applicable to the National Park include:

- Ensuring that the majority of construction occurs within the period between January and March during the period that Regent Honeyeater, Swift Parrot are known to be absent from the area and mistletoe is unlikely to be flowering (and therefore less chance of Painted Honeyeater using the area). It also lies outside the breeding period of Squirrel Glider and Brush-tailed Phascogale while trees that these species may use for food resources are also not flowering.
- Reduction of ROW to 16.5m so that treed vegetation that may be subject to removal, which provides the major potential foraging habitat in the construction area, only occurs within about 2-3m (width) of the construction ROW.
- Retaining as many of the larger trees (>40cm) within the ROW as possible that may form potential habitat
- Ensuring that any hollow bearing trees that are to be removed are checked for fauna by a qualified zoologist prior to their removal

As a result, a separate Management Plan has been prepared to cover management measures to be employed during construction within Chiltern - Mt Pilot National Park. This has been reviewed by Parks Victoria and DELWP and includes the following (refer to Section 14):

- Clearance requirements and measures to protect retained vegetation
- Management measures to be employed during clear and grade and other construction phases including management of impacts to flora and fauna
- Reinstatement and rehabilitation requirements including weed control and replanting/reseeding of the ROW. Reseeding will be undertaken in autumn 2016 with indigenous seed stock, subject to suitable weather.
- Replacement of Pipeline Track to a suitable standard (as agreed with Parks Victoria).

In particular, the timing of construction has been discussed with a number of parties including DELWP, Parks Victoria, Birdlife Australia and Friends of Chiltern - Mt Pilot National Park. Construction works throughout the national park are therefore planned to be undertaken in mid to late summer at a time that has least impact on the threatened fauna that are a feature of the park (Regent Honeyeater, Painted Honeyeater and Swift Parrot). These species are known to be not breeding or absent during these months. Reinstatement of the ROW is planned to be completed before these species return to the park in the late autumn, early winter months.

Note that discussions with Birdlife Australia have confirmed that the primary breeding season for Painted Honeyeater in the Chiltern area is October-December in response to flowering/fruiting of mistletoe.

Other information/comments? (e.g. accuracy of information)

All native vegetation assessments were undertaken by DELWP accredited VQA assessors using the approved Vegetation Quality Assessment procedures.

The Victorian Biodiversity Atlas (VBA) maintained by DELWP was used to source data for both flora and fauna species that had been recorded in the project area. Flora and fauna survey locations were discussed with DELWP prior to implementation of the surveys to ensure all potential environmental issues were identified. Survey results have been discussed with DELWP.

The methodology employed for this assessment (i.e. field survey combined with information available from desktop information sources) is considered sufficient to determine if the development would have a significant impact on any threatened species, population or ecological community. No significant study limitations were identified, however the following considerations apply:

- The surveys covered vascular flora only (ferns, conifers and flowering plants). Non-vascular flora (e.g. mosses, liverworts) was not considered.
- Surveys provide a sampling of flora at a given time only. Different seasonal conditions may provide more suitable growing conditions for some flora. While every effort has been taken to examine parts of the construction ROW at times appropriate to the flowering of significant species that may be expected in the area, some flora may not have been visible due to dormancy (e.g. orchids or certain herbaceous species which leaf and flower during certain periods of the year but remain underground at other times) or their presence during the survey period as seeds only (e.g. annuals whose life cycle is completed within one season). Other plant species are perennial but are inconspicuous unless flowering. More plant species may have been recorded with additional surveys, however, the field surveys, which were undertaken at times when detection of most threatened species is high, combined with information available from other sources documented in this report is deemed appropriate to assess the ecological values of the study area.
- Much of the study area is subject either to intensive grazing by domestic stock animals or ploughing. This could lead to the removal of live plant material and/or fruiting materials and restrict the ability to identify all the plant species that could be present within the study area.
- The ROW forms a narrow linear study area that may intersect only small portions of much larger areas of habitat. Much of the study area passes through private land. The focus of the study was therefore on the ecological value of the easement or construction ROW being the area accessible to APA. In some cases (where potential habitat exists or access was available), the study area examined was widened to assist in assessing the potential for the presence of certain species within habitat intersected by the construction ROW.
- While the surveys are considered adequate for detecting active fauna typical of the area, such surveys provide a sampling of the fauna only at a given time. Factors such as time of year and day, weather conditions, species behaviour and habitat, impact on the likelihood of locating many species. The surveys were undertaken during times and conditions when the targeted threatened species were considered most likely to be active and the chance of locating uncommon or transient species was highest. More species may have been recorded with additional surveys, however, the survey effort was deemed appropriate to provide a reasonable assessment of the ecological values of the study area.

13. Water environments

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

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

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

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

On completion of each looping, the pipeline will be hydrostatically tested (i.e. tested by filling and pressurising with water), in accordance with AS2885, to verify the integrity of the pipeline. Once full of water, the pipeline will be pressurised for a 3-hour period (strength test). The pressure is then lowered and held for a period of 24 hours and monitored for pressure drops (leak detection test).

It is anticipated that hydrotesting would use up to a maximum of approx. 12ML of water across the entire project. However, if all sections of the project are constructed, this would be split across at least two construction phases.

Water for the hydrostatic testing will be disposed of following completion of testing in accordance with relevant regulatory requirements and approvals. Note that disposal methods will be referenced within the CEMP to be prepared for the project and no water will be directly discharged to a waterway or other water environment.

Approval of the Hydrostatic Testing Plan, which includes a section on water discharge, will be sought from Energy Safe Victoria (ESV) while, if required, comment on the discharge plan is also to be sought from relevant authorities such as Water Authorities and EPA prior to disposal.

It should be noted that the pipe is internally lined and there is no requirement for any additives of potentially environmentally harmful chemical additives in water, such as corrosion inhibitors and biocides.

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

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

There are a number of waterways that will be temporarily affected by the proposed works as construction occurs across the waterways. These are split between the two Loopings as follows:

- Looping 6 (Broadford to Mangalore) intersects 24 designated waterways of which 5 are named including the Goulburn River and Dabyminga Creek
- Looping 7 (Glenrowan to Barnawartha) intersects 48 designated waterways of which 14 are named including the Ovens and King Rivers and Yanko Creek, near Wangaratta and Indigo and Black Dog Creeks near Chiltern

The full list of named waterways can be found in Table 1.

While there are a number of major perennial waterways to be crossed by the project, the majority of the waterways intersected by the project are ephemeral or intermittent waterways.

Major waterways will be crossed with the use of HDD construction methods to pass under the river and these waterways should not be affected by the project. These are:

- Looping 6 - Goulburn River (KP62.8) (Figure 3)
- Looping 7 - King River (KP135.1) (Figure 4)
  Yanko (Maloneys) Creek (KP137.3) (Figure 5)
  Ovens River (KP138.1) (Figure 6)

Riparian vegetation associated with these watercourses will not be impacted by the proposed HDD works.

