CENTENNIAL

Construction Flora and Fauna Management Sub-Plan

Mandalong 33 kV Power Line

MEMS-CEMP-8190-CFFMP- 8192

November 2020

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Glossary

Term	Definition
BCD	Biodiversity and Conservation Division of Department of Planning, Industry and Environment.
BDAR	Biodiversity Development Assessment Report.
Blue Book	Managing Urban Stormwater: Soils and Construction – Volume 1, 4th Edition and Volume 2C (Landcom NSW).
CEMP	Construction Environmental Management Plan.
Centennial Mandalong	Centennial Mandalong Pty Limited.
Centennial Environmental Representative	A suitably qualified and experienced person employed by Centennial Coal for the duration of construction. The principal point of advice in relation to all questions and complaints concerning environmental performance.
Centennial Project Manager	A suitably qualified and experienced person employed by Centennial Coal to manage all elements of the Project for the duration of construction.
CESCMSP	Construction Erosion and Sediment Control Management Sub-Plan.
CFFMSP	Construction Flora and Fauna Management Sub-Plan.
Construction Zone	The work area including pole sites and access tracks.
Contractor	The contracting company engaged by Centennial Mandalong to undertake the construction works.
DPIE	Department of Planning, Industry and Environment.
DPIE Water	Water Division within the Department of Planning, Industry and Environment.
DoE	Commonwealth Department of Environment.
Resources Regulator	Department of Planning, Industry and Environment, Resources Regulator.
EMS	Environmental Management Strategy.
Environmental aspect	Defined by AS/NZS ISO 14001: 2016 as an element of an organisation's activities, produces or services that can interact with the environment.
Environmental impact	Defined by AS/NZS ISO 14001: 2016 as any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects.
Environmental incident	An unexpected event that has, or has the potential to, cause harm to the environment and requires some action to minimise the impact or restore the environment.
Environmental objective	Defined by AS/NZS ISO 14001: 2016 as an overall environmental goal, consistent with the Environmental policy, that an organisation sets itself to achieve.
Environmental policy	A written statement outlining an organisation's intention and principles for environmental performance.
Environmental target	Defined by AS/NZS ISO 14001: 2016 as a detailed performance requirement, applicable to the organisation or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives.
EP&A Act	Environmental Planning and Assessment Act 1979.
EPA	NSW Environment Protection Authority

Term	Definition
EPBC Act	Commonwealth Environment Protection & Biodiversity Conservation Act 1999.
EPL	Environment Protection Licence.
ESA	Environmentally Sensitive Areas.
EWMS	Environmental Work Method Statement.
HLLS	Hunter Local Land Services.
LMCC	Lake Macquarie City Council.
Minister	NSW Minister for Planning.
MMAS	Mandalong Mine Access Site.
MSSS	Mandalong South Surface Site.
Non-compliance	Failure to comply with the requirements of the development consent or any applicable license, permit or legal requirement.
Non-conformance	Failure to conform to the requirements of the Project system documentation including this CEMP or supporting documents.
NPW Act	NSW National Parks & Wildlife Act 1974.
OEH	NSW Office of Environment and Heritage (now replaced by BCD).
PCT	Plant Community Type.
Project	The Mandalong 33 kV Power Line Project as described in the Project's Statement of Environmental Effects (SLR, February 2019).
Project Team	Centennial personnel and any contractors authorised by Ausgrid to work on the Project.
SEE	Statement of Environmental Effects.
Secretary	Secretary of the Department of Planning, Industry and Environment.
SSD	State Significant Development.

1. Introduction

1.1 Purpose

This Construction Flora and Fauna Management Sub-Plan (CFFMSP) details the requirements for management of flora and fauna impacts during the Mandalong 33 kV Power Line Project (the Project). This CFFMSP is a management sub-plan of the Construction Environmental Management Plan (CEMP) for the Project, developed to comply with the requirements of the Development Consent (SSD-5144) and the Statement of Environmental Effects (SEE) Statement of Commitments (SLR, February 2019).

The purpose of this CFFMSP is to provide a structured approach to the management of flora and fauna during construction of the Project. This CFFMSP:

- Describes mitigation measures and controls to be applied on-site to avoid or minimise impacts to flora and fauna during construction;
- Provides mechanisms for compliance with applicable policies, approvals, licences, permits, and legislation;
- Describes the flora and fauna management related roles and responsibilities of all Project personnel;
- States objectives and targets for the management of flora and fauna impacts during construction; and
- Outlines a monitoring and reporting regime to check the adequacy of flora and fauna management controls as they are implemented during construction.

1.2 Consultation

Centennial Mandalong have developed the CEMP in consultation with Ausgrid who will be taking ownership of the transmission line upon energisation.

1.3 Distribution

This CFFMSP is available to all Project personnel via the Project document control management system. The document is uncontrolled when printed. One controlled hard copy of this document will be maintained by the Environmental Representative at Mandalong Mine. Registered copies (including updated versions) will be distributed via the Project document management system to:

- Centennial's Project Manager;
- Centennial's Environmental Representative; and
- Contractor's Project Manager.

