MANAGEMENT AND REHABILITATION PLAN

Chiltern - Mt. Pilot National Park,

Victorian Northern Interconnect Expansion (Looping 7)

DECEMBER 2015

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DOCUMENTATION CONTROL
MONARC ENVIRONMENTAL

Report Title: Management and Rehabilitation Plan: Chiltern - Mt. Pilot National Park, Victorian Northern Interconnect Expansion (Looping 7)

Volume: 1 of 1

Author: Monarc Environmental

Client: APA GasNet Australia (Operations) Pty Ltd

Version Number: 3

Document Number: VN69-RP-LH-002

DOCUMENT APPROVALS

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REVISION HISTORY

Version No.	Copy No.	Holder	Date
2	1	APA GasNet	24 November 2015
2	2	Monarc Environmental	24 November 2015

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1 INTRODUCTION

1.1 Background

APA GasNet Australia (Operations) Pty Ltd (APA) are proposing to loop (duplicate) further sections of the existing 300mm Wollert to Wodonga gas transmission pipeline (Pipeline Licence PL101) between Glenrowan and Barnawartha. All works proposed as part of the pipeline looping will occur within the existing 35 metres wide easement for the existing pipeline. Part of the pipeline route passes through the Chiltern section of the Chiltern - Mt. Pilot National Park (the Park) where the pipeline operates under a Crown Lands Agreement with the State Government.

Monarc Environmental (Monarc) has been engaged by APA to undertake the environmental assessments and obtain regulatory environmental approval for the project. As part of this process, and in recognition of the significant values contained within the Park, APA have requested that Monarc prepare a specific Management and Rehabilitation Plan for the northern, 'Chiltern section' of the Park through which the pipeline corridor and proposed construction right-of-way (ROW) passes.

The purpose of this report is to identify the values contained within the Park, the risks to these values as a result of construction and outline recommendations to mitigate impacts prior to and during construction, and after through effective rehabilitation.

1.2 Project summary

This section of the pipeline, known as 'Looping 7', extends from kilometre point (KP) 118.2 of the existing 400mm Mangalore to Glenrowan gas transmission pipeline, near Glenrowan, to KP 184.6 near Barnawartha, covering a distance of 66.4km. The alignment passes through the northern section of the Park north of the township of Chiltern. The alignment at first skirts the southern edge of the Chiltern section of the Park before again intersecting the Park to the east of the Chiltern-Howlong Road before following in a north easterly direction the existing fire track co-located with the pipeline corridor (referred to as Pipeline Track) and exiting at the Park's eastern edge. An overview of the route through the Park is provided in **Appendix A**.

The construction will involve clearance of vegetation and removal of top soil from the ROW, excavation of trenches and installation of the pipeline, backfilling and reinstatement of soil and rehabilitation of the ROW. A detailed description of construction works is presented in the Construction Environment Management Plan for the Victorian Northern Interconnect Expansion: Looping's 6 and 7 (Monarc Environmental, 2015a).

1.3 Document scope

This plan has been specifically prepared to address potential impacts to the Park as a result of construction activities. The plan incorporates information from:

- Flora and fauna assessments along the entire ROW undertaken by Monarc between 2013 and 2015 (Monarc Environmental, 2015b).
- Biodiversity data in the form of species records and modelling, obtained from databases such as the Victorian Biodiversity Atlas, Biodiversity Interactive Maps, Atlas of Living Australia and Protected Matters Search Tool.
- Publications of relevance to the Park and it's values, including the Chiltern – Mt. Pilot National Park Management Plan (Parks Victoria, 2008)

- Advice on biodiversity and other values encapsulated in the Park from Parks Victoria, Friends of Chiltern National Park, the Department of Environment, Land, Water and Planning (DELWP) and Birdlife Australia
- Publications relevant to mitigation measures and rehabilitation within Box-Ironbark Woodlands, including 'Revegetation Techniques: a guide for establishing native vegetation in Victoria' (Greening Australia, 2003), 'Native vegetation: Revegetation planting standards' (DSE, 2006); and, seed collection and revegetation guidelines published by Florabank.

This document forms part of the broader environmental management documentation being prepared for Looping 7. These include:

- Construction Environment Management Plan for the Victorian Northern Interconnect Expansion: Loopings 6 and 7 (Monarc Environmental, 2015a) (ref: VN69-PL-LH-001);
- Site Environmental Management Plan for North East Catchment Management Authority (Looping 7) (Monarc Environmental, 2015b) (ref: VN69-PL-LH-001);
- Arborist Assessment for Looping 7 (Tree Logic, 2015); and,
- Cultural Heritage Management Plans for Looping 7 (Tardis 2015a; Tardis 2015b).

This Management and Rehabilitation Plan provides specific guidance for the conservation, management and rehabilitation of values within the Park and is not applicable to construction activities outside its boundary. It should be read in conjunction with the other broader environmental management documentation, which are applicable to the proposed pipeline construction works. Where there is conflict between management plans, this Management and Rehabilitation Plan shall take precedence.

2 CHILTERN – MT. PILOT NATIONAL PARK

2.1 Overview

2.1.1 History

The Park was formed from previously existing reserves including the Chiltern Box-Ironbark National Park, Mt. Pilot Multi-Purpose Park, Barambogie Education Area, part of Barambogie State Forest, part of Beechworth Historic Park and a former bushland reserve near Chiltern. It was proclaimed on 30 October 2002 in its current state and included under Schedule 2 of the *National Parks Act 1975* (Parks Victoria, 2008).

The Chiltern section of the Park was originally reserved forest and was known as Chiltern State Forest and first became part of the National Park in 1980.

2.1.2 Regional context

The Park covers approximately 21,600 hectares between the Mt. Pilot Range section (approximately 16,550 hectares), the Chiltern section (approximately 4,340 hectares) and six smaller outlining areas totalling approximately 300 hectares.

The Park sits on the northern side of the great divide in north-east Victoria, between the Highlands beyond Beechworth to the south east, and the Riverina and Murray River system to the north and west. The Mt. Pilot Section runs across the Pilot Range north west of Beechworth and north east of Eldorado providing habitat linkage between the highlands west of Beechworth and the Chiltern section to the west. The Chiltern section surrounds the township of Chiltern, and straddles the Hume Highway with the Skeleton Hill Range across the south and Donchi Hill, Mt Pleasant and Green Hill areas to the north-west. The pipeline transects this latter portion of the Park to the north west of Chiltern and west of the Hume Freeway.

2.1.3 Park values

The Park is valued for its natural values and recognised as one of the most intact remnants of Box-Ironbark woodlands in the State. It supports critical habitat for a large number of threatened flora and fauna species, including the nationally significant Regent Honeyeater (*Anthochaera phrygia*). Recognising its value to the conservation of biodiversity, the Park was assigned Category II on the United Nation's List of National Parks and Protected Areas by the World Conservation Union. These areas are managed mainly for ecosystem conservation and recreation. On a state-wide basis, the Park is rated as very high for the protection of natural values (Parks Victoria, 2008).

The Park is culturally significant from both an Aboriginal and a post-colonial perspective. The Park contains numerous Aboriginal cultural and archaeological sites and provides an important ongoing association with the area for the Traditional Owners, including the Dhudhuroa- Waywurru and Pangerang people. During the 1800s the Park, and in particular the Chiltern section, was a prominent goldmining site. There are historically significant remnants of diggings scattered across the Park and in proximity to the pipeline in the form of shallow mines and hillocks of spoil.

The Park is used frequently for a range of recreational activities, including bushwalking, cycling, camping, fishing, horse riding, 4WD touring, bird watching and sightseeing. Prospecting is also a popular activity confined to parts of the Mt. Pilot section of the Park.

2.1.4 Management and administration

The Chiltern section of the Park and associated construction ROW falls within:

- the North East Catchment Management Authority (NECMA) area
- the Northern Inland Slopes bioregion
- The Registered Aboriginal Party area of the Yorta Yorta Nation Aboriginal Corporation
- The Indigo Shire local government area.

The land is owned by the State of Victoria and is designated as crown land. Parks Victoria is the authority responsible for the Park's management and maintenance. In addition, community based-group the Friends of Chiltern - Mt. Pilot National Park play an active role in the Park's preservation and enhancement.

2.1.5 Management zones and overlays

Zones and overlays have been allocated to areas of the Park and are reflective of the sensitivity and significance of areas and the associated uses considered appropriate. The Park contains three zones and twelve overlays that provide a geographic framework for the management and use of the Park (Parks Victoria, 2008). The zones and overlays applicable to the Chiltern Section of the Park include:

- Conservation zone, aimed at protecting sensitive, fragile or remote natural environments and provide for minimal impact recreation. This zone applies to the entire Chiltern section and is the only zone or overlay to cover the construction ROW.
- Reference area zone, aimed at protecting viable samples of one or more land types that are relatively undisturbed for comparative study with similar land types elsewhere. These areas are generally of high natural value and land access/use is restricted to essential activities only.
- Special protection area – cultural overlay, aimed at protecting specific cultural values in areas and sites where a special management focus is required. Sites with this overlay in the Chiltern section of the Park include:
    - A large site between Pleasant Road and Gully Track in the north of the Park.
    - A linear site south of the freeway along Bar Trail.
    - A site within an isolated area of the Park to the west on Chiltern Valley Road.
    - Three small sites on Howlong Chiltern Road, Cemetery Road and south of the intersection of Pipeline Track and Places Track. This last site is within close proximity (i.e. less than 100 metres) to the construction ROW and contains a Victorian heritage listed mining site.
- Special management area overlay – public safety overlay, aimed at protecting public safety due to landscape features that may cause harm (e.g. past mining excavations). An area with this overlay exists in the south of the Chiltern section between Crusher Road and Skeleton Hill Road. This is not within close proximity to the construction ROW.

Based on the zones and overlays, notable activities not permitted in the Chiltern section of the Park include car rallies, dog walking, firewood collection, fossil collection, hunting and prospecting. Camping is also restricted to designated areas, such as the Tuan Camp site.

After the pipeline crosses Howlong Chiltern Road and adjacent farmland, it follows the dry-weather Pipeline Track to the eastern edge of the Park, a distance of approximately 2.6 kilometres. This single-lane track is deemed suitable for walking, horse riding and 4WD drive vehicles and provides access to the Park and a private property located approximately 800 metres into the Park from its southern edge.

2.2 Land and water

2.2.1 Geology

The geology of the Park is split into two main groups. The Chiltern section of the Park consists of the Pinnak Sandstone Formation and the Mt. Pilot section of the Park predominately comprises the Beechworth Granite Suite. The area of the Park relevant to the construction ROW includes the Pinnak Sandstone Formation and associated alluvial deposits included within the Shepparton Formation.

Table 1. General Litho-stratigraphic description of Chiltern – Mt. Pilot National Park

Age	Formation	Lithology	Description
Holocene (0.01 Ma – recent)	Shepparton Formation	Lithological Description	Fluvial: silt, sand and minor gravel
		Depositional Environment	Non-Marine - Alluvial
		Expected thickness	Less than 5m
Late Devonian (395 – 359 Ma)	Beechworth Granite	Lithological Description	Igneous (Intrusive (Granite I-type) rock
		Depositional Environment	Intrusive
		Expected thickness	Undetermined
Late Ordovician (461 – 444 Ma)	Pinnak Sandstone	Lithological Description	Marine: sandstone (dominant); siltstone (minor proportion); chert (rare)
		Depositional Environment	Deep marine sediments associated with turbidic currents.
		Expected thickness	Undetermined

Source: GeoVic 2 (DELWP, 2015a)

Located throughout central and eastern Victoria as a bedrock unit, Pinnak Sandstone was deposited during the Ordovician in a deep marine setting. The Sandstone is often interbedded with mudstone units typical of turbidites found through south-eastern Australia. Turbidites relate to fine-grained sediments associated with turbid marine currents and have settled at depths. Although generally lacking in fossils diagnostic of age, limited fossils that have been identified indicated an age range of Early to Middle Ordovician (Morand et al., 2005).

Within and immediately surrounding the Chiltern section the Shepparton Formation generally consists of poorly consolidated alluvial and colluvial deposits from the elevated sandstone sources.

The Park is located within the Tabberabbera structural zone within the Eastern Lachlan Fold belt. The Ordovician sediments within and surrounding the Park have been subject to intense deformation events during the Middle Devonian. It was these events that gave the western portion of the Park its current elevation.

The Ordovician sediments of the National Park have produced soils of low fertility and limited water-holding capacity. Also, elevated areas often contain shallow skeletal soils that have a high susceptibility to erosion when exposed. Fine grained alluvial soils are equally prone to erosion within the Park, requiring special consideration during and post construction.

2.2.2 Water

Two minor unnamed drainage lines cross the construction ROW within the Chiltern section of the Park at KP176.8 and 178.2. These are designated water assets managed by NECMA and are classed as 'Category B' waterways under the Site Environmental Management Plan (SEMP) prepared for Looping 7 (Monarc Environmental, 2015c).