All other waterway crossings will be open cut. This involves the excavation of a trench across the watercourse. Construction is generally scheduled for periods of low/zero flow and sediment control measures (such as silt curtains) are used where appropriate to minimise impacts to stream quality. In some cases, temporary dams may be constructed and flumes or pumps used to carry water from one side of the construction area to the other in order to maintain stream flow. Restoration of these crossings following construction will use a range of methods to reinstate the area and ensure it is stabilised after construction is complete, as approved by GBCMA and NECMA. Monitoring of the conditions of each waterway will be done as part of the routine checking of the pipeline.

In general, management of designated natural waterways and drainage lines (designated waterways under the *Water Act 1989*) are the responsibility of the GBCMA and NECMA.

All designated waterways in Looping 6 intersected by the project corridor drain to the Goulburn River (which is crossed at KP 62.8). All designated waterways in Looping 7 intersected by the project corridor drain to the Murray River.

All waterways will be crossed in accordance with relevant guidelines for creek and river crossings. Approval to traverse these assets has been sought through the submission of a Site Environmental Management Plan (SEMP) to the GBCMA and NECMA which includes construction plans and drawings along with appropriate methods of construction and rehabilitation. Construction and restoration requirements at designated waterways have been discussed with GBCMA and NECMA who have approved the SEMPs.

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

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

Surveys were undertaken in November 2014 at a number of waterways in Looping 6 and 7 after inspection of the waterways, a search of DELWP and EPBC databases and discussion with DELWP staff. Threatened aquatic species were found in two of the waterways: Murray Cod and Murray Spiny Crayfish were found in the Ovens

River while Yanko / Maloneys Creek, connected to the Ovens River, contained Murray Cod in deep pools.

While other waterways included in the survey contained habitat potentially suitable for threatened aquatic species (flowing or pooled water, instream snags, submerged, emergent and riparian vegetation), threatened species were not found at these locations. In general, discussions with DELWP have confirmed that known populations of threatened aquatic species are generally not located in the area of these waterways intersected by the easement.

It is possible that other threatened/migratory fauna species may utilise habitat supported by these waterways on an infrequent basis depending on conditions such as season, habitat and stream flows. Surveys undertaken for the project, for instance, identified some threatened/migratory bird species utilising habitat at some of the waterways. In general, however, this was relatively uncommon and the locations are not considered to form critical habitat for the species observed.

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

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

There are no Ramsar listed wetlands in the vicinity of the project.

Looping 6 crosses the Goulburn River which is listed on the Directory of Important Wetlands in Australia. However the pipeline crossing is to be drilled using HDD and therefore there are no expected impacts.

Could the project affect streamflows?

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

Stream flows could be affected in the short-term as excavation works for open cut crossings are undertaken, if control measures are not in place. However, many of the waterways identified for open cut construction methods are ephemeral waterways and, in normal circumstances, are likely to contain very little or no water at the time of construction. Mitigation measures included in the Site Environment Management Plan (SEMP) prepared for the project and approved by both GBCMA and NECMA will minimise the potential for any such impacts.

All crossing mitigation methods are provided in the SEMP. Some of the mitigation measures for flowing or pooled water include installation of steel plates to block flow across the ROW during construction of the crossing together with high or low flow water pumps to maintain flow around the worksite and flume pipes for access tracks across the waterway.

There will be no long-term impacts on water flows from any waterway that is crossed.

Could regional groundwater resources be affected by the project?

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

The majority of excavation works will occur within the top 1.5m and will therefore have minimal impact on groundwater resources.

HDD operations at the four major waterway crossings are likely to intercept groundwater. As previously noted, geotechnical investigations have been undertaken at the waterways identified for HDD to help inform the planning of these crossings and allow for mitigation measures to reduce risk to the environment. Management measures to be used during drilling will be itemised in an HDD Management Plan to be prepared by the construction contractor for approval by the regulatory authority prior to commencement of the crossing. This will include design details of the crossing, an environmental risk assessment, controls to reduce risk and contingency and response procedures to minimise any environmental harm. Drilling fluids that are used to assist the process (generally an environmentally friendly drilling mud or bentonite) are monitored through the logging of fluid input and returns and a Fluid Management Plan to describe how drilling fluids will be managed during the process is required to be included in the HDD Management Plan. No significant impacts to regional groundwater resources are therefore expected.

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

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

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

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

This is considered unlikely but there may be temporary or short-term impacts to aquatic environments during the construction of an open-cut waterway crossing. The Site Environmental Management Plans approved by GBCMA and NECMA are intended to anticipate any such impacts and provide mitigation measures to minimise impacts.

In addition, while the use of HDD techniques avoids river bank and in-stream construction activities, it can pose technical and environmental risks as part of the crossing is beneath the watercourse and cannot be readily observed. Drilling fluids are used to assist the process and fluid use needs to be monitored through the logging of fluid inputs and returns. The potential for 'frac-outs', or unplanned loss of fluids through fractures in the overlying strata, is minimised by a review of geology and selection of a drill profile and depth that controls this

potential risk. A separate HDD Management Plan will therefore be prepared by the construction contractor for approval by the regulatory authority prior to commencement of the crossing. This will provide design details of the crossing, methods to monitor fluid use and procedures to be followed in the event of a 'frac-out'.

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

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

Is mitigation of potential effects on water environments proposed?

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

Proposed mitigation measures include constructing during the summer months when flows are low or non-existent and construction by HDD where appropriate to the waterway taking into consideration flow volume, width, depth and geology.

It is proposed that four waterways will be crossed with the use of HDD to pass under the waterway. These are:

- Looping 6 - Goulburn River (KP62.8)
- Looping 7 - King River (KP135.1)
  Yanko (Maloneys) Creek (KP137.3)
  Ovens River (KP138.1)

All other waterway crossings will be open cut. For smaller waterways that have pooled or flowing water, mitigation measures include the following:

- Using steel plates to create a temporary dam around the construction ROW
- Using water pumps to maintain flowing water downstream of the site
- Salvage of aquatic fauna after plates have been installed and prior to construction or excavation
- Flume pipes under access tracks to allow construction vehicles to cross the waterway with minimal impact to the waterway
- Undertaking works at low/zero flow periods
- Implementation of suitable sedimentation control measures (such as silt curtains) where appropriate to minimise impacts to water quality

The use of these measures is considered on a case-by-case basis appropriate to the requirements of the waterway.

All waterway crossings will be restored after pipe installation. Restoration of these crossings may use a range of methods to ensure the area is stabilised after construction is complete.

All crossings of designated waterways have been approved by GBCMA (for Looping 6) and NECMA (for Looping 7) and will be constructed and restored in accordance with a Site Environmental Management Plan specific to the crossings. Approval conditions will include pre and post construction inspections to ensure waterways have been appropriately restored.