1.4 Revision

A document review process ensures that the Project's environmental management documents are updated as appropriate for the specific works that are occurring on-site. Should the document review process identify any issues or items within this document that are either redundant or in need of updating, it is the responsibility of the Centennial Environmental Representative to update any documents as necessary in consultation with the Centennial Project Manager. Revised versions of the CEMP will be made available through the processes described in **Section 1.2**.

Key events that may trigger a requirement to review, and if necessary, revise this CFFMSP include:

- Changes to the design for the 33kV power line;
- Changes to the construction methodology;
- Changes to relevant legislation;
- Non-conformances, incidents or non-compliances as identified through monitoring, inspections and auditing; and
- Relevant modifications to the Development Consent, Environment Protection Licence (EPL), Mining Lease (ML), or other relevant lease, licence or approval.

The CFFMSP review process is described in further detail in **Section 4**.

1.5 Project Description

A description of the Project is provided in **Section 1** of the CEMP.

1.6 Environmental Management Plan Context

Environmental management during construction of the Project is addressed in the CEMP. This CFFMSP forms part of the Project's environmental management framework. It is one of many integrated management plans and monitoring programs that have been developed to support the overriding CEMP. The mitigation and management measures identified in this document will be implemented during the construction of the 33 kV power line.

1.6.1 Development Consent Requirements and SEE Commitments

The relevant requirements of Development Consent SSD – 5144 are listed in Table 1-1 along with the section of the plan where each has been addressed.

Table 1-1 Relevant condition of Development Consent SSD - 5144 and section where addressed

Source	Requirement	Section Addressed
SSD – 5144 Schedule 3, condition 20A	Within 12 months of the commencement of construction activities for Modification 7, unless otherwise agreed by the Secretary, the Applicant must retire biodiversity credits as set out in Table 5 below. Retirement of these credits must be carried out in accordance with the NSW Biodiversity Offsets Policy for Major Projects (OEH, 2014), to the satisfaction of BCD.	Section 1.6.3

Centennial Mandalong made commitments in the Project SEE (SLR, 2019) for environmental management measures to be implemented during construction. Those commitments are listed in the Statement of Commitments appended to the Development Consent. The requirements relating to flora and fauna are set out in **Table 1-2** together with reference to where each one is addressed.

Table 1-2 - Statement of Commitments

Requirement	Section Addressed
Impacts on fauna and their habitat: • Retain habitat trees and significant tree limbs (where possible): • Confirm habitat tree numbers and distribution; • Mark habitat trees and estimate height; • Identify limbs of habitat value with enough clearance below power lines for retention; and • Clearly mark out a buffer area to prevent damage during construction.	Section 2.3.1
Install substitute habitat: • Habitat trees to be impacted by the proposed works are to be quantified and offset adjacent to the site; and • Hollow bearing trees are to be replaced by nest boxes at a ratio of at least 1:1.	Section 2.3.1 Section 2.3.4
Fauna protection protocols: • Pre-clearance surveys by qualified ecologist prior to tree removal; and • Apply procedures to safely fell habitat trees and release areas for any rescued fauna.	Section 2.3.1
Retain other habitat attributes: • Hollow logs and rock habitat within the clearance areas will be retained and carefully placed into the adjacent bushland.	Section 2.3.1
Maintain upper catchment hydrology (maintain ephemerality): • Erosion and sediment controls will be designed to prevent permanent or semi-permanent ponding of water where possible;	Section 2.3.5
Protect adjacent habitat or vegetation: • Boundaries for vegetation removal clearly established prior to clearing using tape/rope; • A colour scheme will be utilised to distinguish boundaries and between types of vegetation, red and white flagging or 'no roads tape' will be the standard for marking threatened species individuals or areas; and • All vehicles and equipment accessing site must use established access tracks only; and • Restrict load/equipment set down areas to well within the designated impact area; and • The contractor will provide a dedicated supervisor to oversee all vegetation clearing activities.	Section 2.3.1
Minimise noise and light spill: • Avoid night work; and • Take measures to reduce noise.	Section 2.3.8
Dust management: • Visual monitoring of dust generated during earthworks, suspending work if dust is blown into adjacent bushland and use of water carts.	Section 2.3.7