Category B waterways include intermittent or ephemeral waterways that provide good quality habitat for native species and therefore require special attention to environmental management during construction. These waterways generally include some good quality native vegetation or habitat either in the riparian zone or within the stream base.

The drainage line at KP176.8 is an ephemeral, shallow drainage line crossing the construction ROW south of a private property within the Park. Aside from the occasional patch of *Juncus* sp. in wet depressions, the vegetation along the drainage line does not differ significantly from surrounding areas. The drainage line at KP178.2 is also ephemeral, however is likely to experience even less flow due to there being no discernible difference in vegetation when assessments were undertaken.

For further information on waterways, refer to the SEMP for Looping 7 (Monarc Environmental, 2015c). The SEMP outlines management measures to be undertaken during construction at NECMA managed water assets.

2.3 Biodiversity

The Park is recognised for its importance as the eastern-most representation of Box-Ironbark forest in Victoria with one of the most intact faunal assemblages in the State. The Park has the highest number of mammal, bird and reptile species recorded at any box-ironbark site, with a large proportion of these recognised as threatened at either a State or National level (Parks Victoria, 2008). Further detail is provided in Appendix **H**.

A summary of the biodiversity values of the Park is provided below. Further detail is provided in the Flora and Fauna Assessment report for VNIE Looping 7 (Monarc Environmental, 2015b).

2.3.1 Landscape

The Park sits on the north-western edge of the Northern Inland Slopes bioregion. This area covers the lower foothills north of the Great Dividing Range with minor ranges separated by broad river valleys. The pre-European vegetation primarily consisted of Box-Ironbark forest in the hills (though notably lacking ironbark species), with grassy woodland on the lower slopes and areas of gilgai plains woodland / wetland mosaic fringing the riverine plain.

As a result of past and present land-use activities, over 90% of the bioregion has been cleared, with the woodland of the plains particularly heavily affected. Whilst impacted heavily by goldmining and clearance activities in the late 19th century, the Box-Ironbark Woodlands on the hills and rises above the plains have regenerated and now support high levels of biodiversity. These woodlands are connected through fragments persisting in roadsides, creek lines and small reserves throughout the plains.

The Chiltern section of the Park is divided in two by the Hume Freeway and separated from the Mt. Pilot section by open farmland. Black Dog Creek, the major drainage line in the area, skirts the Chiltern section of the Park to the south and west and provides an important wildlife corridor and link to the Mt. Pilot section.

2.3.2 Vegetation types

Vegetation communities within the Chiltern section of the Park include Heathy Dry Forest (EVC 20) upslope and around the ridges, Box Ironbark Forest (EVC 61) across the mid-lower slopes and Plains Grassy Woodland (EVC 55) down on the lower slopes and flats.

The construction ROW supports elements of two EVC's: Box Ironbark Forest and Heathy Dry Forest. These EVCs have a conservation status of Vulnerable and Least Concern respectively. The location of each of these vegetation types within the construction ROW is provided in **Appendix B**.

Other threatened EVC's supported by the Park include Spring-soak Woodland, Gilgai Plain Woodland/Wetland Mosaic and Valley Grassy Forest (Parks Victoria, 2008).

Box Ironbark Forest

Box Ironbark Forest is described as occurring on gently undulating rises, low hills and peneplains on infertile, often stony soils derived from a range of geologies. The open overstorey to 20 metres tall consists of a variety of eucalypts, often including one of the Ironbark species. The mid storey often forms a dense to open small tree or shrub layer over an open ground layer ranging from a sparse to well-developed suite of herbs and grasses (DELWP, 2015b).

Box Ironbark Forest in the Park is comprised of a canopy dominated by Mugga (*Eucalyptus sideroxylon* ssp. *sideroxylon*) with scattered Red Stringybarks (*E. macrorhyncha*), Red Box *(E. polyanthemos)* and White Box (*E. albens*). Under this, a sparse shrub layer of Varnish Wattle (*Acacia verniciflua*), Golden Wattle (*A. pycnantha*), Cherry Ballart (*Exocarpos cupressiformis*), Black Cypress Pine (*Callitris endlicheri*) is present above the ground layer comprised of Cat's Claw Grevillea (*Grevillea alpina*), Daphne Heath (*Brachyloma daphnoides*), Pale Wedge Pea (*Gompholobium huegelii*), *Dillwynia* spp., *Hibbertia* spp. and Honey Pots (*Acrotriche serrulata*). Grasses are also abundant in the ground layer, with common species including Red-anther Wallaby grass (*Rytidosperma pallidum*), Grey Tussock Grass (*Poa sieberiana*) and Kangaroo Grass (*Themeda triandra*) in more open areas. Herbs, forbs, lilies and orchids are also present throughout, including Sticky Everlasting (*Xerochrysum viscosum*), Common Raspwort (*Gonocarpus tetragona*), Black-anther Flax-lily (*Dianella admixta* var. *revoluta*), Chocolate Lily (*Arthropodium strictum*) and Dwarf Greenhoods (*Pterostylis nana*) and the state vulnerable Late-flowering Flax-lily (*Dianella tarda)*.

Heathy Dry Forest

Heathy Dry Forest is described as an open eucalypt forest to 20 metres tall. It grows on shallow, rocky skeletal soils on a variety of geologies and on a range of landforms from gently undulating hills to exposed aspects on ridge tops and steep slopes at a range of elevations. The understorey is dominated by a low, sparse to dense layer of ericoid-leaved shrubs including heaths and peas. Graminoids and grasses are frequently present in the ground layer, but do not provide much cover (DELWP, 2015b).

Areas representative of Heathy Dry Forest vegetation were identified within the construction ROW along a ridge-line intersecting the pipeline at KP177.8 (**Appendix B**). The canopy component of this vegetation community was dominated by a combination of Mugga, Red Box, Red Stringybark and Grey Box.

The low shrub layer generally comprised Blue Finger-flower (*Cheiranthera cyanea*), Urn Heath (*Melichrus urceolatus*), Grey Parrot-pea (*Dillwynia cinerascens*), Cat's Claw, Pale Wedge Pea, Honey-pots and the state listed Small-leaf Bush-pea (*Pultenaea foliolosa*).

Indigenous graminoids in the ground layer included Dense Spear-grass (*Austrostipa densiflora*), Rough Spear-grass (*Austrostipa scabra* ssp. *falcata*), Red Anther Wallaby Grass, Small Flower Wallaby Grass (Rytidosperma setaceum), Hill Wallaby Grass (*Rytidosperma erianthum*), Kangaroo Grass, Dwarf Greenhood and Purple Beard Orchid (*Calochilus robertsonii*). Herbs included Common Sunray

(*Triptilodiscus pygmaeus*), Slender Groundsel (*Senecio tenuiflorus*), Hairy Stinkweed (*Opercularia hispida*) and Sticky Everlasting (*Xerochrysum viscosum*).

Given the area was extensively cleared in the late 19th and early 20th centuries, there are no large old trees present within the construction ROW. Weeds are generally absent with only a few low threat species observed.

Vegetation condition

Vegetation in the two small extensions of the Park west of Howlong-Chiltern Road comprised mature forest, dominated by Mugga, on the edge of the easement with dense regrowth above the existing pipeline, largely comprised of shrubs such as Varnish Wattle and Golden Wattle (**Appendix B**). Small gaps in the regrowth persisted where Whistler Track and Tank Track intersected the easement. Whilst largely overgrown, the remnants of a vehicle track are also visible linking Tank Track and Whistler Track.

East of Howlong-Chiltern Road, the construction ROW follows the previously cleared easement and, where the road turns northwards, an electrical power easement. As a result, the composition of vegetation varies within the construction ROW and can be categorised into three distinct areas:

- Vegetation on the north/western side of the ROW has been regularly cleared due to its proximity to the existing pipeline and the electrical easement (in accordance with the *Electrical Safety [Electricity Line Clearance] Regulations 2015*). As a result, large trees are absent from this part of the construction ROW, however indigenous grasses, herbs and medium to tall shrubs persist in high cover and diversity. It is therefore considered floristically diverse however structurally poor.
- Pipeline Track bisects the easement and, due to its regular use and maintenance, is largely void of any vegetation. The dirt track is approximately 3-4m wide and provides an important access point to this section of the park for both management and recreational purposes.
- Vegetation on the south/eastern side of the easement has not been disturbed by utility installation or maintenance works and therefore supports a 'mature' canopy layer (i.e. older than 40 years) over a diverse, but sparse, understorey comprised of small shrubs, grasses and herbs. This vegetation is considered comparable to the respective EVCs and is both floristically and structurally diverse.

The extent and nature of vegetation along the ROW within the Park is shown in **Appendix B**.

2.3.3 Species diversity and significance

The Park is recognised for its high species diversity, particularly with regard to fauna. Previous records from the Chiltern section have identified a total of 473 indigenous flora species and 251 indigenous fauna species (DELWP, 2015c). Of these, 27 flora species and 43 fauna species are considered rare or threatened at either a state or national level (**Appendix A**).

Three flora species of conservation significance were observed within the pipeline corridor through the Chiltern section: the Small-leaf Bush Pea, Western Golden-tip (*Goodia medicaginea)* and Late-flower Flax-lily. Three fauna species of conservation significance were observed on the easement or in close proximity, including Squirrel Glider (*Petaurus norfolcensis)*, Painted Honeyeater (*Grantiella picta)* and Brown Treecreeper (*Climacteris picumnus victoriae)*. The locations of all threatened species observations are presented in **Table 2** and **Appendix B**.

Appendix G and H lists the National and State significant species that have previously been recorded within the Chiltern section of the Park. This includes the nationally significant Crimson Spider-orchid *(Caladenia concolor)*, Mountain Swainson-pea (*Swainsona recta)*, Swift Parrot (*Lathamus discolor)* and Regent Honeyeaters (*Anthochaera phrygia)*. In addition, the state listed Brown Toadlet (*Pseudophryne*

bibroni) has been recorded within the Park and is considered to have a moderate likelihood of occurring near waterways within the Park.

The Chiltern section of the Park is considered a key site in Australia for the protection and monitoring of the nationally significant Regent Honeyeater, with the species being observed approximately 2.5 kilometres from the construction ROW in 2014 (Monarc Environmental, 2015b). DELWP has also reported Regent Honeyeaters 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).

Table 2. Significant species recorded in the construction ROW or vicinity during surveys in 2013/2014

KP	Common Name	Scientific Name	EPBC Act[1]	FFG Act[2]	Advisory list[3]
175.96	Squirrel Glider	*Petaurus norfolcensis*	-	Listed	Endangered
175.54, 175.68	Painted Honeyeater	*Grantiella picta*	Vulnerable	Listed	Vulnerable
178.46	Brown Treecreeper	*Climacteris picumnus victoriae*	-	-	Near Threatened
176.2, 176.5, 178	Late-flowering Flax-lily	*Dianella tarda*	-	-	Vulnerable
176.9	Western Golden-tip	*Goodia medicaginea*	-	-	Rare
175.1, 175.3, 157.5, 177.8, 178.1	Small-leaf Bush-pea	*Pultenaea foliolosa*	-	-	Rare

[1] Species listed as Matters of National Environment Significance under the Australian Government's *Environment Protection and Biodiversity Conservation Act 1999*.
[2] Species listed as Threatened under the *Victorian Government's Flora and Fauna Guarantee Act 1988*.
[3] Species listed on the Victorian Department of Environment, Land, Water and Planning's 'Advisory List of Rare or Threatened Plants in Victoria'.

Lists of threatened flora and fauna species previously recorded in the Park are provided in **Appendices G and H**.

2.3.4 Weeds

Blackberry, Bridal Creeper, Furze (Gorse), Prickly Pear, Paterson's Curse and St John's Wort are some of the declared noxious weeds identified within the Park. Whilst weed cover in the Chiltern section of the Park is generally low, infestations are present in places, particularly in areas disturbed on the edge of the Park or in association with tracks or activities. **Table 3** lists high-threat species recorded in the construction ROW during field surveys in 2013/2014. Coverage of introduced species is higher over the more recently disturbed areas (west of Pipeline Track) than it was under canopy. On average weed cover across the construction ROW was 10% of the total area.

In addition, the highly invasive European Olive (*Olea europaea*) and Chilean Needle Grass (*Nassella neesiana*) are located outside the Park's boundaries in close proximity (particularly along roadsides north of the Chiltern section) (Parks Victoria, 2008). These species pose a significant risk to the Park should they become established.

