APA Transmission Pty Limited

Swamp Skink Targeted Survey Report

Final

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Executive Summary

APA Transmission Pty Limited, a wholly owned subsidiary of the APA Group (together referred to as APA) is proposing to construct and operate a 56.2 km in length high pressure gas pipeline which will connect AGL's proposed Gas Import Jetty at Crib Point to the Victorian Transmission System (VTS), east of Pakenham.

Monarc Environmental is providing ecological and environmental services to support the regulatory approval process for the CPP Pipeline on behalf of APA, including undertaking of targeted fauna surveys to inform State and Commonwealth Referral applications.

This report summarises the findings from targeted surveys of the Swamp Skink *Lissolepis coventryi* undertaken from late February to mid-March 2018. This report outlines the methodology used to conduct surveys, describes the habitat characteristics of each survey site, and presents the results of the surveys in terms of species presence and numbers observed. The aim of this survey is to determine if the Swamp Skink is present or is likely to be present in suitable habitats within or adjacent to the proposed pipeline corridor. Presence or likelihood of presence will inform future management actions for the project

Scope of Works

Monarc completed the following scope of works:

- A desktop review of relevant literature, online resources, and the DELWP Victorian Biodiversity Atlas (VBA) for existing records of Swamp Skinks occurring within a 5km radius of the proposed pipeline corridor. The desktop research and preliminary information was used to select locations for targeted surveys.
- Targeted surveys at three locations for Swamp Skink from late February to mid-March using Elliott Traps and infra-red, motion sensing cameras. Elliot Traps were set over a period of six days and checked twice each day. Camera traps operated for 21 days.
- Preparation of this report summarising the works undertaken, results and recommendations.

Results

Records from the VBA indicate that Swamp Skinks have been recorded within 300m of the pipeline alignment as recent as January 2018.

The VBA search also indicated that up to 69 sightings of the Swamp Skink were reported between 2000 and 2018 within 5km of the alignment, particularly in Watsons Creek and Warringine Park.

Based on this, three survey sites were selected:

- CPT014 (KP4.0–4.2) located within Swamp Scrub (EVC53) at Warringine Park, Hastings.
- CPT012 (KP4.88) located along Warringine Creek within Warringine Park, Hastings.
- CPT056 (KP20.3) located within Swamp Scrub (EVC53) along South Boundary Rd East, Pearcedale.

No swamp skinks were recorded at any of the survey sites during the targeted surveys.

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1 Introduction

1.1 Project Overview

APA Transmission Pty Limited, a wholly owned subsidiary of the APA Group (together referred to as APA) is proposing to construct and operate a 56.2 km in length high pressure gas pipeline which will connect AGL's proposed Gas Import Jetty at Crib Point to the Victorian Transmission System (VTS), east of Pakenham.

Refer to the Flora and Fauna Assessment – Crib Point Pakenham Pipeline (Monarc 2018) for a full description of the project.

1.2 Purpose of this Report

Monarc Environmental (Monarc) is providing ecological and environmental services to support the regulatory approval process for the CPP Pipeline on behalf of APA, including undertaking of targeted fauna surveys to inform State and Commonwealth Referral applications.

This report summarises the findings from targeted surveys of the Swamp Skink *Lissolepis coventryi* undertaken from late February to mid-March 2018. This report outlines the methodology used to conduct surveys, describes the habitat characteristics of each survey site, and presents the results of the surveys in terms of species presence and numbers observed.

The overall aim of this survey was to determine if the Swamp Skink was present or is likely to be present in suitable habitats within or adjacent to the proposed pipeline corridor. Presence or likelihood of presence will inform future management actions for the project.

1.3 Study Area

The proposed pipeline is to be installed between Crib Point, approximately 63km south-south-east of Melbourne on Victoria's Mornington Peninsula and Pakenham, about 56km east-south-east of Melbourne. Refer to **Figure 1** for an overview of the pipeline alignment.

The total alignment will be approximately 56.2km in length, with a project corridor up to 30 metres in width. In environmentally sensitive areas, subject to the results of studies undertaken for the project, the project corridor may be reduced to avoid or minimise impacts to sensitive features.