Weed and pathogen management: • Good hygiene practices are to be used to reduce the risk of spreading weeds and pathogens, including ensuring that all machinery, materials and personnel are clean of any weed seed to entering the site Priority Weeds listed under Biosecurity Act 2015 to be actively managed on site to limit the spread of weeds into the adjacent forested areas; • Weeds removed from the subject site are to be disposed of appropriately at an approved waste facility; • Occurrences of pathogens (e.g. Myrtle Rust and Phytophthora) will be reported, treated and monitored; and • Quarantine controls will be applied to prevent introduction of Chytrid disease; and • The Myrtle Rust Management Plan will be adhered to when in the relevant area(s) **(See Appendix C)**	Section 2.3.2 Appendix C
Partitioning off threatened flora species: • Patches of threatened plants are to be identified and marked out to minimise indirect impacts of clearing/construction activities; and • A qualified ecologist and / or Centennial representative is present during works that could cause impacts, to identify these environmentally sensitive areas. • Red and white flagging tape or 'no roads' tape will be used to distinguish threatened species or sensitive areas.	Section 2.3.1
Staff and contractor training and site briefing to educate contractors o n biodiversity management measures; • Contractors understand biodiversity management measures through toolbox talks, the contractors induction and review of the CEMP; and • Contractors will not work outside their daily scope without prior approval from their supervisor and all changes will be documented.	Section 2.7
Sediment and erosion controls: • Erosion and sediment control measures are to be implemented and maintained to reduce sediment moving offsite, and sediment laden water entering any watercourse; • Erosion controls are to be regularly inspected for their functionality and maintained if required, especially after rainfall; • Excavated material should be stockpiled well away from areas where native vegetation is to be retained and waterways; and • Work areas stabilised progressively during works;	Section 2.3.5 and Construction Sediment Control Management Sub-plan
Prevent Water Pollution: • No release of dirty water into drainage lines/waterways. Water will be released from the easement during construction via sediment controls; • All fuel/chemicals are to be stored in either self-bunded containers or in a bunded facility; • An emergency spill kit is always to be kept on sites where equipment is being used; • An emergency spill response plan will be appended to the CEMP; and • Regular inspection of equipment and vehicles for fuel or oil leaks;	Section 2.3.6 and Construction Sediment Control Management Sub-plan
Avoid vehicle strike: • Vehicles will adhere to a 40 km/hr speed limit on dirt tracks.	Section 2.3.1.9

The Project CEMP will include the safeguards included in the BDAR and detail unexpected threatened species finds procedure and rehabilitation following construction;	Section 2.3 and CEMP Section 11

1.6.2 Relevant Legislation

The management measures outlined within the CFFMP have been developed to achieve compliance with the following relevant legislation:

- *Environmental Planning and Assessment Act 1979* (EP&A Act);
- *National Parks and Wildlife Act 1974* (NPW Act);
- *Biodiversity Conservation Act 2016*;
- *Biosecurity Act 2015*;
- *Fisheries Management Act 1994* (FM Act);
- *Local Land Services Amendment Act 2016*;
- *Pesticides Act 1999*; and
- *Environmental Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC ACT)

1.6.3 Retirement of biodiversity offset credits

Within 12 months of the commencement of construction activities for Modification 7, unless otherwise agreed by the Secretary, the Centennial Mandalong must retire biodiversity credits as set out in Table 5 of SSD-5144. Retirement of these credits must be carried out in accordance with the NSW Biodiversity Offsets Policy for Major Projects (OEH, 2014), to the satisfaction of BCD. Ecosystem credits:

- 1 credit of PCT 1568 – Blackbutt - Turpentine - Sydney Blue Gum mesic tall open forest;
- 9 credits of PCT 1573 – Sydney Blue Gum - Lilly Pilly mesic tall open forest of coastal ranges and tablelands escarpment ;
- 147 credits of PCT 1588 – Grey Ironbark - Broad-leaved Mahogany - Forest Red Gum shrubby open forest on Coastal Lowlands of the Central Coast;
- 36 credits of PCT 1619 – Smooth-barked Apple - Red Bloodwood – Brown Stringybark – Hairpin Banksia heathy open forest of coastal lowlands;
- 4 credits of PCT 1638 – Smooth-barked Apple - Red Bloodwood - Scribbly Gum grass – shrub woodland on lowlands of the Central Coast 4

- Species Credits
    - 229 credits of Glossy-Black Cockatoo (*Calyptorhynchus lathami*); and
    - 9 credits of Green-Thighed Frog (*Litoria brevipalmata*).

1.7 Objectives and Targets

The objectives and targets listed in **Table 1-3** have been established for the management of flora and fauna impacts during construction of the Project.

Table 1-3 - Objectives and Targets for Flora and Fauna Management during Construction

Objective	Target
Maintain compliance with the Development Consent, Statement of Commitments and other relevant legislation for the duration of the construction programme.	No non-compliances recorded for the duration of construction.
Minimise disturbance of flora and fauna.	No disturbance to flora and fauna outside the approved Project disturbance footprint, as shown in the SEE.
Minimise the spread of weeds during construction of the Project.	No increase in distribution or abundance of weeds, as evidenced by the outcomes of environmental inspections.
No transfer of plant diseases or pathogens to or from the Project.	No increase in the prevalence of plant diseases or pathogens, as evidenced by the outcomes of environmental inspections, monitoring, and auditing.
No net loss of significant habitat resources including hollow logs and tree nesting hollows, with materials cleared from the construction area re-used in adjacent	No net loss of significant habitat resources, as reported following pre and post-clearing monitoring.