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

14. Landscape and soils

Landscape

Has a preliminary landscape assessment been prepared?

☒ No ☐ Yes If yes, please attach.

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

- **Subject to a Landscape Significance Overlay or Environmental Significance Overlay?**

  ☐ NYD ☐ No ☒ Yes If yes, provide plan showing footprint relative to overlay.

Refer to Table 5 earlier in this referral document for a listing of overlays intersected by the project.

Except for areas around Tallarook (Looping 6), Glenrowan and Chiltern (Looping 7), most overlays intersected by the project are applied to linear features such as roadside vegetation or waterways.

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

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

The Goulburn River and a part of the Ovens River (downstream of the ROW) have been classed as heritage

rivers and are included in the *Heritage Rivers Act 1992*. The portion of the Ovens River included in the Act is also acknowledged as state significant under the *North East Waterway Strategy* (NECMA 2014).

The Ovens River is also recognised within a report prepared by the CRC for Freshwater Ecology (*Report of the Ovens Scientific Panel on the Environmental Condition and Flows of the Ovens River*. Cooperative Research Centre for Freshwater Ecology, University of Canberra. P Cottingham, G Hannan, T Hillman, J Koehn, L Metzeling, J Roberts and I Rutherfurd. 2001). This is a study of the environmental condition and flows of the Ovens River. A key feature of the report involves an assessment of environmental conditions and identification of any current or potential impacts on environmental values associated with the regulation of flow within the river system.

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

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

Part of the construction ROW is located within Chiltern - Mt Pilot National Park (KP175.08 to 175.3; KP175.5 - 175.7 and KP176.4 – 177.0 and KP177.4 - 178.9). The new pipeline will be installed in the existing infrastructure corridor, offset approximately 7.5m from the existing pipeline.

Chiltern - Mt Pilot National Park protects valuable remnants of Box–Ironbark forests and provides important habitat and links between the foothills of the Australian Alps and the Murray Riverine plains. It is recognised as having the best fauna assemblage of any of the Box-Ironbark protected areas (*The Chiltern Mt. Pilot National Park Management Plan*. Published in October 2008 by Parks Victoria, Melbourne).

The whole of Chiltern - Mt Pilot National Park covers approximately 21,600 hectares and is made up of a number of separate sections consisting of the Chiltern section (approximately 4,340 hectares), the Mt. Pilot Range section (approximately 16,550 hectares) and six smaller outlining areas totalling approximately 300 hectares.

The Chiltern section, through which the infrastructure corridor passes, lies to the north of the township of Chiltern, and straddles the Hume Highway with the Mt Pilot section lying further to the south-east. The Chiltern section of the Park was originally reserved forest (Chiltern State Forest) and first became part of the National Park in 1980.

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

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

A number of waterways are designated public land under the management of DELWP. The pipeline corridor intersects land used for conservation or recreational purposes at the Ovens River (KP138.1), Black Dog Creek (KP172.7 to 172.8) and Indigo Creek (183.4 to 183.45).

The construction ROW also intersects the Great Victorian Rail Trail (KP59.5) and the Murray to Mountains Rail Trail (KP145.5) in Looping 6 and 7 respectively.

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

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

Most of the pipeline easement, and therefore proposed ROW, is located in rural areas that have been largely cleared for agricultural activities such as cropping and grazing of cattle or sheep. Native vegetation in these areas is generally located along linear features such as roadsides and waterways. There are therefore no significant impacts on landscape values expected in these areas.

In addition, and as previously noted, major waterways, such as the Goulburn, King, and Ovens Rivers and Yanko (Maloneys) Creek will be crossed using HDD. The river and riparian zones at these locations will therefore not be impacted and no impact on landscape values is expected in these areas.

At Chiltern, the easement runs along the southern boundary of Chiltern - Mt Pilot National Park before crossing Chiltern Howlong Road and turning to run in a north-easterly direction through the eastern side of the park between the road and the Hume Freeway. (It is noted that an easement does not apply within Crown Land and that in these sections the pipeline operates under an agreement with the State Government; for simplicity, however, the term ‘easement’ has been used here to describe the area that applies to the pipeline licence area within the Park).

The southern section of the easement passes through two small extensions of the park that lie between parcels of private property (covering a length of about 400m within the park). The eastern section runs for a total of about 2.2km within the park boundary and rises up a gentle slope to about 270m AHD before dropping down to the northern boundary of the park at about 180m AHD elevation.

Within the eastern section, adjacent to and west of the pipeline easement, is an electrical power line easement. The vegetation within this easement is maintained to avoid contact with power lines in accordance with the requirements of the *Electrical Safety (Electricity Line Clearance) Regulations 2015*. Both the electrical easement and the area of the existing pipeline are therefore largely clear of treed vegetation but currently contain a vegetative cover of indigenous grasses, herbs and medium to tall shrubs (some small trees are also currently present in the electrical easement). In addition, the pipeline easement contains Pipeline Track, a dirt track (about 3-4m wide) that is largely located to the east of the existing pipeline and, together with the network of roads and tracks through the park, currently provides an important access point to this section of the park for both management and recreational purposes. Vegetation to the west of the electrical easement and east of Pipeline

Track contains Box Ironbark forest typical of the park.

Within the park, the construction ROW has been narrowed to 16.5m and moved over to include the area above the existing pipeline. This will require the use of a smaller construction crew than that used for the majority of the project and will assist in minimising impacts to the park.

The construction ROW in both sections of the park will therefore extend from the northern or western edge of the pipeline easement (depending on location) over the existing pipeline to the edge of the ROW. The existing pipeline is located approximately 7m south (or east) of the northern (or western) edge of the easement with the new pipeline to be installed about 7.5m further south (or east) of the existing pipeline.

Construction will require the removal of any vegetation within the construction ROW. In the eastern section of the park, this will require the removal of the shrubs and herbs from the western boundary of the pipeline easement over the existing pipeline to the edge of Pipeline Track (approximately). About 2m of treed vegetation that lies to the east of Pipeline Track (but within the existing 35m easement) will also require removal to achieve the 16.5m width provided for construction.

The Box–Ironbark forests of the Chiltern section of the park were mostly cleared during the gold mining era of the late 1800s (Parks Vic 2008) and relics of this era are evident through many parts of the park. As a result, much of the original topsoil cover is gone and much of the vegetation now present is largely due to regrowth. This clearing is evident in the lack of large old trees in the Park, including the area within the boundary of the pipeline licence.

The area currently clear of tree growth in this area (comprising the electrical easement and area containing the existing gas pipe and inclusive of Pipeline Track) varies between 30 and 40m in width with an average width of about 35m. The removal of wooded regrowth will therefore increase the width currently cleared of trees by about 6%.