The following is a brief description of the proposed route:

- From the Crib Point jetty, the route heads in a westward direction, crossing The Esplanade and entering private property (BP owned) where it turns north heading towards Woolleys Road. It then travels north-west, adjacent to Woolleys Road within the Esso/APA easement (PL11/46) before crossing Woolleys Road. It continues in a north-westerly direction through private property and entering Warringine Park at approximately KP3.25.
- The route travels in a north-westerly direction until approximately KP3.8 where it turns and heads directly north. It travels in this direction through the park for approximately 1.1km before turning westwards inside the park, along Reid Parade, before exiting Warringine Park, (KP 5.2). From here it turns northwards to follow the Frankston-Flinders Road service lane for approximately 900 metres. At this point it turns east into High St where it enters the Stony Point

rail easement for 500 metres before heading turning left into Cool Store Road at approximately KP6.8. It then turns back into Frankston-Flinders Road to continue northwards for a further two kilometres on the eastern side of the road.

- The route crosses Graydens Road then heads northwards, then east through private land, crossing the Stony Point Rail line and Frankston-Flinders Road to the north of Hastings at approximately KP9.8 to travel in a north-easterly direction for the remainder of the route through to Pakenham.
- As it heads north-easterly, the route follows Esso's pipeline easement (PL27/35) from KP10.4, south of Denhams Road, Hastings to KP29.7 near the South Gippsland Highway. The route is directly adjacent to the Esso easement for this component and travels through private land parcels, crossing several major and minor road easements and key drainage lines connected to the Western Port Ramsar Wetland.
- From the South Gippsland Highway, the route branches away from the Esso easement, travelling north-easterly through private land parcels, major and minor road easements and drainage lines before crossing the Princes Freeway and Princes Highway to meet PL75 within private land.

APA is proposing to HDD 15 locations across the construction footprint. The HDD and reasoning for the method is described in Table 1.

Table 1: Location of HDD across the project Right of Way

#	KP	Location of HDD	Feature Description	Max. Depth of HDD (mAHD)
1	4 - 4.4	Warringine Park	HDD to avoid significant flora	14.5
2	4.6-5	Warringine Creek	HDD under Warringine Creek	12
3	7.25 - 7.75	Kings Creek	HDD under Kings Creek and Hastings Leisure Centre Reserve - Significant vegetation avoidance	8.5
4	8.9-9	Craydens Road	HDD under Road crossing Craydens Road to avoid a number of essential services	6
5	9.9-10.4	BlueScope Properties	HDD under Bluescope Properties to avoid ESSO underground pipelines	11
6	14.6-15.2	Significant Flora	HDD under Significant habitat and vegetation	12.5
7	17.1-17.4	Whitneys Road	HDD under Whitneys Road and avoidance of private infrastructure	10
8	18.7-19.6	Watson Creek	HDD under Ramsar Wetland and endangered salt marsh vegetation community	14
9	22.7-23.1	Vowell Road Wetland	HDD under significant aquatic habitat	14
10	26.8 - 27.3	Fisheries Road crossing	HDD under Fisheries Road and avoidance of large trees	6
11	29.7 - 30.3	South Gippsland Hwy and high value agricultural land	HDD to avoid high value farm land and safely cross under South Gippsland Hwy dual carriage.	16

#	KP	Location of HDD	Feature Description	Max. Depth of HDD (mAHD)
12	40 -40.3	Cardinia Creek	HDD under significant ecosystem	17
13	41.45 - 41.9	Toomuc Creek - Ballarto Road	HDD under MW asset and significant aquatic habitat	16
14	54.4 - 54.7	Princes Fwy Crossing	HDD under Princes Fwy dual carriage	14
15	55.1 - 55.4	Princes Hwy Crossing	HDD under Princes Hwy dual carriage	12

1.4 Scope of Works

The scope of works comprised the following:

- A desktop review of relevant literature, online resources and the DELWP Victorian Biodiversity Atlas (DELWP 2018) for existing records of species occurring within a 5km radius of the proposed pipeline corridor.
- Targeted surveys for Swamp Skink from late February to mid-March using both infra-red, motion sensing cameras and Elliott Traps in three locations. Elliot Traps were set over a period of six days. The camera traps were operating for 21 days.
- Preparation of this report summarising the works undertaken, results and recommendations.

1.5 Limitations

Refer to the Flora and Fauna Assessment - Crib Point Pakenham Pipeline (Monarc 2018) for a discussion of limitations associated with all flora and fauna assessments undertaken for the project by Monarc.