Objective	Target
areas, where possible.	
No fauna mortality during construction.	No reported occurrences of fauna mortality during construction of the Project.
No pollution or siltation of aquatic ecosystems, wetlands, endangered ecological communities or threatened species habitat.	No reported pollution incidents during construction.

2. Implementation

2.1 Risk Assessment

Construction and operational processes undertaken at Centennial Mandalong operations are subject to the risk assessment process prior to implementation. Potential environmental impacts are considered as part of all risk assessments utilising the Stature Risk Assessment Program. This management plan has been developed in response to the risks identified during the Project risk assessment. The risks identified relating to flora and fauna are:

- Loss of native flora caused by clearing activities resulting in impact to biodiversity (species and communities) or loss of habitat.

Prior to the start of construction, a construction specific risk assessment will be carried out with the Principal Contractor. This will include flora and fauna hazards in the Construction Zone and along access roads.

2.2 Baseline Data

The overall vegetation cover within the 500m buffer was determined using aerial photographs and local vegetation mapping (Lake Macquarie Vegetation Community Mapping; Bell and Driscoll 2015).

The percentage of native vegetation cover was estimated to constitute 83.9% of the 500 m Buffer surrounding the disturbance area.

The Plant Community Types (PCT) occurring in the study area was identified as;

- PCT 1573 - Sydney Blue Gum - Lilly Pilly mesic tall open forest of coastal ranges and tablelands escarpment;
- PCT 1588 - Grey Ironbark - Broad-leaved Mahogany - Forest Red Gum shrubby open forest on Coastal Lowlands of the Central Coast;
- PCT 1619 - Smooth-barked Apple - Red Bloodwood - Brown Stringybark - Hairpin Banksia heathy open forest of coastal lowlands;
- PCT 1638 - Smooth-barked Apple - Red Bloodwood - Scribbly Gum grass - shrub woodland on lowlands of the Central Coast;
- PCT 1568 - Blackbutt - Turpentine - Sydney Blue Gum mesic tall open forest on ranges of the Central Coast; and
- PCT 1649 - Smooth-barked Apple - Red Mahogany - Swamp Mahogany - Melaleuca sieberi heathy swamp woodland of coastal lowlands.

2.2.1 Flora

Approximately 170 flora species were detected within the BAM plots; 155 native and 15 weed species. The following threatened species were detected during site surveys:

- Grevillea parviflora subsp. parviflora (Small Flower Grevillea; BC Act: Vulnerable; EPBC Act: Vulnerable);
- Melaleuca biconvexa (Biconvex Paperbark; BC Act: Vulnerable; EPBC Act: Vulnerable); and
- Tetratheca juncea (Black-eyed Susan; BC Act: Vulnerable; EPBC Act: Vulnerable).
- *Rhodamnia rubescens (Scrub turpentine; BC Act; Critically Endangered)

*Identified during the pre-clearance survey

2.2.2 Weeds

The following High Threat Exotic species (OEH 2018) were identified:

- Andropogon virginicus (Whiskey Grass);
- Ehrharta erecta (Panic veldtgrass);
- Hydrocotyle spp (Water Pennywort);
- Asparagus aethiopicus (Asparagus fern);
- Senna pendula var. glabrata (Cassia);
- Ligustrum sinense (Small-leafed Privet);
- Rubus fruticosus sp. agg. (Blackberry); and
- Lantana camara (Lantana).

Other common environmental weeds comprised the following species:

- Taraxacum officinale (Common Dandelion);
- Plantago lanceolate (Lamb's Tongue);
- Richardia brasiliensis (Mexican Clover);
- Setaria parviflora (Marsh Bristlegrass);
- Sida rhombifolia (Paddy's Lucerne);
- Syagrus romanzoffiana (Cocos Palm); and
- Verbena bonariensis (Purple Top).

2.2.3 Habitat

A habitat-based fauna assessment was undertaken by identifying the following fauna habitat features:

- habitat trees (including large hollow-bearing trees);
- flowering shrubs and feed tree species, including winter flowering species;
- sandstone rocky outcrops, including rock crevices; and
- First and second order ephemeral tributaries of Morans Creek and Wyee Creek.

Frogs within the Morans Creek catchment were also sampled to establish the presence of Chytrid. Frogs were surveyed from the upper, mid and lower tracts of this catchment. Chytrid was only detected on the skin of frogs from the lower reaches, and not in the upper catchment area. Hence, it is assumed that the 33kV alignment is exempt of Chytrid.