Landscape values will therefore be impacted within part of the park as a result of vegetation cleared within the existing easement. However, the area to be impacted is part of an existing easement adjacent to an existing electrical easement, both of which contain vegetation that is kept low for operational purposes. Reinstatement after construction will also allow the replacement of vegetation over much of the ROW except for Pipeline Track and restrictions regarding trees (no trees within 3m of either side of the pipelines) and tall vegetation over both pipelines (per requirements within the operating licence).

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

☐ NYD ☐ No ☒ Yes Please briefly explain response.

The Chiltern section of the Chiltern - Mt Pilot National Park is centred around the Chiltern Range, a series of low hills to the north of Chiltern township that are a prominent feature of the local area. The park protects valuable remnants of Box-Ironbark forests and is recognised as having both rich natural and cultural values as well as protecting many relics of the area's mining heritage.

Construction within the park will require the removal of vegetation from the ROW and will result in a lack of vegetation cover through this section of the park until the vegetation is able to re-establish.

All construction, however, is to occur within an existing pipeline corridor and access track that abuts an existing electrical easement. The area of both the electrical easement and operating pipeline are currently maintained in accordance with the operating licences to ensure vegetation within these areas is kept at a level appropriate to the safe operation of both utilities. Vegetation over these areas is therefore currently lower than the surrounding forest and will continue to exclude larger trees as the surrounding forest continues to develop.

Construction within the park, from clear and grade to reinstatement of the ROW, is expected to take about 12 weeks. Any vegetation that requires clearing during the clear and grade operations will take a number of years to regenerate. Vegetation will be encouraged to re-establish over the ROW by reinstating the topsoil (and associated seedbank from existing vegetation) and also adding indigenous mulch (from the trees that will be removed) to the reinstatement area to assist seed germination. Where possible (and in accordance with advice from DELWP and Parks Victoria), vegetation cleared from the construction ROW will be retained for habitat purposes on the reinstated ROW.

Is mitigation of potential landscape effects proposed?

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

Reinstatement of the construction ROW will aim to restore all areas as much as possible to the pre-existing land use (with the proviso that, in accordance with the pipeline licence, no trees will be allowed to be replanted within 3m to either side of the existing or new pipeline).

Following construction, there will therefore be little above ground structures indicative of the presence of the pipeline other than the required marker posts and cathodic protection points and four line valve enclosures distributed along the length of the loopings (one within Looping 6 and three within Looping 7). There will be no line valves within the national park.

In particular, the Management Plan for construction works within Chiltern - Mt Pilot National Park details management measures to be employed pre-construction, during construction and post-construction. Discussions

between Parks Victoria and APA, including an onsite meeting on 16 November 2015, addressed the management measures proposed for the Chiltern – Mt Pilot National Park. This includes measures such as

- Prior to construction, collection of seed from a range of indigenous species located within or adjacent to the construction ROW for use in revegetation of the ROW following construction. Seed/cutting collection will focus on species found within the construction ROW that are known to be compatible with propagation offsite (e.g. in nurseries) and will provide valuable habitat or food sources for wildlife.
- Timing of pipeline installation and backfill (January to March 2016). The timing of final rehabilitation will depend on weather conditions;
- Clearance requirements and measures to protect retained vegetation;
- Management measures to be employed during clear and grade and other construction phases including management of impacts to flora and fauna (reducing the clear and grade to 16.5m in width for the entire route through the National Park);
- Wash down of plant and equipment prior to entry to the National Park;
- Reinstatement and rehabilitation requirements including replanting/reseeding of the ROW, replacement of Pipeline Track and weed control;
- Measures to protect reinstatement works following construction including erosion control;
- Ongoing management of the easement post-construction to ensure stabilisation and success of the reinstatement program (5-10 year plan).

Approval of the Management Plan was subsequently received from Parks Victoria on 24 November 2015.

While construction will require removal of vegetation from the ROW to allow construction to proceed, measures will be put in place to retain as many of the larger trees currently within the park section of the ROW as possible. Vegetation removal from the area east of Pipeline Track, which currently contains the bulk of treed vegetation within the ROW, will therefore largely focus on shrubs and smaller trees. Trees with a dbh greater than 40cm will be retained wherever possible. An arborist will be present during clear and grade and trenching to ensure appropriate protection of retained trees.

Vegetation will be encouraged to re-establish over the ROW by reinstating the topsoil (and seedbank) and also adding indigenous mulch (from the trees that will be removed) to the reinstatement area to assist seed germination. While tree growth will not be permitted within 3m of either pipeline, some of this area will be taken up by the replacement of Pipeline Track in the area between the two pipelines. This track will be constructed to a suitable standard (as agreed with Parks Victoria) to continue to provide an important access point to the Park for recreational and management purposes, once reinstatement measures have reached a point that ensures successful stabilisation of the construction area. Vegetation over the pipelines will be managed in accordance with the requirements of the pipeline licence.

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

Soils

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

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

The soils in Loopings 6 and 7 are expected to have an extremely low probability of being acid sulfate soils according to data obtained from the Australian Soil Resource Information System (ASRIS). Specifically, the project area is located in a '*C4 Extremely Low Probability/Very Low Confidence'* area for acid sulfate soils (CSIRO, 2015).

In the unlikely event that potential acid sulfate soils are encountered during excavation, site-specific management plans will be developed in accordance with *EPA Publication 655 - Acid Sulfate Soil and Rock* and in consultation with the EPA.

Some areas intersected by the easement are known to be prone to erosion and have been identified in the CEMP prepared for the project. Appropriate management practices will be employed during construction and reinstatement to minimise the potential for any issues. APA has an approved OEMP that relates to the operation of licensed pipelines and ongoing monitoring of the easement after construction is complete will include inspection of the ROW for issues associated with soil management.

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

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

Based on the geotechnical investigations, the proposed river, freeway and rail crossings investigated as part of the project are considered suitable for the use of trenchless boring techniques for the installation of the pipeline subject to the special considerations identified in the report (covering casing, protective coating and entry and exit pit excavations).

Other information/comments? (e.g. accuracy of information)

15. Social environments

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

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

There is likely to be some temporary increase in local traffic volumes during the construction phase of the project associated with the transport of materials and personnel to the construction site. However, the traffic volume in any area will be temporary and highly localised. Transportation requirements will vary according to the construction phase as works move up/down the project area. The construction traffic will use the existing construction ROW and designated access tracks to move equipment along the route so as to reduce as far as possible increases in traffic flow on the local road network.

A Traffic Management Plan will be prepared in consultation with Local Government Authorities and Vicroads for all traffic associated with construction in order to maintain road safety during construction.