Table 3. Weeds identified within the construction ROW during surveys in 2014

Scientific name	Common name	Threat
Acacia baileyana	Cootamundra Wattle	High threat
Aira sp.	Air Grass	Low threat
Anagallis arvensis	Scarlet Pimpernel	Low threat
Asparagus asparagoides	Bridal Creeper	Noxious
Anthoxanthum odoratum	Sweet Vernal Grass	Low threat
Briza maxima	Large Quaking Grass	Low threat
Briza minor	Small Quaking Grass	Low threat
Centaurium erythraea	Common Centaury	Low threat
Cirsium vulgare	Spear Thistle	Low threat
Conyza bonariensis	Fleabane	High threat
Dactylis glomeratus	Cocksfoot	High threat
Ehrharta erecta	Panic Veldt Grass	High threat
Gallium aparine	Cleavers	High threat
Holcus lanatus	Yorkshire Fog	High threat
Hordeum sp.	Barley Grass	High threat
Hypericum perforatum	St. John's Wart	High threat
Hypochoeris radicata	Cat's Ear	Low threat
Hypochoeris glabra	Smooth Catsear	Low threat
Lactuca officinalis	Prickly Lettuce	Low threat
Lolium rigidum	Annual Rye-grass	High threat
Lolium perenne	Perennial Rye-grass	High threat
Plantago lanceolata	Rib Wort	High threat
Rosa rubiginosa	Briar Rose	High threat
Romulea rosea	Onion Grass	Low threat
Sonchus asper	Rough Sowthistle	Low threat
trifolium repens	White Clover	Low threat
Verbascum thapsus	Great mullein	High threat
Vulpia bromoides	Squirreltail Fescue	High threat

2.3.5 Pest animals

Foxes, cats and rabbits are considered the pests of greatest concern given the potential impacts to biodiversity they can have. Foxes and cats prey on ground dwelling species whilst rabbits have the ability to reduce floristic diversity, create soil disturbance and spread weeds.

The presence of rabbits was observed in low number throughout the construction ROW. No other pest species were observed however records exist from the Chiltern section indicating there are at least 13 introduced species inhabiting the Park, including foxes, cats, dogs and hares (DELWP, 2015c).

2.4 History and heritage

The Chiltern section of the Park is culturally significant from both an Aboriginal and a post-colonial perspective.

2.4.1 Cultural heritage

Indigenous tradition indicates that the Park lies within the country of the Dhudhuroa- Waywurru and Pangerang people. The Park contains two major Aboriginal rock art sites and numerous cultural and archaeological sites, including artefact scatters, scarred trees and grinding grooves. Aboriginal groups and communities which value the Park include (Department of Premier and Cabinet, 2015; Parks Victoria, 2008):

- The Yorta Yorta Nation Aboriginal Corporation, a Registered Aboriginal Party (RAP) which represents people descended from clans that spoke the Yorta Yorta language, and covers the Murray Goulburn region of northern Victoria and southern NSW, including the western portion of the Chiltern section of the Park (west of KP 176.8 in the Park).
- Dhudhuroa and Waywurru traditional owner groups covering land between Yarrawonga, Wodonga, Corryong, Myrtleford, Benalla, Wangaratta and Mitta.
- Mungabareena Aboriginal Corporation, a community-based support organisation for Australian Indigenous people living in North-east Victoria.

Cultural Heritage Management Plans for Looping 7 are being prepared and, once completed, any relevant recommendations will be included in this Plan.

2.4.2 European heritage

The Chiltern section of the Park experienced intense goldmining activity throughout the late 19th and early 20th century. This activity is still evident in the landscape today with regrowth forests present over much of the Park and scattered diggings, spoils, shafts and dredge dams still a common feature amongst the trees.

The Magenta Quartz Mine and associated picnic area is located on Places Track, approximately 200 metres to the south-east of Pipeline Track and the construction ROW. The quartz reef Magenta Mine was worked almost uninterrupted from 1858 until the 1920s. The remains of two stamping batteries, two intact sealed shafts, and tailings dumps are evident at the surface of the site (Parks Victoria, 2008). The area is listed on the Victorian Heritage Register due to its State significance and the construction ROW passes through the area of the Magenta Quartz Mine listed on the Victorian Heritage Register. Advice from Heritage Victoria has confirmed that little damage will occur to the site as a result of the pipeline construction activities. APA will apply to Heritage Victoria for a Heritage Permit Exemption at this location.

2.5 Recreation and tourism

The Park provides a diverse range of recreational opportunities in a natural setting, including bushwalking, bird watching, horse riding, cycling and camping in designated locations. Prospecting and car rallying are also designated activities in the Mt. Pilot section of the Park. Furthermore, the prominent heritage sites associated with past gold mining activities tie in to the strong 'Gold Era' tourism themes promoted in Chiltern and Beechworth.

Due to its position straddling the Hume Freeway, the Chiltern section provides easy access to the Park for day visitors passing through. Popular stops within the Park include Honeyeater Picnic Area in the south, the Magenta Mine site, Indigo Goldfields Cemetery and Tuan Camp Site. It also provides valuable recreational and open space for local communities such as Barnawartha and Chiltern.

3 IMPACTS

3.1 Construction description

The construction ROW runs along the southern boundary of the Chiltern section of the 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, following Pipeline Track.

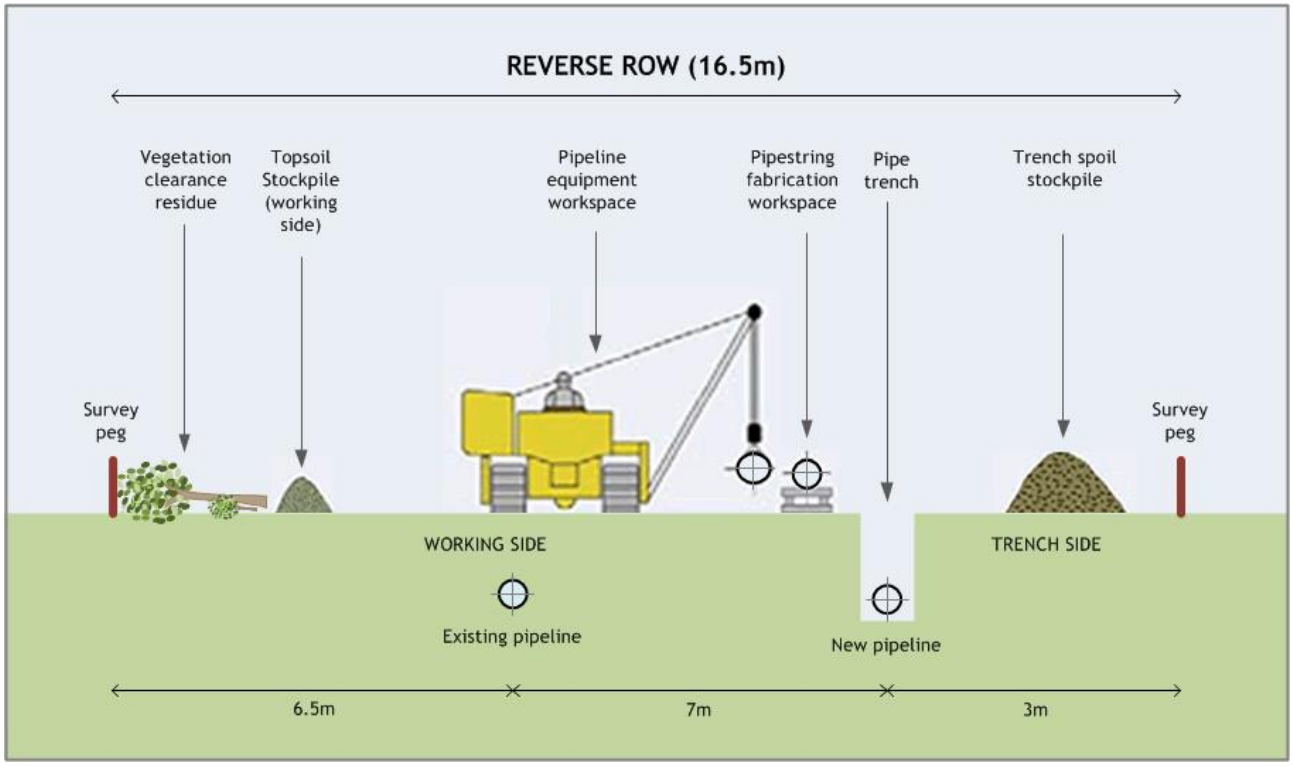
Prior to crossing Chiltern Howlong Road, the construction ROW passes through two small extensions of the Park, covering a length of approximately 400m, that lie between parcels of private freehold property. In the first extension, the construction ROW follows Whistler Track before exiting and re-entering the second extension and crossing Tank Track.

After crossing Chiltern Howlong Road, the north eastern section runs for a total of about 2.2km within the Park boundary and rises up a gentle slope to and elevation of 270 metres AHD before dropping down to the eastern boundary of the Park at about 180m AHD.

The new 400mm transmission pipeline will be installed below the natural ground surface through the Chiltern section of the Park. It will be located within the existing 35 metre wide pipeline corridor occupied by the existing 300mm Wollert to Wodonga gas transmission pipeline.

The existing pipeline is located approximately 7.5 metres from the western edge of, and within, the existing pipeline corridor with the proposed new pipeline to be located approximately 7 metres further south-east. The construction ROW will be restricted to 16.5 metres wide, extending from one metre inside the western edge of the easement to three metres east of the proposed new pipeline. Figure 1 illustrates a cross-section of the proposed construction layout through the Park.

Figure 1. Construction layout for the reverse ROW through Chiltern - Mt. Pilot National Park.



Given the reduced ROW width (from a standard 28 metres construction ROW), a specialist crew will be used in the Park to install the pipeline. Construction activities will include:

- the clearance of vegetation within the 16.5 metre wide construction ROW
- removal and stockpiling of top soil and subsoils in the construction ROW
- excavation of pipe trenches, including the use of rock breakers where required
- stringing of pipe (welding sections together sitting next to the trench) and lowering into position approximately 1.4 metres below ground level
- backfilling of trenches and reinstatement of soil layers
- revegetation and rehabilitation of the construction ROW.

Access to the proposed construction ROW will utilise existing public roads and tracks within the Park. No construction site depots or additional facilities will be located within the Park. After construction is complete, pipeline marker posts and cathodic protection test boxes will be installed as required under the *Pipelines Act 2005 and AS2885-2012: Pipelines – Gas and liquid petroleum*.

Pipeline construction will require the removal of the existing Pipeline Track. Due to regular public and private use of this track, it will be reinstated between the existing and new pipelines. Unless advised otherwise by Parks Victoria, the track will be restored to the same classification and use as specified in the Chiltern - Mt. Pilot National Park Management Plan (Parks Victoria 2008). This will be a dry-weather single-lane track formed from natural materials sourced from excavations within the construction ROW and Park (where possible) to a standard that is suitable for 4WD vehicles.

A detailed description of construction works is presented in the Construction Environment Management Plan for the Victorian Northern Interconnect Expansion: Looping 6 and 7 (Monarc Environmental, 2015d).

3.2 Construction timeframes and schedules

Pipeline construction works will be carried out during daylight work hours on a 7 day working week. Construction of the project is scheduled to commence in January 2016 and be completed by June 2016.

However, due to the significant biodiversity values within the Chiltern section of the Park, the phase of construction commencing with the clear and grade (including any tree-felling) up to and including reinstatement, will only occur between January and the end of March 2016. This timeframe has been selected as it is outside the breeding or nesting session for the majority of the fauna species that occupy the park including threatened species such as the Regent Honey-eater.

Reseeding will occur as soon as practicable after reinstatement but is dependent on weather conditions. Parks Victoria recommends that reseeding should coincide just prior to the autumn break (being the first significant rainfall event of the winter growing season).

3.3 Avoidance and minimisation through project design

The following measures have been taken to reduce impacts on Park values through project design:

- Using a 'reverse ROW', where the construction space has been shifted westwards over the existing pipeline, to minimise impacts to high quality remnant vegetation on the eastern side of the construction ROW. Whilst this constrains the mode of construction to ensure the existing pipeline is not damaged, it is deemed necessary in this instance to minimise vegetation clearance wherever possible.

- Reduction in the width of the construction ROW, from the standard 28 metres to 16.5 metres. This will further constrain the mode of construction but will minimise impacts to treed vegetation on the eastern side of the construction ROW.
- Reducing the extent of clearing within the construction ROW to minimise the number of canopy trees removed as a result of construction works. This is particularly relevant to the eastern side of the construction ROW covered by intact forest where the majority of trees over 40cm dbh will be retained; trees less than 40cm dbh that lie within the construction ROW may be removed.
- Construction works (consisting of clear and grade up to reinstatement) will occur between January and March to avoid critical breeding and nesting times for many threatened fauna species that occupy the Park, including the Regent Honeyeater.