2.2.4 Fauna

RPS (2019) reported that a total of 38 ecosystem credit species were assigned by the BAM calculator as being associated with the PCTs present within the Project Area. RPS (2019) conducted surveys for the predicted species credit species, with details of the survey methodologies, locations and results for these surveys provided in the Biodiversity Inventory Report. The species credit species that were present on site during the surveys, and the area of habitat to be impacted, are listed below:

- Calyptorhynchus lathami (Glossy Black-Cockatoo) - Breeding habitat present, area 8.58 ha;
- Chalinolobus dwyeri (Large-eared Pied Bat) – foraging habitat present only;
- Grevillea parviflora subsp. Parviflora (Small-flower Grevillea) – present, to be retained, no offset required;
- Litoria brevipalmata (Green-thighed Frog) – Present, area 0.40 ha;
- Lophoictinia isura (Square-tailed Kite) (Breeding) - Present but no breeding habitat identified;
- Melaleuca biconvexa (Biconvex Paperbark) – Present, to be retained;

- Miniopterus australis (Little Bentwing-bat) (Breeding) – Present, foraging habitat only; and
- Miniopterus schreibersii oceanensis (Eastern Bentwing-bat) (Breeding) – Present, foraging habitat only.

2.2.5 Impact Assessment Findings

Direct impacts on biodiversity values will occur during the construction phases of the Project. These impacts, summarised in **Table 2-1,** as identified by RPS (2019) cannot be avoided.. The Project will involve clearing of 8.83 ha of native vegetation. It is noted that apart from the footprint of the poles and crane pads, the remaining native vegetation along the easement will be retained. RPS (2019) predicted that as per the adjacent power easement, there will be succession of a low stature native vegetation community following the grubbing required to establish the easement.

Table 2-1 – Potential direct impacts on biodiversity during construction (RPS, 2019)

Nature of Impact	Action	Extent	Frequency	Consequence
Permanent clearance of bush habitat	Installation of access tracks and power poles	Access Tracks: 1.84 ha. Power easement: 6.81 ha. Site Office: 0.18 ha.	One-off	Injury and mortality to native flora and fauna. Displacement of local fauna.
Displacement of habitat features (bush rock, logs etc.)	Installation of power poles and widen access tracks	Power easement: Removal of approximately 32 habitat trees. Access Tracks and Power easement: Disturbance of small rocks.	One-off	Injury and mortality to native flora and fauna. Displacement of local fauna.

RPS also assessed the risk of vehicle strike on threated species as a result of daytime construction activities. The species assessed were Calyptorhynchus lathami (Glossy Black Cockatoo), Chalinolobus dwyeri (Large-eared Pied Bat), Miniopterus australis (Little Bentwing-bat), Miniopterus schreibersii oceanensis (Eastern Bentwing bat), and Ninox strenua (Powerful Owl). For all species considered, the risk of strike was considered low.

2.2.6 Indirect Impacts

Potential indirect impacts that have been considered include:

- Inadvertent impacts on adjacent habitat or vegetation;
- Reduced viability of adjacent habitat due to edge effects;
- Reduced viability of adjacent habitat due to noise, dust or light spill;
- Transport of weeds and pathogens from the site to adjacent vegetation;
- Increased risk of starvation, exposure and loss of shade or shelter;
- Loss of breeding habitats;
- Trampling of threatened flora species;
- Bush rock removal and disturbance; and
- Increased risk of fire.

2.2.7 Serious and Irreversible Impacts

RPS (2019) also considered the risk of the Project having a serious and irreversible impact on species or ecological communities. Three species were recorded on site:

- Chalinolobus dwyeri (Large-eared Pied Bat);
- Miniopterus australis (Little Bentwing-bat); and
- Miniopterus schreibersii oceanensis (Eastern Bentwing-bat).

However, as the Project will not impact breeding habitats for these species (caves, tunnels, etc.), it is considered that the Project is not likely to cause a serious and irreversible impact (RPS, 2019).

2.3 Environmental Management Activities and Controls

This CFFMSP addresses each of the management controls applicable to the Project. Key activities and controls relevant to managing the Project's impacts on flora and fauna are described in the following sub-sections.

2.3.1 Vegetation Clearing Protocol

A protocol will be implemented for all vegetation clearing during construction of the 33kV Power line. This vegetation clearing protocol will be implemented to:

- Ensure the extent of native vegetation removal is minimised and consistent with the requirements of the Project;
- Minimise impacts on native flora and fauna, particularly threat-listed species, populations and communities; and
- Maximise the usage of products of clearing (large woody debris, bush rocks and topsoil) to improve biodiversity values.

2.3.1.1 Clearing Extents and Site Feature Survey

The initial phase of the clearing protocol involves the delineation of areas to be cleared of native vegetation. The clearance area will be surveyed and clearly marked by a suitably qualified and experienced surveyor to prevent the disturbance or accidental clearing of adjoining native vegetation. During the survey, the Contractor's Project Manager will be responsible for:

- ensuring all proposed clearing works are within the approved boundary and that the limit of clearing is marked with survey pegs and flagging tape at 25 m intervals in areas of dense vegetation. Line of sight between pegs shall be generally used in other areas;
- identifying clearing constraints, environmentally sensitive areas (water features, steep/ uneven terrain, Aboriginal and European heritage items) and appropriate controls (hand-felling, sedimentation fencing); and
- identifying any weed and pest infestations to be controlled prior to clearing.