2 Background

2.1 Species Status

The Swamp Skink *Lissolepis coventryi*, is Listed under the *Flora and Fauna Guarantee Act 1989* (FFG Act) and Vulnerable under the Victorian Department of Environment, Land, Water and Planning (DELWP) *'Advisory List of Threatened Vertebrate Fauna in Victoria'* (DSE 2013).

This species, also known as Eastern Mourning Skink, was formerly identified as *Egernia coventryi* but has since been reinstated under the genus *Lissolepis* (Gardner et. al 2008).

2.2 Species Characteristics

The Swamp Skink is a medium-sized skink up to 100mm long, usually olive green in colour with prominent black stripes along its sides, from shoulder to base of tail and a pale stripe along the upper lip (Museum Victoria 2006).

They are diurnal and gain heat from the sun by basking upon fallen timber, driftwood, sedges, and tussocks. Swamp Skinks are generally active between early September and early-May. (Clemann, Chapple & Wainer 2004).

2.3 Habitat preferences

Swamp Skinks are obligate inhabitants of wetlands or swampy heaths with dense vegetation, including both freshwater and saltmarsh habitats (Clemann, Chapple & Wainer 2004). They tend to be associated with cool temperate, low-lying wetlands including swamp margins, tea-tree thickets and even tidal saltmarshes (Wilson & Swan 2013).

They are secretive and quickly retreats into shelter when disturbed, often dwelling in dense low vegetation, burrows of freshwater crayfish, rocks, logs, tussocks, and sedges (Clemann, Chapple & Wainer 2004).

2.4 Species distribution

Swamp Skinks are found only in south-eastern Australia - from southern Victoria, probably just extending into South Australia and the extreme south-eastern corner of New South Wales (Cogger 2014).

In Greater Melbourne, they are found in the outer eastern suburbs (J Harris pers comm) and south-eastern fringes and some coastal marshes around Western Port Bay (Museum Victoria 2006).

3 Methodology

3.1 Desktop Assessment

A desktop review was undertaken to ascertain potential presence of the Swamp Skink along the alignment based on known records in the area. The desktop review included a search of relevant literature, online resources and the DELWP Victorian Biodiversity Atlas (DELWP 2018) for existing records of species occurring within a 5km radius of the proposed pipeline corridor.

A search of the DELWP Victorian Biodiversity Atlas (DELWP 2018) showed that up to 69 sightings of the Swamp Skink was reported between 2000 and 2018 within 5km of the alignment. Notable among these were records from Watsons Creek and Warringine Park.

3.2 Targeted Surveys

Based on the desktop assessment, three locations were identified for targeted surveys (**Figure 2**) based on a combination of factors including suitable habitat, species records, and impact avoidance through alternative methodology. The selected survey locations are in the vicinity of Warringine Park and Langwarrin Creek, as described in the following sections.

It must be noted that Watsons Creek, another known location for this species, was not included in the survey locations as this section of the pipeline was planned for HDD boring, hence no major impact is anticipated.

Targeted surveys for Swamp Skink were conducted from late February to mid-March using both infra-red, motion sensing cameras and Elliott Traps in three locations. Studies have shown that the use of cameras to detect Swamp Skinks is more reliable than the current standard technique of Elliott Traps (Humphrey et. al 2017). The camera traps were continuously operating for 21 days at all sites.

Each trapping type (camera or Elliott Trap) was baited with a mixture of sardines, peanut butter and rolled oats (DSE 2010). This bait was replaced every second day in the Elliott Traps. For the cameras, the bait balls were placed inside enclosed pvc tubes. These tubes were pegged to the ground approximately 2 metres in front on the camera. The aim was to have as little disturbance as possible to the area of the bait station which meant leaving fallen timber in-situ, so areas for the camera surveys were chosen carefully. Figure 3 contains trapping set up and site photos.

Surveys were undertaken in accordance with the Biodiversity Precinct Structure Planning Kit (DSE 2010).

3.2.1 CPT014 (KP4.0-4.2)

This location was within Warringine Park, Hastings and supported a substantial patch of Swamp Scrub (EVC53).

A 25 Elliott Trap grid was used with traps being approximately 10m apart in each row with the rows being approximately 50m apart. This trapping grid covered just over one hectare, all of which was within the proposed construction ROW.