3.4 Impacts

The most prominent impacts associated with the construction will be the removal of indigenous vegetation within the Park during clearing and grading of the construction ROW. Not only does the vegetation contain a large diversity of flora species, it is also of significant habitat value for the many common and threatened species that inhabit the Chiltern section of the Park. This is made even more important given the construction ROW contains an ecotone between remnant vegetation on the eastern edge of Pipeline Track and previously cleared shrubby regrowth on the western side of the construction ROW. This diversity of environs provides important habitat that is uncommon within the Chiltern section of the Park.

Within the construction ROW, about 4.01 hectares will be removed across eleven distinct habitat zones (six areas of Box Ironbark Forest and five areas of Heathy Dry Forest). When condition and quality of this vegetation is considered, it amounts to a loss of 2.53 habitat hectares. Approximately two thirds of this will be from the north-western side of the construction ROW where only understorey species are present (ie the area over the existing pipeline).

Whilst the construction ROW has been moved and narrowed to reduce the impact to older, remnant vegetation on the south-eastern side of the pipeline corridor, impacts to vegetation and the associated habitat within the Park are considered significant. It is intended that revegetation, supported by natural colonisation, will assist in returning floristic and structural diversity to the disturbed area in 10 – 20 years with minimal long term impacts to the values of the Park. However, taller vegetation will be restricted from growing within 3m of either side of each pipeline in accordance with regulations and AS2885.1.

To achieve this outcome it is critical that rehabilitation and revegetation is managed carefully and regularly monitored.

Within the 11 habitat zones, up to 23 tagged trees (i.e. trees over 40cm dbh) will be removed within the construction ROW through the Park. Tagged trees identified for removal and retention are shown in **Appendix B** and listed in the Arboricultural Assessment report (Tree Logic 2015). The understorey between retained trees (including trees with a dbh less than 40cm) may be removed, or heavily disturbed, throughout the construction ROW. This selective clearing will help minimise impacts to habitat zones that support canopy trees, ensuring critical habitat that would normally take more than 50 years to replace, is retained.

Specific potential impacts that have been identified include:

- Loss of fauna habitat, including the removal of some hollow bearing trees used for den and nest sites, understorey vegetation used for feeding and breeding, ground structures suitable for ground-dwelling and subterranean fauna and dense vegetation that provides linkages and corridors.

- The introduction and spread of weeds. Parks Victoria have identified weeds as one of the major potential impacts to the natural values of the Park. Weeds can limit native species' growth and decrease recruitment of native species, leading to long term changes in the structure of the vegetation communities and the habitat they provide for wildlife.
- Spread of diseases to and within the Park, such as Chytrid fungus and Phytophthora root rot, that can reduce the health and fecundity of susceptible native plants and wildlife.
- The increased prevalence of pests, particularly rabbits, as a result of ground disturbance and removal of vegetation. Rabbits prefer open environs with harbours close by and can quickly colonise cleared areas, result in increased grazing pressure that continues to suppress the development of ground cover and restoration of remnant vegetation. This degradation also provides an opportunity for weeds to invade and establish, enhance the potential for long term significant impacts.
- Given the proximity of the Magenta Mine heritage site and associated picnic area to the construction ROW, public access to some areas associated with these facilities may be restricted during construction activities. This however will not involve complete closure given the site can be accessed from the south along Magenta Road and Places Track and these routes will be unaffected by construction activities.

3.5 Future land-use

Under the *Pipelines Act 2005*, the owner is required to ensure that operation of the pipeline is in accordance with the accepted Operation Environment Management Plan (OEMP). APA has an approved OEMP that applies to all licenced pipelines in Victoria. This requires 'line-of-sight' between marker posts to be maintained over both pipelines. The growth of tall vegetation within 3m to either side of the pipeline is therefore restricted. Tree growth within 3m of the pipelines is not permitted to ensure visibility and avoid interference from roots.

As a result, the rehabilitation of the ROW must be cognisant that future maintenance can achieve these requirements without impacting the natural values of the Park.

4 MANAGEMENT AND REHABILITATION

4.1 Overview

The aim of this Management and Rehabilitation Plan is to ensure that the character of the Park is maintained and the works do not result in any long-term impacts to the natural, cultural and social values the Park supports.

Assuming reinstatement and rehabilitation has been successful, it is expected that after 10 years the vegetation community will be self-sustaining and resilient to threatening processes such as erosion or weed incursions. After this point, the pipeline corridor will continue to be managed by APA in accordance with the approved Operational Environment Management Plan.

4.2 Approvals and permits

Table 5 provides the implications under relevant legislation for the construction of the pipeline through the Chiltern section of the Park.

The *Pipelines Act 2005* is also relevant to this project given its role in regulating the construction and operation of transmission pipelines within Victoria, including consideration of environmental impacts.

Table 4. Implications for construction within the Park under relevant legislation and regulations

Legislation	Implication
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	Provides protection to Matters of National Environmental Significance within the Park, including threatened species and communities and migratory species. APA has determined that submission of an EPBC Act referral is required for potential impacts to the nationally significant Regent Honeyeater, Painted Honeyeater and Swift Parrot. The Federal Environment Minister will then determine whether assessment and approval under the EPBC Act is required for the proposed works.
Aboriginal Heritage Act 2006	Provides for the protection and management of Victoria's Aboriginal heritage. Two Cultural Heritage Management Plans (CHMPs) are being prepared for construction works within Looping 7. These require approval by the Yorta Yorta Nation Aboriginal Corporation (west of KP 176.8 in the Park) and the Office of Aboriginal Affairs Victoria (east of KP 176.8) prior to construction works commencing (refer Appendix A for indicative boundary).
National Parks Act 1975	The Act provides protection of the natural, cultural and social values of the Park and use of the Park for public enjoyment, recreation and education. The Park is reserved and managed under Schedule 2 of the Act. A Crown Land agreement between the State Government and APA was put in place in 2002 providing APA with rights to operate, access and install assets within crown land covered by the agreement. Under this agreement, approval is still required which includes, where applicable, meeting a number of environmental obligations and conditions. Also requires consent for work to be granted by the Minister of the Environment.
Flora and Fauna Guarantee Act	The *Flora and Fauna Guarantee Act 1988* is the primary Act for the

1988	protection of threatened native flora and fauna within Victoria. A permit will be required for the removal of listed and protected flora species within the Park and also for the collection of seed or cuttings to assist with the rehabilitation.
Wildlife Act 1975	The *Wildlife Act 1975* is the main legislation for protecting and managing fauna in Victoria. The Act covers indigenous vertebrate species (except declared pest species), invertebrate species listed under the FFG Act and some introduced game species but does not apply to fish defined under the *Fisheries Act 1995*. A Management Authorisation permit will be required under the Act if salvage and movement of any native fauna, including possums and snakes, is to be undertaken as part of any mitigation measures for this project.
Catchment and Land Protection Act 1994	Protects declared water supply catchment areas proclaimed under the Act and establishes landowner responsibility for preventing or eradicating noxious weeds on their land. There are no declared water supply catchments within the Chiltern Section of the Park. Noxious weeds will need to be managed during construction and operation of the pipeline in collaboration with Parks Victoria.
Water Act 1989	Governs water entitlements and establishes the mechanisms for managing Victoria's water resources. Acceptance of the Site Environment Management Plan by NECMA is required to obtain a permit for works on the two designated waterways within the Park that intersect the pipeline route.

4.3 Pre-construction

Work within the Chiltern section of the Park, starting with site set-up and the clear and grade, is scheduled to commence in January 2016 and be completed by end of March 2016 after reinstatement. 'Pre-construction' includes all activities up to and including the clear and grade. During this stage, actions are required to mitigate impacts on fauna and flora. These actions are described below.

4.3.1 Access

The following measures will be adopted to ensure appropriate environmental management of access to the construction ROW:

- Prior to the removal of vegetation, a qualified zoologist and botanist will conduct a thorough on-site induction for all construction staff. This induction will advise them of the legislative framework, the management plan requirements to be followed for sensitive issues (e.g. native vegetation, fauna, waterways and cultural heritage) as well as the appearance of the threatened species that may be encountered within the ROW. It will also include the protocols that will be followed for 'marked' vegetation and in the event of any fauna being found.
- All machinery, vehicles, equipment and personal will enter and leave the construction ROW only through designated access points. For further details, see the CEMP for Looping 6 and 7 (Monarc Environmental, 2015d). Only designated roads and tracks will be used to reach the entry points, and no access of the construction ROW will be permitted unless through these points.
- The width of the construction ROW will be pegged with coloured stakes by APA to delineate the edge of the construction ROW and no vehicles and personnel will go outside the bounds of the construction ROW. A combination of gates, stakes and flagging will be used to mark the ROW. Coloured stakes will be installed at 50 metre intervals or at a distance that line of sight between

stakes is maintained Stakes, 'no go' signage and flagging, these will be placed at the edge of the construction ROW with no setback distances to the edge of the ROW. No activities are to occur outside the designated work areas.

- Construction drawings will provide clear delineation of exit and entry points, construction ROW boundaries and site inductions will highlight sensitive issues (e.g. native vegetation, waterways and cultural heritage).
- Public access to the construction ROW will be restricted. Physical barriers (e.g. gates, fences) and signs shall be installed to restrict access at relevant entry tracks and paths that will remain until post-construction reinstatement is completed.
- A combination of temporary gateways, fences, stakes and flagging will be used to mark the boundary of the ROW.
- Crossing of tracks will be treated similarly to tracks on private properties where all the construction processes (trenching, installation of pipe and backfill) are completed in one day. Signage will be placed on both sides of any crossing tracks and tracks kept open until trenching is required to install the pipe.
- Parks Victoria will be advised when trenching across any tracks is to commence.
- A Traffic Management Plan will be prepared for Parks Victoria to cover works within the Park.

4.3.2 Soil and water

The following measures will be implemented to minimise impacts to soil and water:

- Wash-down areas will be established at the entry points for the Park and vehicles, machinery and equipment will be thoroughly cleaned with Phytoclean prior to entering the Park during the clear and grade phase of the project. This will ensure all soil and vegetative material is removed from all surfaces, including the undercarriage and running gear. In addition:
    - Any plant, equipment and light vehicles are to be washed down prior to entry to the Park including heavy equipment that is to be utilised for construction.
    - Wash downs will be recorded in a wash-down register.
    - Signage will be installed at approved wash-down areas to advise personnel of this requirement. Personal clothing and footwear is also to be checked by construction personnel for seeds and mud at these designated points.
    - Personnel clothing and footwear will also be free of soil and vegetative material before construction access to the construction ROW is permitted. Footwear to be cleaned with Phytoclean.

  A construction crew specific for the area within the National Park will be utilised. This will allow this single crew to be aware of wash down requirements specific to the National Park.
- Top soil within the construction ROW will be removed and stockpiled separately to subsoils. Care must be taken to ensure all topsoil is removed, to at least 5cm in depth, as this will contain a rich seed bank that will be critical to ensure natural revegetation after the soil is reinstated. All top soil stockpiles will be bounded by sediment fencing to avoid contamination and loss of soil during construction.
- In instances where additional fill has been imported to repair or build-up the base of Pipeline Track in the past, this material will be removed prior to the top soil and stockpiled separately for use when re-establishing the track.

4.3.3 Flora

The following measures will be implemented to minimise impacts to flora:

- Where seed or plants of appropriate provenance and species are not available locally, seed or cuttings will be collected from a range of indigenous species located within or adjacent to the construction ROW for use in revegetation. 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. A list of species suitable for seed collection and the recommended collection timeframes are listed in **Appendix D**. Sufficient propagative material (seeds or cuttings) will be collected to meet the recommended revegetation rates based on the Box Ironbark Forest and Heathy Dry Forest EVC benchmarks, which are summarised in **Table 5**. The collection of seed and propagative materials will require a permit under the FFG Act, which will be obtained prior to these activities. The collection of propagative material will be undertaken in accordance with Florabank Guidelines (available from www.florabank.org.au).
- All indigenous trees to be removed or retained will be clearly marked in accordance with the Tree Summary report prepared by Monarc which is based on the Arboricultural Assessment report for Looping 7 (Tree Logic, 2015). Trees to be retained will have clearly visible red paint or flagging and trees to be removed will have green paint or flagging.

Table 5. Targets for propagative revegetation within the construction ROW.

Vegetation community	Canopy plants per hectare	Large shrubs per hectare	Medium shrubs per hectare	Small shrubs per hectare	Total plants per hectare
Box Ironbark Forest	N/A*	-	400	1500	1900
Heathy Dry Forest	N/A*	50	800	2000	2850

* Revegetation within the ROW will not include canopy species as these are considered to pose a risk to the structural integrity of the pipeline as they mature.