The Site Feature Survey should be completed with reference to the Flora and Fauna Assessment mapping (RPS, 2018), which illustrates vegetation communities and known threat-listed species records.

2.3.1.2 Pre-Clearing Weed and Pest Control

Should the Site Feature Survey identify any areas requiring weed and pest control prior to clearing,

the Centennial Environmental Representative will engage a suitably qualified and experience weed and pest management specialist to develop a targeted strategy for the species requiring management.

2.3.1.3 Pre-Clearing Surveys

Pre-clearing surveys will be undertaken prior to all vegetation clearing. Pre-clearing surveys will be undertaken by a suitably qualified and experienced ecologist who is commissioned by the Centennial Environmental Representative or the Centennial Project Manager.

Pre-clearing surveys will be undertaken to identify:

- habitat trees to be retained and significant tree limbs (where possible):
- habitat tree numbers and distribution;
- habitat trees to be marked and estimate height;
- limbs of habitat value with enough clearance below power lines for retention; and
- a buffer area clearly marked out to prevent damage during construction.

Hollow logs and rock habitat within the clearance areas will be retained and carefully placed into the adjacent bushland.

Protection of adjacent habitat or vegetation is to be undertaken by the following measures:

- Boundaries for vegetation removal clearly established prior to clearing using tape/rope;
- All vehicles and equipment accessing site must use established access tracks only; and
- Restrict load/equipment set down areas to well within the designated impact area.

2.3.1.4 Pre-Clearing Inspection Checklist

Following completion of the Pre-Clearing Survey, the Contractor's Project Manager will undertake an inspection of the proposed clearing area and complete a Pre-Clearing Checklist (refer to **Appendix A**). The Pre-Clearing Inspection will ensure:

- The Site Feature Survey has been completed and all boundaries have been demarcated appropriately;
- Environmentally sensitive areas have been identified and appropriate control measures are in place;
- Significant areas of weed and pest infestations have been identified and controlled; and
- Habitat features suitable for relocation have been identified and clearly demarcated.

2.3.1.5 Surface Disturbance Permit

The Surface Disturbance Permit (Appendix H of CEMP) is to be completed. Supporting documents required to accompany a Surface Disturbance Permit for vegetation clearing include:

- Pre-Clearing Checklist;
- Environmental Work Method Statement (EWMS) (Appendix M of CEMP) for vegetation clearing (to be developed by the Clearing Contractor in consultation with the Contractor's Environmental Manager); and
- Sensitive Area Plan (Appendix J of CEMP) showing the location of the proposed clearing.

Clearing cannot proceed until the Centennial Environmental Representative has approved the Surface Disturbance Permit.

2.3.1.6 Stage 1 Clearing and Grubbing

All vegetation, excluding marked habitat trees/features, will be removed during Stage 1 clearing

works. Traditional methods for clearing will be employed using dozers, loaders and trucks where possible. Excavators may be used to grab large tree trunks, with the remaining holes filled and compacted.

An Ecologist will be available on a standby basis to inspect the site and capture/relocate any identified animals. Following clearing, if required, the Ecologist will relocate/ treat any injured or remaining animals. Suitable habitat trees and litter collected during clearing and grubbing will be stockpiled for later placement on rehabilitation areas to provide microhabitat opportunities for ground dwelling fauna to return to re-vegetated areas. Storage of vegetation stockpiles will be within existing cleared areas on the 33kV easement.

2.3.1.7 Stage 2 Clearing

All habitat trees/features marked for retention during the Pre-Clearing Survey will be removed during Stage 2 clearing operations, which may only commence 48 hours after the initial (Stage 1) clearing operations.

Where hollow-bearing trees are to be removed, the operation will be performed by mechanically shaking or agitating the tree to encourage any remaining animals to either leave the tree, or at least show themselves and possibly be removed, prior to felling. Habitat trees will be felled sequentially and succeeding trees not felled until direction is given by the supervising Ecologist. Felling will involve gently pushing the tree and lowering to avoid sudden falling as this is likely to injure wildlife.

Subsequent to felling, habitat trees will be systematically checked for any remaining fauna. Felled habitat trees will be left for a short period to allow any undetected fauna further opportunity to escape. Felled trees will be added to vegetation stockpiles for later re-use to provide habitat in rehabilitation areas.

If any habitat tree is found or suspected (based on fresh tree markings or scats) to contain any threat-listed species, the tree will be left in place for a minimum of two days and, if possible, be re-inspected prior to felling. If Koalas are identified in a tree within the clearance area, the tree will not be felled until the animal has moved on.

If hollow-bearing trees are found to contain nestlings or juveniles prior to felling, it will be preferable to leave trees intact until such a time that juveniles have vacated the nest or den. If, however, Project timing does not permit this, a local wildlife organisation will be engaged to rescue juveniles for possible captive rearing and subsequent release into translocation sites. The success of this will depend upon the species, their stage of development and their likely chances of survival.

If arboreal animals do not move or they cannot be captured because the tree hollow is too large or high, or its recovery would breach OH&S requirements, then the tree will be felled and animals recovered post-felling.