Changes in traffic volume will be particularly applicable to the smaller local rural roads, where the current low traffic volumes will result in some short term increases in traffic as a result of construction. Traffic impacts will be mitigated by the use of designated access tracks and a one-way traffic system within the construction ROW. The potential for residential severance, increased noise and vibration and reduced amenity on local road and pedestrian users is not expected to have any long term major impacts. At any one location impacts will be short-term as construction activities move along the pipeline route.

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

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

As indicated earlier in this document (refer question 7 “Description of local setting”), residential premises are distributed along the project area. In Looping 6, there are a few sensitive receptors (such as residences) within close proximity of the construction ROW at KP45.5, KP48.2, KP55, KP53.5, KP63.5 (egg farm), KP65.9 - KP67 and KP71.1. In Looping 7 there are also a few sensitive receptors (residences) within close proximity to the construction ROW at KP120.5 – KP121.3, KP121.9 - 122.3, KP123.25, KP124.9, KP133.2, KP134.7, KP135.1, KP136.5, KP174.3, KP176, KP177, KP179.1, KP179.2, KP182, KP182.5 to KP182.9, KP183.3 and KP183.6 to KP184. At these points, many residences are located less than 100 metres from the construction ROW. Stock including horses, cattle and sheep may also be located on some of these properties.

The main particulate emission associated with all phases of the construction operations is expected to be dust. The major sources of dust will be trucks transporting material to the construction corridor along the construction ROW and unsealed access tracks and construction activities such as earth moving, trenching, and backfill operations.

Construction activities for Loopings 6 & 7 will be confined to the dry season, which may result in some dust from areas of construction activities. Impacts on local residences as well as users of major transport routes near to the construction ROW will be monitored and mitigation measures put in place to ensure impacts are minimised. Such measures include restriction on speed for construction vehicles and the use of dust suppression. A full list of measures will be included in the CEMP to be approved by DEDJTR.

The main potential noise impact to local communities during construction is also likely to be associated with vehicle movements and activities including excavation, welding and backfilling plant and equipment. Other sources of noise are expected to be more transient and will be primarily limited to particular activities such as the hydrostatic testing process or gas vented from pressurised equipment. The EPA guidelines on Noise from Industry in Regional Victoria will be adhered to, with mitigation measures put in place to meet the guideline requirements.

Management measures will include:

- Construction work will be undertaken in accordance with EPA Publication **1411:** *Noise from Industry in Rural Victoria*;
- In the hours outside normal work hours (i.e. Saturday 1pm to 6pm and Sunday), works will need to comply with the more sensitive levels that apply during these periods. Monitoring of noise impacts will be undertaken by the contractor in accordance with guidelines in EPA Publication 1254: Noise Control Guidelines to ensure compliance with EPA Publication 1411.
- All field personnel will be made aware of potential noise sources from their operations, the noise limits to be observed and the noise mitigation measures available;
- Noise generating equipment (e.g. generators) will be located at appropriate distances from residences and/or within noise enclosures if necessary.
- Exhaust brakes on heavy vehicles will not be used within 100m of any residence except in an emergency.
- Residents or land owners of neighbouring areas likely to be affected by works will be kept informed regarding work progress and operational issues that may impact them;

- For activities which may generate abnormal noise levels, local residents will be informed prior to commencement.
- Excessively noisy activities will be scheduled for periods that are less likely to result in a noise nuisance. This decision should be made in consultation with the residents.
- All equipment will be equipped with noise abatement devices and these will be maintained in good working order;
- Noisy machinery will not be left running when not required;
- Regular maintenance of plant and equipment to minimise the potential of noise impacts.

In general, the progress of the construction crew along the pipeline corridor will result in noise and air impacts being limited in duration to only small sections of each Looping at any one time.

Should specific operations that may result in noise nuisance, such as the HDD drilling, require works to be conducted outside the standard working hours, this shall only be undertaken with the agreement of any affected landholders/occupiers and subject to approvals from the relevant authorities.

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

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

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

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

Access along the project corridor could temporarily be affected during the construction phase. However, long-term community severance should be minimal as a result of pipeline construction. All major sealed roads are to be bored and are not expected to be impacted by the proposed works. Minor unsealed roads are to be open cut and impacts are expected to be minimal with construction expected to be completed within one to two days at each crossing.

It is likely that the social impacts relating to land access, community severance, impacts to properties and transport networks will be relevant in the short term only. The majority of these issues are able to be mitigated through planning and good management and are unlikely to be of significant impact.

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

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

As mentioned previously, the construction ROW will be reinstated to its original use after the pipeline has been installed, so no non-residential land use activities will be displaced by the project. Any losses experienced by farming enterprises as a result of construction will be entitled to compensation.

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

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

Pipeline Track within Chiltern - Mt Pilot National Park will be temporarily removed during construction as the proposed pipeline is either underneath or adjacent to the track but will be reinstated following construction. Activities will be temporarily affected for anyone wanting to use Pipeline Track to access the Park during this period and possibly for a period after construction while the area is being rehabilitated. The reinstated track may be moved slightly to the west to avoid being directly over the proposed pipeline after construction.

Is mitigation of potential social effects proposed?

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

Any impacts such as impacts to road traffic, noise or dust are expected to be temporary only.

Mitigation measures will be implemented to ensure noise and dust generated by the project will conform to regulatory requirements such as those outlined in SEPPs and local by-laws. During the project, land owners and local residents will be kept up to date on progress of the project to assist in reducing any potential social impacts.

Other information/comments? (e.g. accuracy of information)

Cultural heritage

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

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

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

Taungurang Clans Aboriginal Corporation (TCAC) has been consulted as the Registered Aboriginal Party for the entire area of Looping 6. Representatives of TCAC were actively engaged in all aspects of the preparation of the Cultural Heritage Management Plan (CHMP) and participated in the fieldwork.

Yorta Yorta Nation Aboriginal Corporation (YYNAC) has been consulted as the Registered Aboriginal Party for a portion of the area of Looping 7. For the area of Looping 7 where there is no Registered Aboriginal Party, APA has consulted with Yorta Yorta people and contacted a number of other persons on the advice of the Office of Aboriginal Affairs Victoria. Additional Traditional Owners Groups include the Yaitmathang (no response so far), the Dhudhuroa Waveroo (no response so far) and the Duduroa Local Custodians.

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

For Loop 6, APA and TCAC (engaged directly by APA) have to date completed review of a Desktop cultural heritage assessment, and the fieldwork for the Standard assessment and Complex assessment. TCAC is currently analysing the results of the fieldwork for inclusion within the CHMP. The Desktop assessment revealed one known Aboriginal cultural heritage place (VAHR 7923-0204) comprising two quartz artefacts that were recovered from sub-surface deposits during archaeological excavations undertaken at this location. The predictive model showed that the activity area contained landforms likely to be sensitive for the identification of Aboriginal cultural materials. These landforms included floodplains and river terraces having potential to contain in-situ cultural materials. A Standard Assessment was conducted over the entire project footprint and identified 27 areas of likely cultural sensitivity determined on the basis of the presence of surface stone artefacts and/or landforms that the Desktop Assessment concluded were likely to contain Aboriginal cultural materials.