Source: (DSE, 2006)

- Trees should be checked for any signs of nesting birds prior to removal. If any fauna are found nesting within the tree, they are to be removed by an appropriately qualified and licensed zoologist/fauna handler and relocated in accordance with any conditions or protocols established by DELWP.
- Any trimming of trees during construction of the pipeline will be undertaken in accordance with the requirements of the Arboricultural Assessment report for Looping 7 (Tree Logic, 2015).
- Once felled, indigenous trees larger than 40cm dbh will have minor branches and foliage removed, be cut into lengths no greater than 10 metres and stored for distribution across the construction ROW during reinstatement. Existing fallen timber will also be collected and removed from the construction ROW before clear and grade and stored with above. Where possible, some small forked branches (about 1m high) will be retained for placement along the side of the reinstated Pipeline Track to deter off-road driving. Subject to the above, vegetation (such as branches, shrubs and small trees) with stems or limbs below 20cm diameter will be mulched onsite and stored for use during reinstatement or as soil protection within Tree Protection Zones. All non-indigenous plant material removed during clear and fell will be disposed of outside the Park.
- Any mulch spread across the ROW during construction is considered likely to provide a potential fire hazard during excavation and welding works. Mulching of standing vegetation will occur as

part of the clear and grade process and be stored to one side of the ROW; mulch will be respread across the ROW during reinstatement.

- Once vegetation has been cleared from the construction area, the ROW will be cleared of the top layer of organic matter (to base soil/rock) and placed to one side.
- A temporary storage area(s) for vegetation retained for use during reinstatement, such as logs and mulch, is to be discussed with Parks Victoria. No material is to be placed on or within retained remnant vegetation within or outside the ROW.
- Offsets will be secured for the removal of remnant vegetation in accordance with the Biodiversity Assessment Guidelines (DEPI, 2013). Offset requirements are specified in the Flora and Fauna Assessment report for Looping 7 (Monarc Environmental, 2015b).

4.3.4 Fauna

The following measures will be implemented to minimise impacts to fauna:

- Prior to vegetation removal, all trees and shrubs to be removed within the construction ROW will be inspected by an experienced and qualified zoologist with relevant DELWP permits. Any dead stags, trees with hollows, fissures, nests or evidence of scats or sap scars will be recorded using a GPS, documented on the Environmental Line List in the CEMP and marked to indicate that a zoologist must be present during their removal.
- If individuals of any threatened fauna species are located during these walkthroughs, their location will be recorded using GPS and the trees/vegetation documented on the Environmental Line List and marked to indicate that a zoologist must be present during removal.
- Any other fauna observed nesting in trees or understorey vegetation will also be recorded using GPS and trees/vegetation documented on the Environmental Line List and marked to indicate that a zoologist must be present during removal.
- Where hollow-bearing trees are to be removed, nest boxes for fauna will be installed in adjacent non-impacted vegetation at least several days prior to tree removal, if practical, otherwise during rehabilitation.
- Any burrows will be checked with an endoscope prior to the clear and grade phase of construction works. If possible, remote sensor cameras will be deployed at the entrance of burrows to determine if they are being utilised by native species.

Once the clear and grade starts, trees bearing hollows or other suitable habitat such as loose bark, will be felled in accordance with the following guidelines:

- The zoologist will carefully inspect hollow-bearing trees identified on the Environmental Line List for fauna using an elevated work platform, and where necessary an endoscope, prior to felling of these trees. Any fauna found will be removed prior to the felling.
- Where possible, fauna will be allowed to leave the area on its own accord. Habitat trees are to be knocked once with an excavator bucket to disturb any resident fauna and encourage it to move out of the tree. The tree will be left for at least 5 minutes to allow time for fauna to move out of the area.
- Any hollow-bearing limbs or trunk sections will be removed by qualified arborists, by carefully using chainsaws under the direction of the zoologist.
- The zoologist will carefully inspect all hollows removed, and those still to be removed, using an endoscope after felling commences. Once all hollows and other habitat are removed, the felling process can continue while the zoologist remains on site.

- All salvaged native fauna will be relocated according to conditions outlined in the DELWP management authorisation. If this cannot be achieved (particularly for highly territorial species), advice will be sought from DELWP whilst the species is within its holding container.
- If any fauna, especially threatened species, are detected during construction, works are to be suspended in that area until the zoologist is able to remove the animal(s) in accordance with the guidelines outlined below.

The moving and release of individuals, if required, will be undertaken by an experienced and qualified zoologist with relevant DELWP permits. The following general guidelines apply:

- Any nocturnal animals captured, will be appropriately housed, and released after dark in locations according to conditions outlined in the DELWP management authorisation.
- Any visibly sick or injured fauna will not be released but will be taken to the nearest Wildlife Victoria vet for treatment. Any dead animals will be frozen and lodged with Museum Victoria as soon as convenient.
- The details of fauna that have been removed and relocated will be documented in a report and submitted to DELWP as part of the *Wildlife Act 1975* Management Authorisation requirements and reported to DEDJTR in the weekly project updates. This report will also be forwarded to Parks Victoria.

4.3.5 Threatened species

The following measures will be implemented to minimise impacts to threatened species:

- Collect seed from all Small-leaf Bush Pea individuals identified within the construction ROW in November/December. Seed collected will be propagated and re-used in revegetation of the construction ROW (refer **Section 4.6**).
- Collect seed from all Western Golden-tip individuals identified within the construction ROW in September/October. Seed collected will be propagated and re-used in revegetation of the construction ROW (refer **Section 4.6**).
- Salvage Late-flower Flax-lily individuals identified within the construction ROW. Salvaged individuals will be propagated in nursery facilities before planting back into the Park or rehabilitated pipeline corridor in more suitable conditions. Where possible, salvage should occur in late autumn or winter.

  Salvage is to be undertaken by experienced botanist with the appropriate DELWP permits.
- Any threatened flora species that occur near to the construction ROW (i.e. within 10 metres) will be marked with wooden stakes and barrier mesh to aid their preservation.
- Clear and grade will not commence before January and reinstatement will be completed by the end of March. By doing so, impacts to Regent Honeyeater, Painted Honeyeater and Swift Parrot are expected to be minimal. Rehabilitation of the construction ROW, including reseeding, will occur as soon as possible after reinstatement during suitable weather conditions.
- Prior to any work on drainage lines, leaf litter on the construction ROW will be raked in search of Brown Toadlets. If toadlets are found amongst the leaf litter they are to be removed and relocated in accordance with conditions outlined in the DELWP management authorisation.
- A description of each threatened fauna species that may be occur within the construction ROW, along with clear photos of their appearance and the protocols to be followed should they be encountered, will be provided to the contractor and displayed in central locations (e.g. contractor lunch room/s) for the duration of works within the Park.

4.3.6 Weed and pest control

The following measures will be implemented to mitigate impacts associated with weeds and pests:

- Prior to clearance, targeted weed control using appropriate herbicides will be undertaken throughout the construction ROW in the Park in spring. Species to be targeted are those considered high-threat or listed as noxious under the *Catchment and Land Protection Act 1995* (**Section 2.3.5**).

  Herbicide application will be undertaken by hand using a knap-sack or spray gun and in calm conditions to avoid off-target damage. Depending on the target species and active ingredient, spraying should generally occur in late winter/early spring before seed is produced and released. Herbicide will not be used around or near water bodies due to the severe impacts it can have on aquatic fauna. Spraying should only be undertaken by personnel experienced in herbicide application and familiar with the identification of weedy and indigenous species.

  Parks Victoria has approved of the proposed weed control methodologies within the National Park. Weed control is planned to commence before construction with an approved sub-contractor starting 23 Nov 2015, after the necessary Parks Victoria Inductions.

- All construction personnel will receive induction training in procedures for personal weed-control hygiene practices, such as removing seeds and mud from clothing and footwear. Procedures will be in line with the Civil Contractors Federation guideline '*A Guide for Machinery Hygiene for Civil Construction*' (CCF, 2011).

4.3.7 Heritage protection

Cultural Heritage Management Plans for Looping 7 are being prepared and once completed any relevant recommendations will be included in this Plan.

4.3.8 Amenity and recreation protection

- Signs will be erected at least one month prior to construction advising the public of access restrictions in the Park during construction. The signs will also provide directions to access sites of interest, such as Magenta Mine, via an alternative route.

4.4 Construction

Construction within the Chiltern section of the Park will be undertaken according to the parameters provided in **Section 3** and the CEMP. It will include excavation of the trench, installation of the pipe and backfilling. This section outlines actions to minimise and mitigate impacts during construction.

To ensure compliance with measures presented in this Management and Rehabilitation Plan and the CEMP, an environmental inspector will be onsite for the entire duration of construction within the Park. The inspector will conduct daily inspections of the construction ROW and provide a weekly report of compliance to APA, Parks Victoria and DELWP.

4.4.1 Land and soil

The following measures will be implemented to minimise impacts to land and soil during construction:

- All wash-down requirements for plant and equipment as outlined in **Section 4.3.2** apply. Any entry of light vehicles will be along the ROW or via authorised entry tracks and will be checked prior to entry and require cleaning with Phytoclean if soil and vegetative matter is on the vehicle.

- Only bedding and padding sand will be brought into the Park for use in supporting the pipe prior to placement in the trench and post placement were the padding sand will be used to protect the pipe coating. It will be certified 100% free of weeds and disease by the supplier prior to entering the Park. All bedding and fill material imported into the National Park will be classified as clean fill in accordance with EPA Publications **IWRG 600:** *Waste Categorization* and **IWRG 621:** *Soil Hazard Categorisation and Management*.
- Only subsoil will be returned to the trench during backfilling. Topsoil will not be used as padding material and remain undisturbed until reinstatement.
- Backfill will be compacted to a level consistent with surrounding soils and to a relative density sufficient to prevent further settlement under natural moisture and load conditions. Depressions and subsidence will be monitored as part of reinstatement activities and in-filled with appropriate material. Trench breakers will be installed on steep slopes in accordance with construction drawings to slow water seepage along the backfilled trench and minimise the potential for erosion or subsidence of the trench.
- All appropriate controls to minimise erosion and sedimentation to land and water outlined in the CEMP for Looping 6 and 7 (Monarc Environmental, 2015d) will be implemented within the Park. Where the risk of erosion and sedimentation is particularly high, such as on slopes greater than 10 degrees in the north of the Park, erosion berms, sediment fences and barriers will be installed along the edge of the construction ROW and trench breakers will be used at regular intervals down the slope in the trench to ensure erosion and surface water is appropriately managed. Staked straw bales may be utilised in steeper sections to the side of Pipeline Track to minimise soil loss during heavy rainfall events and deter off-road driving
- Dust pollution will be managed within the Park in accordance with the CEMP for Looping 6 and 7 (Monarc Environmental, 2015d).

4.4.2 Flora

The following measures will be implemented to minimise impacts to flora during construction:

- All areas outside the construction ROW will be considered out-of-bounds for all machinery, equipment, vehicles and personnel. Flagging or an approved equivalent will be erected on the edge of the ROW and 'No-go' signs placed along its length at regular intervals.
- No materials, stockpiles, waste or site support structures are to be placed outside the construction ROW without the approval of Parks Victoria.
- No topsoil, subsoil, materials or equipment shall be stored in such a way that it impacts retained vegetation.
- A qualified arborist will be onsite during construction to supervise all clear and grade and trenching works and any additional works required within the Tree Protection Zone of a retained tree. For further information see the Arboricultural report for Looping 7 (Tree Logic, 2015).
- Sufficient water and other precautions shall be made at all times whilst works are in progress in accordance with the *Fire Protection Regulations 2004*. No works will occur on-site during Code Red Days. Given the sensitivity of the area to bushfires, no hot works are to occur on Total Fire Ban days without approval from the Country Fire Authority and DELWP. In addition any hot works are to be stopped on days where conditions are assessed to be dangerous (e.g. high winds and dangerous site specific fire risks etc.).

4.4.3 Fauna

The following measures will be implemented to minimise impacts to fauna during construction:

- Any open excavations, including the pipeline trench, must contain aids every 200 metres to enable fauna to escape the trench if they become trapped within it. Such aids include trench ramps, hessian and animal ladders.
- The open trench is to be inspected prior to commencement of work each day for any animals. If any animals are found they are to be removed by a qualified zoologist/s and moved to suitable nearby habitat in accordance with the DELWP management authorisation. Particular attention shall be paid to smaller fauna such as legless lizards and other less mobile small reptiles which may not be able to get out via the trench ramps, hessian or animal ladders.
- The period and length of time that the trench remains open will be minimised, particularly in areas where sensitive habitat has been identified nearby.
- End caps will be placed on all pipe strings to prevent entry of fauna prior to pipe laying.
- Trenches will be checked for fauna prior to pipe laying.
- Noise pollution will be managed within the Park in accordance with the CEMP for Looping 6 and 7 (Monarc Environmental, 2015d).