After the completion of fauna relocation, a brief record detailing the findings of the survey and relocation will be prepared by the supervising Ecologist, including details of:

- any live animals that are sighted, captured, released, injured, shocked or killed as a result of clearing operations and fauna rescue; and
- tree species being used for breeding or roosting by fauna, including tree locations, sizes, heights and depths of hollows.

Topsoil will be removed immediately subsequent to clearing and stored for on-site landscaping and

rehabilitation activities. Weed infested topsoil will be stockpiled separately and will not be used in the rehabilitation works unless it is sterilised or treated in an appropriate manner. On site use of soil containing weed seed will be restricted to use as fill buried to a depth where seeds or other propagules will not be able to emerge (nominally a depth of 0.5 m or greater).

2.3.1.8 Post-Felling Inspection and Relocation of Retained Habitat Features

Following completion of Stage 2 clearing the Contractor's Project Manager will complete a final inspection of the area to confirm that it has been cleared.

Any stockpiled habitat features will then be relocated to long-term stockpiling areas within already cleared areas, for use during site rehabilitation. Timber material that is unsuitable for habitat re-use will be mulched and chipped for on-site re-use in rehabilitation.

2.3.1.9 Fauna Protection

The contractor is to ensure that all vehicles adhere to a 40 km/hr speed limit on dirt access tracks to the work site to protect fauna from a vehicle strike.

If a threatened species not previously recorded within the project site is identified then work within the vicinity must stop. The Centennial Environmental representative is to be notified and the Unexpected Finds of Threatened Species Procedure (Appendix B) implemented. The Centennial Environmental representative will notify BCD and/or DoE of any threat-listed species not previously recorded or identified within the Project site. The CFFMSP would be revised to include any relevant management measures.

2.3.1.10 Vegetation Clearance Supervision and Colour Scheme

The contractor will ensure a supervisor is present to oversee all vegetation clearance is undertaken in accordance with this CFFMSP. All relevant documentation will be held by this supervisor. The supervisor will be appropriately trained and competent. All vegetation will be marked in accordance with the clearing chart prior to vegetation clearance to avoid unnecessary clearing or incidental impacts.

2.3.2 Pathogen management

Priority Weeds listed under Biosecurity Act 2015 are to be actively managed on site to limit the spread of weeds into the adjacent forested areas. Weeds removed from the subject site are to be disposed of appropriately at an approved waste facility.

Major pathogens considered to require management for the construction of the 33kV are soil-borne disease (Phytophthora) and myrtle rust (Pucciniales). Both pathogens are listed as key threatening processes (KTPs) under the TSC Act. Occurrences of pathogens (e.g. Myrtle Rust and Phytophthora) will be reported, treated and monitored.

The contractor must ensure good hygiene practices are used to reduce the risk of spreading weeds and pathogens, including ensuring that all machinery, materials and personnel are clean of any weed seed.

If myrtle rust is identified as being present, the contractor will follow the Myrtle Rust Management Plan **(See Appendix C)** and quarantine controls will be applied to prevent introduction of Chytrid disease.

2.3.3 Weed and Pest Management

2.3.3.1 Weed Management

A range of weed management actions will be undertaken to manage the threat of weed invasion in the 33kV easement disturbance footprint during construction activities, including: Pre-construction:

- Any Class 1, 2 or 3 weeds (as defined under the Section 8 of the Noxious Weeds Act 1993) will be removed from within proposed disturbance areas and destroyed, by a suitably qualified contractor;

During construction:

- All machinery, materials and personnel are to be clean of weed seed when entering the site;
- Stripping will be timed to take place in unison with any vegetation clearing activity. If planning to mix groundcover/grass with the soil (i.e. not removing groundcover prior to soil stripping);
- Prior to re-spreading stockpiled topsoil, an assessment of weed infestation on stockpiles will be undertaken by the Contractor's Project Manager to determine if individual stockpiles require herbicide application and / or "scalping" of weed species prior to topsoil re-spreading. Treatments will be applied as required prior to re-spreading; and
- Sediment control fencing in accordance with the Construction Erosion and Sediment Control Management Plan (Appendix E of the CEMP) will be used to prevent contaminated soil with seed seeds from washing into waterways.

Post-construction:

- Weed control will be undertaken as required on any rehabilitation areas until the completion of construction activities.

2.3.3.2 Pest Management

Feral fauna species are a threat to native fauna species due to competition for resources (e.g. food, shelter and breeding sites), predation and displacement in general. The need to report feral animals will be a part of tool box discussions for personnel. If a concentration of feral animals is observed that is resulting in environmental harm, a strategy to manage pests will be developed by the Centennial Environmental Representative in consultation with the Hunter Local Land Services (HLLS).

2.3.4 Installation of Compensatory Nesting Boxes

Centennial Mandalong will install nest boxes to compensate for the loss of hollow-bearing trees containing habitat hollows as a result of the construction of the 33kV Power Line and Easement.