The Complex Assessment targeted the 27 areas for sub-surface testing. In addition, some excavation took place outside these areas to test the null hypothesis. The Complex assessment was undertaken in two phases being controlled hand excavation and mechanical excavation and sieving.

For the activity area in Loop 7 where the YYNAC are the Registered Aboriginal Party, Archaeology At Tardis (AAT) have to date completed a Desktop cultural heritage assessment, Standard assessment and Complex Assessment of the landscape of Loop 7. The Desktop assessment predicted that the river and creek banks and elevated land in close proximity to waterways have potential to contain Aboriginal cultural heritage (stone artefacts). Any mature native tree in excess of 150 years old has potential to bear cultural scars. AAT has completed a Complex Assessment of the project areas and on 19 November 2015 submitted a CHMP to the YYNAC for review and approval.

For the activity area in Loop 7 where there is no Registered Aboriginal Party, Archaeology At Tardis (AAT) have to date completed a Desktop cultural heritage assessment, Standard assessment and Complex Assessment of the landscape of this portion of Loop 7. The Desktop assessment predicted that the activity area contains large portion of land which has been previously subject to significant ground disturbance from the mechanical clear and grade and excavation activities for the previous pipeline installation. The section of the easement inside the Chiltern Mt Pilot National Park has been subject to significant levels of disturbance from historical vegetation clearance and intensive gold mining. The Complex assessment involved excavation of test pits particularly around two Aboriginal cultural heritage places located within the activity area comprising LDADs. The CHMP for the area where there is no Registered Aboriginal Party is currently being prepared and will be submitted to OAAV for review and approval in mid December.

Is any Aboriginal cultural heritage known from the project area?

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

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

For Loop 6, the desktop survey identified 2 Aboriginal Places (CAHR 7923-0204 & VAHR 7923-0205) within the activity area. A number of further sites of Aboriginal cultural heritage have been identified through the completion of standard and complex assessments of the project area. All Aboriginal cultural materials recovered during all phases of the archaeological assessment have been grouped into seven Aboriginal cultural heritage places. The analysis of the data recovered during the Standard and Complex assessments is ongoing. This information is being compiled to enable the identified Aboriginal cultural heritage places and low density artefact distributions (LDADs) to be registered with OAAV on the VAHR. The CHMP is being written in anticipation of lodgement with OAAV and it is anticipated to be finalised and submitted to OAAV for approval in mid-December 2015.

For Loop 7 where the YYNAC are the Registered Aboriginal Party, the desktop survey identified 5 Aboriginal Places within 500m of the activity area (VAHR 8125-0129, VAHR 8125-0190, VAHR 8125-0114, VAHR 8225-0123, and VAHR 8225-0124). These relate to two scar trees and three surface stone scatters. One previously unrecorded cultural heritage place (a quartz core) was located during the standard assessment and two of the registered sites were unable to be located (VAHR 8125-0190 and VAHR 8225-0114). The complex assessment has identified several low density artefact distributions, which have been registered with OAAV and further detailed in the CHMP.

For Loop 7 where there is no Registered Aboriginal Party, two LDAD distributions were identified within the activity area (VAHR 8225-0275 and 0279). No Aboriginal scarred trees, grinding grooves, quarries, caves or

rockshelters were found to exist within the activity area.

Management Recommendations for these areas of Aboriginal cultural heritage will be formulated and agreed with the Aboriginal parties and OAAV as part of the CHMP process.

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

☒ NYD ☒ No ☒ Yes If yes, please list.

For Looping 7, there is one place listed on the Heritage Inventory (H8225-0073 (Happy Go Lucky Quartz Mine)) and one place on the Heritage Register (H1873 (Magenta Quartz Mine)). The Register site has state significance.

APA have endeavoured to reduce the width of the works area in these registrations to minimise harm to the sites. Discussions with Heritage Victoria indicate that little damage will occur to the fabric of these sites, and that APA should apply to Heritage Victoria for Permit Exemptions for these places. This permitting process will be undertaken following approval of the CHMP's for these areas.

Is mitigation of potential cultural heritage effects proposed?

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

Yes for both loops, APA will consider mitigation of effects and these mitigations will include (but are not limited to):

- The adoption of trenchless technology such as Horizontal Directional Drilling (HDD) to cross watercourses including sections of floodplains;
- Narrowing work areas in areas of sensitivity to reduce the impacts on areas of identified cultural material;
- Considering reduced land clearing where practicable to leave cultural material undisturbed;
- The salvage (and later reburial) of cultural heritage material prior to the commencement of construction.

Other information/comments? (e.g. accuracy of information)

APA has engaged suitably qualified and experienced Cultural Heritage Advisors to complete the cultural heritage assessments and prepare the required CHMP's. As such, it is expected the information provided in these documents will reflect this and the information provided will be factually correct. The CHMPs will be accompanied by mapping and coordinates or recorded information to allow the accurate transfer of information from the documents.

16. Energy, wastes & greenhouse gas emissions

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

☒ Electricity network. If possible, estimate power requirement/output …….

☒ Natural gas network. If possible, estimate gas requirement/output ……...

☒ Generated on-site. If possible, estimate power capacity/output …….

☒ Other

Please add any relevant additional information.

Diesel - This will be the main source of energy used during the construction of this project, for vehicles, plant and machinery etc.

What are the main forms of waste that would be generated by the project facility?
Please provide relevant further information, including proposed management of wastes.

☒ Wastewater. The main form of wastewater generated by the project will be water left over from operations to hydrostatically test the gas pipeline (refer question 13). Water for hydrostatic testing is to be sourced from recycled water, landholders or town water supply in consultation with the appropriate water authority and appropriate approvals will be obtained. As the pipe is internally lined, there is no requirement for any additives of potentially environmentally harmful chemical additives such as corrosion inhibitors and biocides.

All hydrotest water will be disposed in accordance with regulatory requirements and the pipeline construction permit. Management measures applicable to the management of hydrotest water are also included in the CEMP prepared for the project and disposal methods will ensure no water enters a waterway or causes erosion or flooding.

The construction contractor is also required to prepare a Hydrostatic Testing Plan for approval by Energy Safe Victoria (ESV). This includes a section on water discharge and, if required, comment on the discharge plan is also to be sought from relevant authorities such as Water Authorities and EPA prior to disposal.

☒ Solid chemical wastes. Describe briefly.

☒ Excavated material. There is a potential for minor quantities of subsoil that will require disposal following restoration of the construction area. All waste soil will be managed in accordance with the *Environmental Protection (Industrial Waste Resource) Regulations, 2009* and relevant EPA IWRG soil disposal guidelines.