4.4.4 Weed and pest control

The following measures will be implemented to minimise impacts as a result of weeds or pests during construction:

- All construction personnel will receive induction training in procedures for personal weed-control hygiene practices, such as removing seeds and mud from clothing and footwear. Procedures will be in line with the Civil Contractors Federation guideline '*A Guide for Machinery Hygiene for Civil Construction*' (CCF, 2011).

4.4.5 Heritage protection

Cultural Heritage Management Plans for Looping 7 are being prepared and, once completed, any relevant recommendations will be included in this Plan.

4.5 Post-construction

Post-construction will involve reinstatement of soils to create a stable landform, installation of marker posts and cathodic protection points and return of fauna habitat to the construction ROW.

Seeding of the construction ROW will be undertaken when environmental conditions are suitable (i.e. late autumn or winter). Post-construction works, commencing with reinstatement of top soil after backfilling of the trench, will be completed within 1 month from backfilling the pipeline trench.

4.5.1 Land and soil

The following measures will be implemented to ensure effective reinstatement of soils:

- Soil surfaces will be re-profiled to original or stable contours, re-establishing surface drainage lines and other land features. Site specific stabilisation measures may be necessary to prevent slumping or erosion.

- Reinstatement of top soil will occur within a week of construction being completed and be spread over re-profiled subsoils. Revegetation areas will be shallow ripped (200mm deep) with tynes 200 to 300mm apart, prior to respreading topsoil and mulch.. Care will be taken to ensure top soil is spread evenly across all parts of the construction ROW except where the Pipeline Track will be reinstated. Given it is critical the seed bank within the soil is redistributed evenly across the construction ROW, this will be undertaken by hand if required. In rocky areas where even distribution of soil is not achievable, mulch sourced from vegetation removed during clear and grade will be spread thinly (e.g. 2-3 cm) over the soil to assist with soil stability and moisture retention.
- In steep sections of the construction ROW, where the slope exceeds 10 degrees, mulch sourced from clear and grade activities will be spread in one metre wide strips perpendicular to the pipeline across the construction ROW. Strips will be no more than 30 metres apart and at least ten centimetres deep. The mulch will help slow run-off down the slope and the loss of top soil and the associated seed bank. Only mulch sourced from with the construction ROW will be used. Should mulch be unavailable, logs from vegetation clearance activities or biodegradable fibre-logs or matting made from weed-free materials (such as coconut fibre) will be used as an alternative.
- Reinstatement of Pipeline Track within the construction ROW will be undertaken in consultation with Parks Victoria. Reinstatement will prioritise the use of material sourced onsite as a result of construction excavations (e.g. excess spoil and crushed rock). The reinstated track will be equivalent to or better than what existed prior to construction. Should material be required to be introduced from outside the Park, it will only be done with the permission of Parks Victoria and be certified weed and disease free.
- Reinstatement and revegetation of waterway crossings will be undertaken in accordance with the SEMP prepared specifically for waterways crossings and approved by NECMA (Monarc Environmental, 2015c).
- On completion all surplus materials, construction equipment and waste must be removed and the site left in a clean and tidy condition.

4.5.2 Flora

Revegetation of the ROW will be achieved through a combination of reseeding with common, indigenous perennial grass species, promoting germination of the existing seed bank through the application of treatments such as ‘smoke water’ and supplementary plantings from propagated seed sourced from the Park. Reseeding will provide ground cover in the short-term, helping to prevent soil erosion and weed invasion, while the treatments will encourage previously existing life forms and species diversity to return in the medium to long term.

Due to many indigenous grasses being predominantly self-pollinating, they have been shown to have relatively high levels of genetic diversity within the same population and/or at very small scales (i.e. less than a hectare) (Broadhurst et al., 2008). As a result, grass seeds need not be sourced from within the Park, as is the recommendation with woody species, however they should be from sites in the local region with similar environmental conditions (i.e. soils, rainfall, climate etc.) to maximise germination and survival rates.

The following measures will be implemented to restore vegetation to the construction ROW immediate following construction:

- The construction ROW will be seeded with a minimum of five different species of native grasses indigenous to the Park at a time conducive to an effective seed strike. Only species listed in **Appendix E** are to be used in seeding activities and the seed must been sourced from the North

East Catchment region and sites with similar environmental conditions. Seed will be sourced from a reputable supplier (e.g. Greening Australia and/or a local seed bank) and confirmed to be free of any non-indigenous seed or other contaminants.

- Within two weeks of seeding, the construction ROW will be treated with smoke water, such as REGEN 2000 Smoked Vermiculite, at the recommended rate for broad acre coverage. Smoke water contains many of the compounds released during bushfires that are known to stimulate germination in a broad range of indigenous species. This will promote germination of both the seeded grasses and many species in the soil bank. No additional treatments, such as fertilisers, are to be used unless first approved by Parks Victoria.

  The smoke water can be applied during seeding if compatible equipment is used.

- The use of tubestock plantings in contour bands shall be utilised in erosive sections to help trap sediments and aid soil binding and overall revegetation, especially in steep sections near Pipeline Track eg before cut off drains. Suitable seed set species that have appropriate tussocky form include: *Xerochrysum viscosum* (Sticky Everlasting), *Poa seiberiana*, *Dianella revoluta*, *Hardenbergia violacea* - and shrubs *Acacia verniciflua* and *A acinacea*.

- If weather conditions prevent the prompt reseeding of the construction ROW, controls will be put in place to manage erosion, sedimentation and weeds until such time that reseeding can occur.

4.5.3 Fauna

The following measures will be implemented to restore fauna habitat to the construction ROW:

- After seeding and the germination treatment have been completed, the large logs and fallen timber stockpiled during clear and grade will be evenly distributed across the construction ROW. Timber will be spread in such a manner as to discourage vehicle access on the construction ROW outside of the reinstated Pipeline Track.

4.5.4 Weed and pest control

The following measures will be implemented to prevent the impacts associated with weeds and pests:

- Where there is a delay of more than one month between reinstatement of the top soil and seeding of the construction ROW in April or May, targeted weed control will be undertaken as required throughout the right of way to prevent the establishment of any high threat species or large infestations.

4.5.5 Heritage protection

Cultural Heritage Management Plans for Looping 7 are being prepared and, once completed, any relevant recommendations will be included in this Plan.

4.5.6 Amenity and recreation protection

- All roads, signs and tracks will be restored to pre-construction conditions. Additional signage will be installed where the construction ROW enters the Park from a public road advising vehicles and traffic to keep to all formed tracks and avoid disturbance of the construction ROW.

4.6 Rehabilitation (1 - 10 years)

Rehabilitation involves management of the pipeline corridor to ensure the diversity and cover of remnant vegetation, and the fauna habitat it supports, returns to the area after reinstatement is complete. This will involve supplementary plantings, weed control and ongoing monitoring. Depending on the results of

the rehabilitation, additional measures may be required to ensure a successful outcome. Issues requiring further management will be identified during monitoring and an appropriate response developed in close consultation with Parks Victoria, DELWP and the Friends of Chiltern - Mt. Pilot National Park.

Given the significance and sensitivity of the Park, a rehabilitation management and monitoring period of ten years has been selected as it aligns with the management and liability periods for offset sites under the permitted clearing guidelines.

4.6.1 Monitoring

An audit of the pipeline corridor will be completed immediately after soil reinstatement and seeding has been completed (i.e. at the end of the post-construction phase) and then every 6 months for the first three years and yearly for the remaining 7 years. In addition, a detailed site assessment to measure the progress of revegetation will be undertaken at 6 months, 18 months, 3 years, 5 years and 10 years after soil reinstatement. The revegetation assessment will always be undertaken in late spring to ensure consistency of results and compatibility with the baseline data recorded in Spring 2014 and will be undertaken by a qualified botanist. The assessment will involve quadrat plots to assess vegetation cover and diversity and a walkthrough of the former construction area.

The results of the revegetation assessment and general audits will be compared against the KPI targets outlined in **Table 6**. This will provide a measure of the success of environmental management and rehabilitation following pipeline construction, and ensure the aim stated in **Section 4.1** is achieved.

APA will liaise with Parks Victoria throughout the rehabilitation process to ensure disturbed areas are rehabilitated to the performance indicators of the management plan. Ongoing monitoring information will be supplied to Parks Victoria during the rehabilitation and regeneration phases.

Should any major issues be identified during monitoring, including a failure to meet the recommended KPIs across less than 80% of the quadrats monitored, APA will immediately advise Parks Victoria and in collaboration develop and implement appropriate actions to address them.

4.6.2 Land and soil

The following measures will be implemented to ensure stability of the former construction area:

- Where soil erosion and sediment issues are identified during monitoring, appropriate control measures (e.g. diversion berms, geotextile matting, silt fences and sediment basins) will be installed as necessary. The erosion controls will be maintained for up to 12 months or as required until the risk of further impacts are considered negligible.
- Measures to secure the rehabilitated area following reinstatement and revegetation of the construction ROW will be discussed with Parks Victoria.

4.6.3 Flora

The following measures will be implemented to promote revegetation within the former construction area:

- Seed or cuttings collected from the Small-leaf Bush Pea, Western Golden-tip and other plants within the construction ROW, will be propagated offsite in appropriate nursery facilities using weed free planting medium. These germinates will be planted back into the pipeline corridor in late autumn or winter the year following soil reinstatement. Plantings will target areas of poor indigenous vegetation cover or species diversity and will be matched with the EVC from which they were harvested. Plantings should be clustered in high densities (i.e. 3 or more plants per square metre) to account for losses and create structural heterogeneity across the former ROW. If

prolonged periods of dry weather are experienced immediately after planting occurs, plants may need to be watered regularly to ensure survival. The amount and frequency of water, if required, will be determined during the visual inspections of the ROW. For further guidance on planting, see Greening Australia (2003), DSE (2006) and Flora Bank guidelines at www.florabank.org.au.

- Where very low levels of germination are recorded, additional seed/cutting collection, propagation and planting to the pipeline corridor will occur until vegetation covers and diversity meet benchmarks set in **Appendix C**.

4.6.4 Weed and pest control

The following measures will be implemented to mitigate impacts associated with weeds and pests:

- Weed control targeting high-threat and noxious weeds will be undertaken throughout the pipeline corridor and any disturbed adjoining land on the following schedules:
    - 0 – 3 years: four visits each year at times appropriate for weed control based on the prevalence and occurrence of weed species.
    - 3 - 10 years: two visits each year at times appropriate for weed control based on the prevalence and occurrence of weed species.

  Weed control will involve targeted herbicide applications by hand using a knap-sack or spray gun in calm conditions to avoid off-target damage. Weed control must be undertaken by experienced personnel familiar with the identification of weedy and indigenous species in this area.

  Where large outbreaks of high-threat weeds are observed, additional weed control will be undertaken to address these issues immediately (i.e. within one month).

  Specific weed control guidelines for high threat weeds identified within the former ROW are provided in **Appendix F**.

- During weed control activities, evidence of pest species (e.g. fauna scats and other signs of presence) will be visually monitored. Should extensive pest activity resulting in impacts to land, water, vegetation or fauna habitat be observed, appropriate pest control will be undertaken to address the issue.

Table 6. Key performance indicators to measure success of rehabilitation over 10 year period

KPI	Assessment method	Assessment targets				
		6 months	18 months	3 years	6 years	10 years
Remnant vegetation cover	Five 10 x 10 metre quadrats randomly placed in each EVC	>30% cover of perennial indigenous grasses	>40% cover of perennial indigenous grasses AND >10% of pre-construction cover across each life form (**Appendix C**)	>60% cover of perennial indigenous grasses AND >40% of pre-construction cover across each life form (**Appendix C**)	>60% of pre-construction cover across each life form (**Appendix C**)	>85% of pre-construction cover across each life form (**Appendix C**)
Remnant vegetation species diversity		>2 indigenous grass species in each quadrat	>4 indigenous grass species AND >25% of pre-construction species diversity across each life form (**Appendix C**)	>5 indigenous grass species AND >50% of pre-construction species diversity across each life form (**Appendix C**)	>75% of pre-construction species diversity across each life form (**Appendix C**)	>90% of pre-construction species diversity across each life form (**Appendix C**)
Weed cover		<25% cover of high threat species, <25% for all other weed species	<10% cover of high threat species, <25% for all other weed species	<5% cover of high threat species, <20% for all other weed species	<15% weed cover	<10% weed cover
Weed diversity		3 or less high threat species, <20 weed species total	No more than 2 high threat species, <15 weed species total	No more than 1 high threat species, <10 species in each quadrat	No high threat species, <7 weed species in each quadrat	No high threat species, <5 weed species in each quadrat
Pest prevalence	General observation	No pest harbour within the ROW. No signs of frequent use by pest species.				
Erosion and subsidence	General observation	No major instances of surface erosion by wind or water and soil subsidence within the ROW.				