Each trapping type was baited with a mixture of sardines, peanut butter and rolled oats (DSE 2010). This bait was replaced every second day in the Elliott Traps. The traps were set over a period of six days, being checked after dawn and during the late afternoon of each day.

3.2.2 CPT012 (KP4.88)

This location was along Warringine Creek within Warringine Park, Hastings.

Five Elliott Traps were set in a single transect of approximately 50m in length, approximately 10m apart. The traps were set over a period of six days, being checked after dawn and during the late afternoon of each day.

3.2.3 CPT056 (KP20.3)

This location was along a strip of Swamp Scrub (EVC 53) along South Boundary Rd East, Pearcedale and adjacent to a coastal environment. Similar to CPT012, five Elliott Traps along a single transect were deployed at this location.

4 Results

Surveys undertaken from late February to mid-March 2018 using Elliott Traps and infra-red motion sensing cameras did not record any Swamp Skinks at the survey locations.

However, recent records from the VBA indicate that Swamp Skinks have been recorded within 300m of the pipeline alignment near KP2 along the coastas recently as January 2018.

Recommendations to mitigate potential impacts to the Swamp Skink are described in the Flora and Fauna Assessment – Crib Point Pakenham Pipeline (Monarc 2018).

5 References

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Figure 1: Overview of Pipeline Alignment

APA Transmission Pty Limited- 31-02984.00

Crib Point Pakenham Pipeline Project
Figure 1: Overview of Pipeline Alignment

WORK REQUEST NUMBER: 31-02984.00

DATA SOURCES:
Service Layer Credits: Reference/World_Boundaries_and_Places: Esri, HERE, Garmin
DeLorme World Basemap: Copyright:© 2018 Garmin
World_Imagery: Earthstar Geographics, CNES/Airbus DS

ISSUE DATE	AUTHOR	QA CHECK	APPROVED	MAP REV.	REVISION NOTE
20/08/2018	AB	JH	MV	B	Issued for Review
09/07/2018	KH	JH	CC	A	Issued for Review

LEGEND

Pipeline Alignment

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LOCATION DIAGRAM

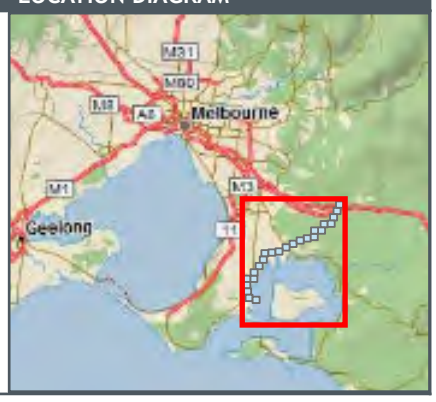

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Figure 2: Swamp Skink Targeted Survey Location Map

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Crib Point to Pakenham Pipeline Project
Figure 2: Swamp Skink Targeted Survey Location Map

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LEGEND

- Targeted Survey Locations
- Pipeline Alignment

ISSUE DATE	AUTHOR	QA CHECK	APPROVED	MAP REV.	REVISION NOTE
28/08/2018	AB	JH	MV	B	Issued for Review
10/07/2018	KH	JH	CC	A	Issued for Review

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LOCATION DIAGRAM

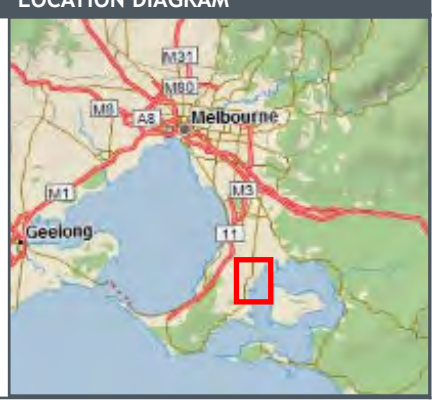

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Figure 3: Site Photos

Photo 1: CPT014 – Warringine Park (KP4.0-4.2).

Photo 2: CPT012 – Warringine Creek (KP4.9), showing Elliott Trap

Photo 3: CPT056 – South Boundary Road East (KP20.3), showing baited camera setup.

Photo 4: CPT056 – South Boundary Road East (KP20.3).