☒ Other. Other waste streams generated during the project include litter, vegetative material from clearing operations and hard waste construction material (e.g. concrete, off-cuts, pipe coverings and materials from temporary structures such as fencing and signage).

All wastes will be separated and disposed of in an environmentally acceptable manner. Waste management procedures will comply with all necessary regulatory requirements and will be based on the following principles listed in order of priority:

- Avoid receiving waste at point of purchase
- Reduce wastes at point of use
- Reuse materials where possible
- Recycle wastes where practicable
- Dispose of wastes appropriately and responsibly

The following management measures will apply to the Project:

- Littering of the construction area will not be tolerated.
- On-site disposal areas will be located at the construction depot conforming to regulatory requirements and providing separation bins for different forms of waste.
- Reusable and recyclable wastes, such as timber skids, pallets, drums, scrap metals, pipe transport spacers, tyres, will be stockpiled for salvage.
- General refuse will be collected and transported to a local Municipal Council approved disposal site on a regular basis.
- Liquids, such as sump oil, diesel and kerosene that cannot be reused are to be placed in labelled 205L regulated waste drums (separate to condensate waste). Once the container is full a licensed contractor will collect it for recycling or licensed disposal.
- Toilets at the construction depot will be self-bunded portable blocks. Sewerage waste will be removed from site by an accredited waste management contractor.
- Solid wastes contaminated by hazardous materials, such as oily rags or filters, will be placed in a suitable storage drum. The contents of full drums will be bagged and removed for disposal by a waste contractor
- Spent Absorbent Materials will be bagged and stored in a suitable storage container (a 205 L regulated waste drum) labelled accordingly. Full containers will be removed by a licensed contractor to licensed landfill.

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

☒ Less than 50,000 tonnes of CO_2 equivalent per annum
☒ Between 50,000 and 100,000 tonnes of CO_2 equivalent per annum
☒ Between 100,000 and 200,000 tonnes of CO_2 equivalent per annum
☒ More than 200,000 tonnes of CO_2 equivalent per annum

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

There will be no direct emissions as the project is a gas transportation facility. All emissions will be the result of end-users. The activities associated with the operations phase, which generate greenhouse gas emissions relate principally to the infrequent transport movements required for the pipeline surveillance and operational maintenance activities.

17. Other environmental issues

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

☒ No ☒ Yes If yes, briefly describe.

18. Environmental management

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

☒ Siting: Please describe briefly

☒ Design: Please describe briefly

☒ Environmental management: Please describe briefly.

In accordance with the *Pipelines Act 2005*, a CEMP has been prepared for the project for approval by the Earth Resources Regulation branch of DEDJTR. The CEMP has drawn on recommendations from the Flora and Fauna Report, Permitted Clearing Assessment prepared for DELWP and the waterway management SEMP prepared for GBCMA and NECMA.

It will summarise the potential environmental impacts of construction of the proposed pipeline and identifies the means by which APA intends to avoid or mitigate these impacts.

The key objectives of the CEMP include:

- Ensuring that construction activities are carried out in accordance with environmental statutory requirements, the conditions of approval for the project, relevant guidelines and existing environmental management systems and procedures of APA;
- Ensuring that the construction operations are carried out in such a way as to manage the environmental impact on surrounding land uses;
- Identifying management responsibilities and reporting requirements to demonstrate compliance with the CEMP;
- Ensuring that the construction ROW is reinstated and rehabilitated back to its existing land uses.

The CEMP details all mitigation measures for the project and will form part of the contract documentation with the pipeline constructor. Some of the measures that are included in the CEMP are:

- Induction of employees and contractors prior to commencement of works to highlight environmental, cultural and other construction issues (such as threatened flora and fauna, vegetation communities etc.);
- A Contractor Induction with Brian Pritchard (Ranger Team Leader, Parks Victoria) at least 7 days before works commence in Chiltern-Mt Pilot National Park to discuss all conditions for construction and conditions relating to public access within the Park;
- Implementation of a reverse ROW (shifting of part of the ROW over the existing pipeline) in some locations to minimise impacts to significant vegetation such as in Chiltern - Mt Pilot National Park;
- Narrowing of the construction ROW to16.5m within Chiltern - Mt Pilot National Park to minimise impacts to significant vegetation in this area;
- Use of Horizontal Directional Drilling to avoid impacting on aquatic fauna or habitat at three perennial rivers and Yanko Creek;
- All construction activities to stay within the construction ROW or other designated work areas;
- Vegetation to be retained will be identified and located on the construction alignment sheets and clearly marked in the field as not to be disturbed;
- Any native vegetation that is to be removed as a result of construction works is to be offset in accordance with legislative requirements;
- Fencing of remnant vegetation prior to and during construction activities to prevent damage to the vegetation and to prevent any construction access to retained vegetation. Tree protection, if required, will be in accordance with the *Australian Standard - AS 4970-2009 Protection of trees on development sites*;
- An arborist to be present during any vegetation clearance and trenching works within the vicinity of treed vegetation identified in the Arborist report;
- Ensuring appropriate management practices are undertaken in the vicinity of rivers, creeks and drainage lines to manage impacts from sediment and minimise impacts to aquatic habitats;
- Ensuring works, including storage of materials, loading and unloading, vehicle access and parking or other construction activity will not occur within areas of retained native vegetation identified in the flora and assessment reports;
- Vehicle access will only be through existing access tracks and roads. There will be no off road access, no use of unsigned access tracks or tracks designated “management vehicles only” in Chiltern- Mt Pilot National Park;
- All excavated soil will be stockpiled in areas free of remnant native vegetation;
- Stockpiles will be stored away from areas of surface water flow and not impede surface drainage or water flow;
- Any accumulated trench water will be disposed in a manner that will ensure no adverse impacts from

sediment load or low dissolved oxygen levels to waterways. Water from trench de-watering will be disposed to land via an energy-dissipating and sediment-trapping system (e.g. via grassed areas, straw bales or geotextile filter/fabrics) and should not be disposed directly into a waterbody or result in flooding of the area.