5 COMMUNICATION

5.1 Stakeholder Consultation

Brian Pritchard (Parks Victoria Ranger Team Leader) will be contacted at least 7 days prior to any works commencing within the National Park boundaries to arrange a site meeting to discuss all conditions and undertake a contractor site induction. Brian Pritchard will remain the primary Parks Victoria contact for all operational requirements within the Park associated with the project. For urgent matters when Brian is unavailable, Andrew McDougall (Area Chief Ranger) or Daniel McLaughlin (District Manager) can be contacted for assistance.

Key contact numbers relevant to the project and works within the boundary of the Park are provided in Table 7.

Table 7. Project Contact Numbers

Position Title	Contact Phone Numbers
APA	
APA Group - Vic -Office	(03) 9797 5222
APA Central Control Room	1800 686 634
Project Manager - Richard Cherney	(03) 9797 5137 / 0407 821 223
Project Land Co-ordinator - Andrew Mills	(03) 9797 5168 / 0401 061 271
Land Services Team Leader -	To be advised
Senior Program Manager -	To be advised
Construction Contractor	
Head Office	To be advised
Project Manager	To be advised
Safety Manager	To be advised
Environmental Advisor	To be advised
Parks Victoria	
Head Office (Beechworth Office)	To be advised
Brian Pritchard (Parks Victoria Ranger Team Leader)	0409 533 220
Andrew McDougall (Area Chief Ranger – Hume)	0427 867 141
Daniel McLaughlin (District Manager – Northern Rivers)	0407 529 723
DELWP Hume Region	
Wendy Sherlock, Manager Healthy Landscapes	To be advised
Glen Johnson, Senior Biodiversity Officer	02 6043 7924 / 0418 501 936

Parks Victoria and DELWP Hume Region will also be kept apprised of the program of construction works on the following schedule:

- One month prior to commencement of works within the Park;
- Prior to commencement of tree felling;

- Prior to commencement of clear and grade;
- Prior to commencement of trenching;
- On completion of reinstatement works;
- Prior to commencement of reseeding;
- On completion of reseeding works.

Prior to commencement of works, a notice will be placed in a local newspaper generally circulating in the region advising of the works with the Park, the construction schedule and relevant management measures that will ensure the protection of the Park's values and public safety. Residents of Chiltern will also be advised of the works via a letter drop.

In addition, an invitation will be extend to Parks Victoria and DELWP regional officers to attend all monitoring site assessments and audits during the rehabilitation phase of the project.

5.2 Incident Reporting

'Incidents' are defined as unplanned events with undesirable consequences. The consequences of such incidents may result in environmental damage or asset loss. 'Near misses' are extraordinary events that could have reasonably resulted in an incident.

Any incidents that occur during construction shall be managed and reported in accordance with the requirements of the CEMP for the project. Parks Victoria shall be kept apprised of any reportable incidents that occur within the boundaries of the Park.

5.3 Reporting Responsibilities

The Construction Contractor's Project Manager is responsible for the initial reporting of significant non-compliances with this Management Plan or relevant legislation to the APA Project Manager. In turn the APA Project Manager will report such events to the relevant statutory authorities in accordance with legislative requirements.

The APA Project Manager is the primary contact for government environmental agency officers with regard to environmental issues in the field whilst all contacts at a senior level will be through the Senior Program Manager-APA.

5.4 Operations Environment Management Plan

APA has an approved Operations Environment Management Plan (OEMP) that relates to the operation of licensed pipelines. Once construction is complete, pipeline operation will be in accordance with the approved OEMP as required by the *Pipelines Act 2005*. The implementation of the OEMP will be the responsibility of APA Transmission Operations and will outline the environmental monitoring program for the life of the asset. Where the operational period of the pipeline overlaps the construction rehabilitation period, both the OEMP and this Management and Rehabilitation Plan will be used to guide management of the pipeline corridor.

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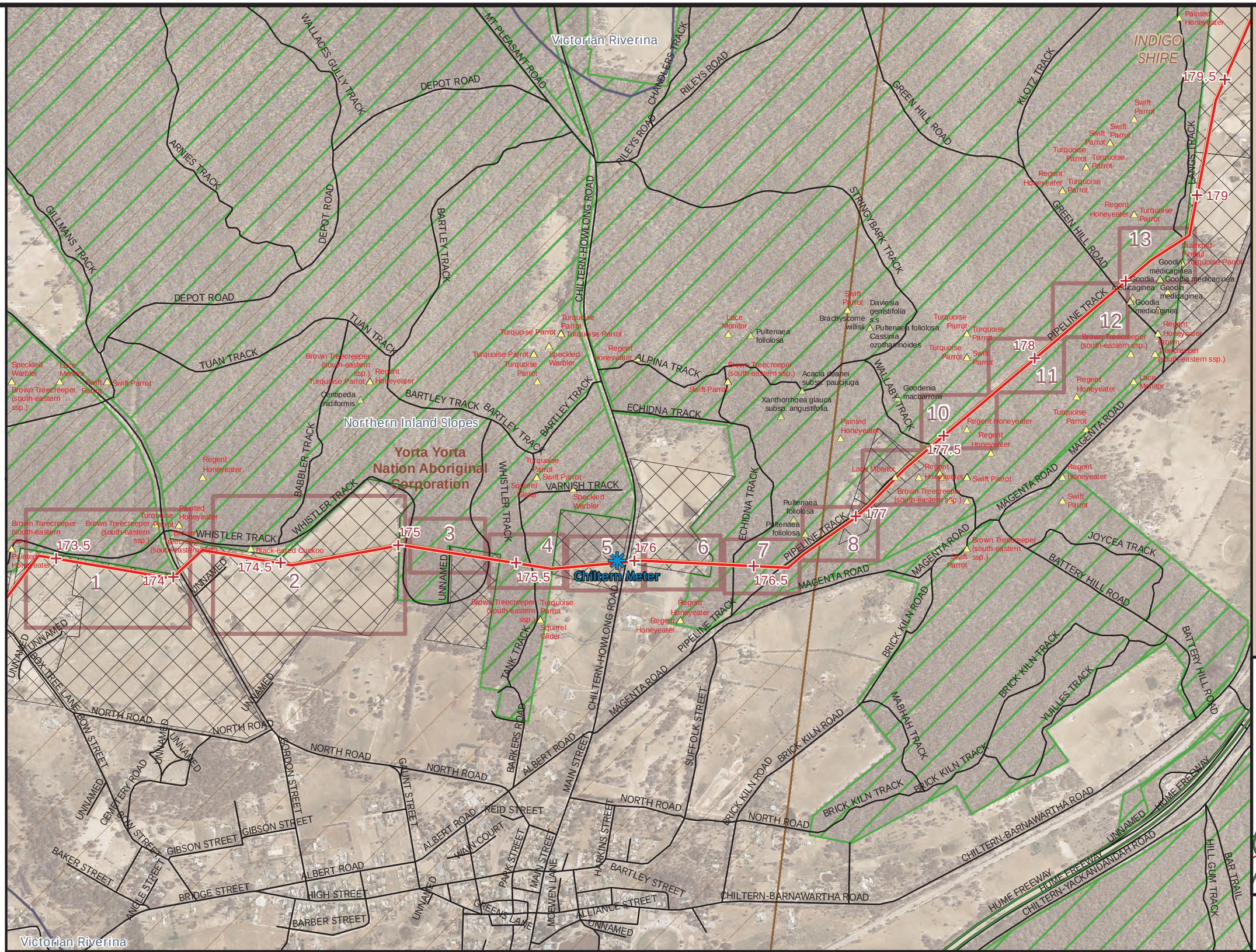
Tardis 2015a/b - Insert CHMP references once complete.

APPENDICES

APPENDIX A – CHILTERN - MT. PILOT NATIONAL PARK (CHILTERN SECTION) OVERVIEW



monarc ENVIRONMENTAL

Client: APA GasNet
VNIE
Map source: Monarc
Author: Justin Pegg
Date: 31/07/2015

N

Victorian Northern Interconnect Expansion

Chiltern-Mount Pilot National Park Overview

Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: GDA 1994

A3

Figure 1

APPENDIX B – ECOLOGICAL FEATURES

APPENDIX C – SPECIES DIVERSITY AND COVER BENCHMARKS FOR MONITORING

Habitat hectare assessments were undertaken in accordance with the DELWP vegetation quality assessments methodology throughout the ROW. The results for each of the assessment criteria are shown against each habitat zone in **Appendix B**.

For benchmarking purposes the following tables detail life form diversity and cover for patches of Heathy Dry Forest and Box Ironbark Forest in the Park. These values are based on data derived from the habitat hectare assessments undertaken in Spring 2014 along the ROW. For further information, see the Flora and Fauna Assessment report for Looping 7 (Monarc 2015).

Life form coverage and diversity for each EVC give a simple yet accurate depiction of pre-disturbance floral biodiversity. The success of rehabilitation will be measured against these values through regular monitoring.

Life form	IT	MS	SS	PS	LH	MH	SH	LTG	MTG	MNG	SC
Box Ironbark Forest (% cover)	4	14	9	1	4	8	2	2	11	-	0
Box Ironbark Forest (no. species)		11	12	3	3	10	4	4	15	-	1
Heathy Dry Forest (% cover)	6	15	9	1	2	3	1	4	24	2	-
Heathy Dry Forest (no. species)		7	9	2	1	8	5	3	11	2	-

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APPENDIX D – TARGET SPECIES FOR SEED COLLECTION IN PARK

Scientific name	Common Name	Lifeform	Flowers
Acacia acinacea s.s.	Gold-dust Wattle	MS	Aug-Nov
Acacia aculeatissima	Snake Wattle	SS	Jul - Sept
Acacia paradoxa	Hedge Wattle	MS	Aug - Nov
Acacia pycnantha	Golden Wattle	MS	Jul - Nov
Acacia verniciflua s.l.	Varnish Wattle	MS	Aug - Nov
Cassinia arculeata	Common Cassinia	MS	Nov - Mar
Chrysocephalum semipapposum	Clustered Everlasting	MH	Oct - May
Daviesia latifolia	Hop Bitter-pea	MS	Sept - Dec
Daviesia leptophylla	Narrow-leaf Bitter-pea	MS	Aug - Nov
Dianella revoluta var. *revoluta s.l.*	Black-anther Flax-lily	LNG	Sept - Jan
Dianella tarda	Late Flowering Flax Lily	LTG	Sept - Jan
Dillwynia cinerascens s.l.	Grey Parrot-pea	SS	Aug - Nov
Dillwynia glaberrima	Parrot Pea	SS	Aug - Dec
Dillwynia phyllicioides	Small leaf Parrot Pea	PS	Sept - Dec
Dillwynia sericea	Showy Parrot-pea	SS	Aug - Dec
Hardenbergia violacea	Purple Coral Pea		Apr - Sept
Leptorhynchos squamatus	Scaly Buttons	MH	Sept - Dec
Leucochrysum albicans s.l.	Hoary Sunray	MH	Aug - Mar
Pultenaea foliolosa	Small Leaf Bush-pea	SS	Oct - Nov
Senecio quadridentatus	Cotton Fireweed	LH	Sept - March
Stylidium graminifolium s.l.	Grass Triggerplant	MH	Aug - Nov
Xanthorrhoea minor subsp. *lutea*	Small Grass-tree	LTG	Oct - Apr
Xerochrysum viscosum	Shiny Everlasting	MH	Aug - Mar

APPENDIX E – GRASS SPECIES SUITABLE FOR DIRECT SEEDING

Scientific Name	Common Name
Anthosachne scabra s.l.	Common Wheat-grass
Aphanes australiana	Australian Piert
Aristida behriana	Brush Wire-grass
Asperula conferta	Common Woodruff
Asperula scoparia subsp. scoparia	Prickly Woodruff
Austrostipa aristiglumis	Plump Spear-grass
Austrostipa densiflora	Dense Spear-grass
Austrostipa nodosa	Knotty Spear-grass
Austrostipa scabra	Rough Spear-grass
Austrostipa scabra subsp. falcata	Rough Spear-grass
Austrostipa scabra subsp. scabra	Rough Spear-grass
Austrostipa semibarbata	Fibrous Spear-grass
Chloris truncata	Windmill Grass
Dichelachne crinita	Long-hair Plume-grass
Dichelachne hirtella	Hairy Plume-grass
Dichelachne micrantha	Small-seed Plume-grass
Dichelachne rara	Common Plume-grass
Dichelachne sciurea spp. agg.	Short-hair Plume-grass
Eragrostis brownii	Common Love-grass
Juncus subsecundus	Finger Rush
Pentapogon quadrifidus var. quadrifidus	Five-awned Spear-grass
Poa sieberiana	Grey Tussock-grass
Rytidosperma auriculatum	Lobed Wallaby-grass
Rytidosperma bipartitum s.l.	Leafy Wallaby-grass
Rytidosperma caespitosum	Common Wallaby-grass
Rytidosperma erianthum	Hill Wallaby-grass
Rytidosperma fulvum	Copper-awned Wallaby-grass
Rytidosperma geniculatum	Kneed Wallaby-grass
Rytidosperma indutum	Shiny Wallaby-grass
Rytidosperma pallidum	Silvertop Wallaby-grass
Rytidosperma penicillatum	Weeping Wallaby-grass
Rytidosperma pilosum	Velvet Wallaby-grass
Rytidosperma racemosum var. racemosum	Slender Wallaby-grass
Rytidosperma setaceum var. setaceum	Bristly Wallaby-grass
Rytidosperma tenuius	Purplish Wallaby-grass

APPENDIX F – WEED CONTROL

The following detail methods for control of high threat weeds identified on the construction footprint.

Rehabilitation in the Park depends on regeneration of many significant species with woody structures such as orchids, lilies, trees and shrubs. Residual molecules such as Picloram, and extremely volatile solutions such as Tryclopyr floated as an ester have been avoided.

Acacia baileyana

This plant is best hand pulled in wet weather while young. Due to the size and spread of more mature plants spraying is not recommended. Larger plants should be controlled using the 'cut & paint' method, whereby the stem or trunk is cut as low to the ground as possible and painted with neat Glyphosate within 30 seconds (to ensure the poison is drawn down to the roots of the plant).

Asparagus asparagoides

As this species regenerates from underground tubers, it is best controlled using the chemical Metsulfuron-Methyl 66g/kg at 1g/10L. A wetting agent is recommended when spraying due to the hydrophobic nature of the leaves. Adding Glyphosate at a low rate of 10ml/10L will increase effectiveness of the herbicide mix while maintaining its selectivity.

As effective kill depends on the amount of poison drawn into the tubers through the leaves, this plant is best sprayed when foliage is at its largest in October (flowering and before fruiting).

Patches of this species should be spot sprayed using a knapsack by experienced operators.

Dactylis glomeratus

This plant is somewhat resilient to certain herbicides and can become a management issue if not initially controlled effectively and before herbicide resilience is affected.

Patches of this species should be spot sprayed using a knapsack by experienced operators. If initial control is not effective, infestations should be manually removed. Subsequent germinants may be sprayed.

The specific Fluasifop-p, and the non-specific Glyphosate 340g/l at the label rate of 100ml/10L can return poor results when used to control this species. It is recommended that a rate of 200ml/10L be used in conjunction with a wetting agent to ensure an effective kill.

Anthoxanthum, Ehrharta erecta, Holcus lanatus, Hordeum sp., Lolium ridgidum, lollium perennaea and Vulpia bromoides

The non-specific Glyphosate 340g/l at 100ml/10L, and grass specific Fluasifop-p 128g/l at 50g/10L both provide effective results with this species.

All Poa spp. are very sensitive to Glyphosate as are many forbes and woody species in the early stages of regeneration. Where Poa sp., forbes or immature woody plants occur it is recommended that Fluasifop-p be used so as off-target losses of indigenous forbs and woody species is minimised.

Panic Veldtgrass Ehrharta erecta

This species flourishes in part-shade as provided by Cherry Ballart. Panic Veldt grass has a unique ability to germinate and produce viable seed within weeks; it is effectively matt-forming and competes with many less vigorous indigenous species. Where this species requires control it is recommended that a follow up pass is undertaken around a month after initial control.

Alternatively, to further minimise off target losses a defoliant such as glufosinate-ammonium 200 g/L (Basta©) at a rate of 45ml/10L may be applied to infestations of these grassy species on a yearly basis. These species are heavily reliant on the previous 1-2 years seed set for the continuation of infestations. Using a defoliant such as Basta mimics a burn and removes all non-woody plant structures including grasses reproductive assemblies and negating that years seed set.

Control should occur in late spring just prior to or during flowering.

Coniza bonarensis*, *Gallium aparine*, *Hypericup perforatum*, *Plantago lanceolata*, *Verbuscum thapsus

To minimise off target losses sporadic occurrences of these broadleaf species may be best manually controlled using hand tools.

Where larger infestations occur a broadleaf selective herbicide such as MCPA 750 g/L at a rate of 60ml/10L may be applied.

Control should occur in before flowering in spring.

Rosa rubiginosa

Control of this species in sensitive areas is best effected by the 'cut % paint' described for *Acacia baleyana* above.

Trifolium repens

Given its ability to re-emerge from bulb like structures, control of this species requires a herbicide capable of killing all plant structures.

This plant is best controlled by spot spraying using the compound Metsulfuron-Methyl 66g/kg at 1g/10L. A wetting agent is recommended when spraying due to the hydrophobic nature of the leaves.

Due to the ability to kill woody plants, this herbicide must be applied with extreme caution by experienced operators. Herbicide should be dripped rather than sprayed to avoid off target losses.

APPENDIX G – VBA THREATENED FLORA RECORDS FOR THE CHILTERN SECTION OF THE PARK

Scientific Name	Common Name	Latest Record	EPBC Act	FFG Act	Advisory list
Acacia deanei subsp. deanei	Deane's wattle	2006		L	En
Acacia deanei subsp. paucijuga	Deane's Wattle	1998			R
Acacia doratoxylon	Currawang	1993			R
Acacia triptera	Spur-wing Wattle	1989			R
Acianthus collinus	Hooded Mosquito-orchid	2000		L	Vu
Allocasuarina luehmannii	Buloke	1981		L	En
Brachyscome gracilis	Dookie Daisy	2000		L	Vu
Brachyscome willisii	Narrow-wing Daisy	1987			R
Caladenia concolor	Crimson Spider-orchid	2000	Vu	L	En
Calochilus imberbis	Naked Beard-orchid	1981			R
Cassinia ozothamnoides	Cottony Cassinia	1992			Vu
Centipeda nidiformis	Cotton Sneezeweed	1979			R
Daviesia genistifolia s.s.	Broom Bitter-pea	2000			R
Dipodium hamiltonianum	Yellow Hyacinth-orchid	2009		L	En
Eucalyptus sideroxylon subsp. sideroxylon	Mugga	2011			R
Goodenia macbarronii	Narrow Goodenia	2004		L	Vu
Goodia medicaginea	Western Golden-tip	2004			R
Grevillea rosmarinifolia	Rosemary Grevillea	1981			P
Indigofera adesmiifolia	Tick Indigo	2005			Vu
Prasophyllum sp. aff. validum A	Woodland Leek-orchid	2009			En
Pterostylis bicolor	Black-tip Greenhood	2006			PK
Pultenaea foliolosa	Small-leaf Bush-pea	2004			R
Senecio garlandii	Woolly Ragwort	2005		L	En
Swainsona recta	Mountain Swainson-pea	2001	En	L	En
Xanthorrhoea glauca subsp. angustifolia	Grey Grass-tree	2002		L	En

Source: Victorian Biodiversity Atlas (DELWP, 2015c).

Key: CE = Critically Endangered; En = Endangered; Vu = Vulnerable; L = Listed; R = Rare; PK = Poorly Known.

[1] Species listed as Matters of National Environment Significance under the Australian Government's Environment Protection and Biodiversity Conservation Act 1999.

[2] Species listed as Threatened under the Victorian Government's Flora and Fauna Guarantee Act 1988.

[3] Species listed on the Victorian Department of Environment, Land, Water and Planning's 'Advisory List of Rare or Threatened Plants in Victoria'.

APPENDIX H - VBA THREATENED FAUNA RECORDS FOR THE CHILTERN SECTION OF THE PARK

Scientific Name	Common Name	Latest Record	Location	FFG	Vic	EPBC
Amphibians						
Pseudophryne bibronii	Brown Toadlet	2005	Allnations Road: Chiltern-Mt. Pilot National Park	L	En	
Mammals						
Petaurus norfolcensis	Squirrel Glider	1999	Chiltern Box-Ironbark Nat Park-Bullant Track	L	En	
Phascogale tapoatafa	Brush-tailed Phascogale	2005	Chiltern-Mt. Pilot NP/Slaughteryard Gap Rd	L	Vu	
Birds						
Alcedo azurea	Azure Kingfisher	1987	Chiltern Park		NT	
Anas rhynchotis	Australasian Shoveler	2008	Barnawartha Sewage Ponds adj. to Chiltern NP and Ryan's Rd. Dam		Vu	
Anthochaera phrygia	Regent Honeyeater	2008	Chiltern; near Klotz and Langs Tracks	L	CE	En
Ardea modesta	Eastern Great Egret	1999	Chiltern Ironbark NP	L	Vu	
Aythya australis	Hardhead	2001	Chiltern Ironbark NP		Vu	
Biziura lobata	Musk Duck	1985	Chiltern S.P.		Vu	
Burhinus grallarius	Bush Stone-curlew	1988	Chiltern State Forest	L	En	
Calamanthus pyrrhopygius	Chestnut-rumped Heathwren	2013	Chiltern National Park	L	Vu	
Chrysococcyx osculans	Black-eared Cuckoo	2008	Bartley's Block; Chiltern-Mt. Pilot NP		NT	
Chthonicola sagittatus	Speckled Warbler	2012	Chiltern National Park	L	Vu	
Cinclosoma punctatum	Spotted Quail-thrush	1984	10' block containing Cheesley Hill		NT	
Circus assimilis	Spotted Harrier	2004	Lappins Dam: Chiltern-Pilot Nat. Pk.		NT	
Climacteris picumnus victoriae	Brown Treecreeper (south-eastern ssp.)	2013	Frogs Hollow		NT	
Gallinago hardwickii	Latham's Snipe	1975	10' block containing Chiltern State Forest		NT	
Grantiella picta	Painted Honeyeater	2011	Chiltern National Park	L	Vu	
Hirundapus caudacutus	White-throated Needletail	2005	Bartleys Block: Chiltern Nat. Pk		Vu	
Lathamus discolor	Swift Parrot	2010	Honeyeater Picnic Area, Chiltern-Mt. Pilot NP	L	En	En

Scientific Name	Common Name	Latest Record	Location	FFG	Vic	EPBC
Lophoictinia isura	Square-tailed Kite	2006	Chiltern Nat. Pk.: Cnr Klotz Tk. & Langs Tk.	L	Vu	
Melanodryas cucullata cucullata	Hooded Robin	2008	Robin Corner, Chiltern N. Pk.	L	NT	
Neophema pulchella	Turquoise Parrot	2012	Chiltern National Park	L	NT	
Ninox connivens connivens	Barking Owl	2013	Chiltern National Park	L	En	
Ninox strenua	Powerful Owl	1996	Chiltern Regional Park	L	Vu	
Nycticorax caledonicus hillii	Nankeen Night Heron	1975	10' block containing Chiltern State Forest		NT	
Oreoica gutturalis gutturalis	Crested Bellbird	1991	Chiltern State Park	L	NT	
Oxyura australis	Blue-billed Duck	1986	Chiltern Park	L	En	
Phalacrocorax varius	Pied Cormorant	1975	10' block containing Chiltern State Forest		NT	
Platalea regia	Royal Spoonbill	1975	10' block containing Chiltern State Forest		NT	
Plegadis falcinellus	Glossy Ibis	1975	10' block containing Chiltern State Forest		NT	
Pomatostomus temporalis temporalis	Grey-crowned Babbler	2011	Battery Hill Rd, Chiltern	L	En	
Porzana pusilla palustris	Baillon's Crake	1984	10' block containing Cheesley Hill	L	Vu	
Stagonopleura guttata	Diamond Firetail	2012	Chiltern National Park	L	NT	
Todiramphus pyrropygia pyrropygia	Red-backed Kingfisher	1985	Chiltern		NT	
Turnix velox	Little Button-quail	1988	Chiltern Park		NT	
Reptiles						
Chelodina longicollis	Common Long-necked Turtle	2000	Skeleton Hill Trail Chiltern Box Ironbark Nat Pk		DD	
Pogona barbata	Bearded Dragon	2010	Skeleton Hill Track near Ballarat Road		Vu	
Ramphotyphlops proximus	Woodland Blind Snake	2008	Kltz and Lang's tracks; Chiltern		NT	
Varanus varius	Lace Monitor	2010	Skeleton Hill Track, Chiltern National Park		En	
Vermicella annulata	Bandy Bandy	1987	3 km east of Chiltern: Frogs Hollow	L	Vu	

Source: Victorian Biodiversity Atlas (DELWP, 2015c).

Key: CE = Critically Endangered; En = Endangered; Vu = Vulnerable; L = Listed; R = Rare; NT = Near Threatened; DD = Data Deficient.

[1] Species listed as Matters of National Environment Significance under the Australian Government's Environment Protection and Biodiversity Conservation Act 1999.

[2] Species listed as Threatened under the Victorian Government's Flora and Fauna Guarantee Act 1988.

[3] Species listed on the Victorian Department of Environment, Land, Water and Planning's 'Advisory List of Rare or Threatened Plants in Victoria'.