The following mitigation measures are to be employed to reduce impacts to fauna habitat and to minimise faunal injury or mortality:

- Checking of hollow bearing trees for fauna prior to removal by a qualified and licenced zoologist/wildlife handler using an elevated work platform (cherry picker) and endoscopes (where required). This includes checking of stags for fauna such as bats, reptiles, bird, mammals;
- Installing suitable nest boxes in selected areas to help alleviate the loss of hollow bearing trees;
- Adopting a safe speed limit along the construction ROW through sensitive areas (identified on the route maps) of no greater than 40kph to minimise the potential for collision with fauna moving through roadside or other remnant vegetation;
- Minimising the period and length of time that the trench remains open, particularly in areas where sensitive habitat has been identified nearby;
- Use of end caps on pipe strings to prevent entry of fauna prior to pipe laying;
- Daily monitoring of open sections of trench at regular intervals for trapped animals such as reptiles and small ground-dwelling mammals, particularly in areas where sensitive habitat has been identified;
- Constructing trench plugs and ramps with slopes no greater than 45% at regular intervals along the pipeline trench to provide exits for fauna;
- Checking of the open trench for fauna prior to backfill and removal of any trapped animals;
- Relocation of any fauna found during the inspection by a suitably qualified and experienced zoologist/wildlife handler that holds a current wildlife permit issued by DELWP;
- For waterways that are being open cut, and in the event that water is present in the waterway at the time of construction, each SEMP has identified a number of waterways where salvage of aquatic fauna will be required prior to commencement of construction (if water is present at time of construction).

All personnel on the project will be required to abide by the requirements of the approved CEMP.

☒ Other: Please describe briefly

As previously discussed, other mitigation measures include:

- The preparation of CHMPs in consultation with the RAPs/OAAV
- The preparation of Chiltern - Mt Pilot National Park Management Plan
- The preparation of Flora and Fauna Management Plan
- The preparation of a Site Environmental Management Plan specific to the crossing of waterways

19. Other activities

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

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

20. Investigation program

Study program

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

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

Has a program for future environmental studies been developed?

☐ No ☒ Yes If yes, briefly describe.

All vegetation, flora and fauna studies have been completed.

Geotechnical investigations have also been completed at the four waterways to be traversed by HDD to assist in the planning of these crossings by investigating:

- Geological setting and subsurface profile
- The depth to rock
- The presence of groundwater
- The suitability of HDD for all sites and potential construction issues
- Excavation properties of the rock and impact on the pipeline coating during the process of installation.

Cultural heritage investigations are currently being completed (refer question 15)

Consultation program

Has a consultation program conducted to date for the project?

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

Ongoing consultation with affected landowners has been required as part of the existing licence for the existing pipeline and the OEMP applicable to the pipeline. This includes regular contact with affected landowners via an annual letter drop that includes company and local contact details.

The proposed project will require an alteration to the existing licence for the pipeline (Under Section 68 of the Pipelines Act 2005).

A voluntary Consultation Plan for the project has been prepared by APA. It is the responsibility of APA to ensure that any significant environmental issues that are identified in environmental assessments undertaken for the project are adequately communicated to all relevant stakeholders, personnel and contractors. Steps shall be taken to ensure the intent, scope and relevance of these assessments are understood by all the stakeholders particularly how APA plans to minimise, as far as practicably possible, the impact of the proposed pipeline on the enjoyment and use of their land by the affected landholders.

The Consultation Plan provides a procedure as to how communications with affected Landowners/Occupiers are initiated as well as means by which community members will be advised of the project. A comprehensive line list is being prepared for landowners/occupiers of affected properties that identify individual concerns over access to properties as well as requirements regarding impacts and reinstatement. Property inspection reports will be prepared to record agreed requirements of landowners/occupiers and to ensure such requirements are complied with prior to construction.

Feedback from all interested parties will be continuously monitored during the entire project. An Issues and Action Register will be maintained by the Project Manager in which actions taken to address issues will be recorded.

Means by which project developments will be communicated to stakeholders and feedback encouraged include:

- Letters to affected landholders/occupiers;
- Meetings with affected landowners/occupiers as well as community and special interest groups likely to be affected;
- Meetings with local council and infrastructure owners;
- Media releases during the construction of each Looping to all identified media outlets;
- Establishment of a phone number for stakeholders to contact the project team.

Landowners and affected stakeholders are to be kept aware of scheduled activities and impacts as the project progresses. APA will have a construction management team (including environmental representatives) on site during construction to monitor compliance with the various project commitments and to continue liaison with land owners.

A number of stakeholders have been identified as potentially having an interest in the project. A summary of the stakeholders consulted to date is provided below:

- Government and Regulatory bodies including:
  - Department of the Environment (Canberra)
  - Department of Economic Development, Jobs, Transport and Resources (Victoria)
  - Department of Environment, Land, Water and Planning (Victoria)
  - Parks Victoria
  - Office of Aboriginal Affairs Victoria
  - Heritage Victoria
  - Goulburn Broken Catchment Management Authority
  - North East Catchment Management Authority
  - VicRoads
  - VicTrack
- Local government authorities including:
  - Mitchell Shire Council
  - Indigo Shire Council
  - Rural City of Benalla

- Rural City of Wangaratta

- Registered Aboriginal Parties being:
  - Taungurung Clans Aboriginal Corporation
  - Yorta Yorta Nation Aboriginal Corporation
- Additional Traditional Owners Groups including the Yaitmathang, the Dhudhuroa Waveroo and the Duduroa Local Custodians
- Local interest groups including:
  - Friends of Chiltern Mt Pilot National Park
  - Birdlife Australia (the co-coordinating agency in a Regent Honeyeater recovery project that includes a release program around Chiltern Mt Pilot National Park)
  - Chiltern Landcare Group
- Landowners and occupiers whose property will be traversed by the pipeline

Has a program for future consultation been developed?

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

Consultation will be ongoing with all affected parties during the planning, construction and post construction phases.

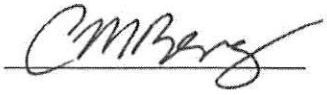
Means by which project developments will be communicated to stakeholders and feedback encouraged include:

- An onsite meeting and introductory letter to affected landholders/occupiers providing information on the proponent, the land agent and the project. This is provided prior to the initial survey and includes details of firms and contact points of those who will be conducting the identified activities. Where a firm has not been identified, a separate letter is posted to the landowner providing details;
- Preparation of a Property Information form containing landowner details including contact details, property use and any special entry conditions;
- Following the survey, written advice to affected landowners containing details of the proposed pipeline corridor with an invitation to raise any concerns with APA;
- Meetings with affected landowners/occupiers as well as special interest groups likely to be affected;
- Advertisement placed in major papers to alert the public to the proposed changes to the pipeline;
- Meetings with local council and infrastructure owners;
- Establishment of a contact phone number for stakeholders to contact the project team.

Authorised person for proponent:

I, Craig Bergin,

Program Manager (Victoria), confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature 

Date 22/12/2015

Person who prepared this referral:

I, Colin James Clay,

Senior Environmental Consultant, confirm that the information contained in this form is, to my knowledge, true and not misleading

Signature 

Date 22/12/2015

ATTACHMENTS

Figure 1: Looping 6 Overview Map

Figure 2: Looping 7 Overview Map

Figure 3: Goulburn River HDD Location Map

Figure 4: King River HDD Location Map

Figure 5: Yanko Creek (Maloneys Creek) HDD Location Map

Figure 6: Ovens River HDD Location Map