Habitat trees to be impacted by the proposed works are to be quantified and offset adjacent to the site. Nest boxes will be installed at a ratio of 1:1 (i.e. one nest box for every habitat hollow removed). A mixture of nest box types will be used to compensate for the variety of hollows being removed. Nest box sizes will target microbats, gliders and possums. All nest boxes will be rear entry. The majority of nest boxes will be placed at a westerly aspect to maximize chances of colonization. Standard nest box design (i.e. single walled nest boxes) will be used rather than double walled nest boxes as previous monitoring has identified a sharper uptake of animals in single-walled nest boxes. Nesting box sites will be sourced, selected and installed by the Centennial Environmental Representative.

2.3.5 Sediment and erosion controls

Erosion and sediment control measures are to be implemented and maintained to reduce sediment moving offsite, and sediment laden water entering any watercourse. Erosion controls are to be regularly inspected for their functionality and maintained if required, especially after rainfall.

To maintain upper catchment hydrology erosion and sediment controls will be designed to prevent permanent or semi-permanent ponding of water where possible.

Excavated material should be stockpiled well away from areas where native vegetation is to be retained and waterways. Work areas are to be stabilised progressively during works to prevent erosion of exposed areas.

Sediment and erosion controls are addressed in detail in Appendix E, Construction Erosion and Sediment Control Management Sub Plan.

2.3.6 Prevent Water Pollution

Water will be released from the easement during construction via sediment controls. There is to be no release of dirty water into drainage lines or waterways.

The contractor is to undertake regular inspections of equipment and vehicles for fuel or oil leaks. All fuel/chemicals are to be stored in either self-bunded containers or in a bunded facility. An emergency spill kit is always to be kept on sites where equipment is being used. The contractor is required to provide and maintain the spill kit on the work sites.

Water management is addressed in Appendix E, Construction Erosion and Sediment Control Management Sub Plan.

All environmental incidents are to be reported to the Centennial Environmental Representative. An emergency spill response plan is provided in Appendix F of the CEMP.

2.3.7 Dust management

The contractor is to undertake visual monitoring of dust generated during earthworks. Work must be suspended if dust is blown into adjacent bushland. Water carts are to be used for dust suppression.

Air quality management is addressed in detail in Section 6 of the CEMP.

2.3.8 Noise and Light Spill

Construction activity for the Project will occur between the standard hours of 7.00 am to 6.00 pm Monday to Friday and 8.00 am to 1.00 pm on Saturday. There will be no construction on Sundays or public holidays.

Exceptions to this include emergency works or delivery of oversize equipment or materials outside of standard hours as requested by police or other authorities for safety reasons. There may be a requirement for the contractor to undertake some stringing or cutting in activities outside of the daytime hours stipulated if any of the required outages on the lines are not possible during normal construction times.

The contractor is required to minimize light spill from the work sights that may impact on local residents. Night work is to be avoided where possible.

The contractor must keep Centennial Mandalong fully informed of any exceptions noted above, so that the local community can be consulted.

The contractor is required to manage noise levels in accordance with the Interim Construction Noise Guideline (DECC, 2009). Noise management is addressed in detail in Section 7 of the CEMP.

2.4 Adaptive Management

Annual monitoring of the persistence of each of the threatened species G. parviflora subsp. parviflora (Small-flower Grevillea), M. biconvexa (Biconvex Paperbark); R. rubescens (Scrub Turpentine); and T. juncea (Black-eyed Susan, during peak flowering) and their health will be undertaken during construction and for two years following construction.

The key components of this monitoring program will be:

- Monitoring for each of the threatened species (i.e. G. parviflora subsp. parviflora (Small-flower Grevillea), M. biconvexa (Biconvex Paperbark); R. rubescens (Scrub Turpentine); and T. juncea (Black-eyed Susan, during peak flowering);
- Each monitoring effort will involve locating individual threatened plants by GPS, taking a photo, then noting their condition; and
- To distinguish impacts associated with the Project, these threatened species will be concurrently monitored using the same method at a nearby location, not impacted by the Power Easement (i.e. Before- After Control-Impact (BACI) survey design).

2.5 Roles and Responsibilities

Roles and responsibilities for implementation of flora and fauna management during construction are described below in **Table 2-2**. The individual responsibilities listed are in addition to those already specified in the CEMP.

Table 2-2 - Roles and Responsibilities for Flora and Fauna Control during Construction

Role	Responsibility
Centennial Project Manager	The environmental responsibilities of the Centennial Project Manager include (but are not limited to) the following: • Monitor the implementation of all aspects and requirements of CFFMSP for the project; • Arrange for marking out of the easement clearing area to avoid unnecessary clearing; • Restrict or stop any activity on the project that has the potential to or has caused environmental harm; • Arrange for a wheel wash to be installed for vehicles leaving site; and • Manage the Surface Disturbance Permit System so that permits are completed prior to disturbance and approved by the appropriate Centennial personnel.
Centennial Environmental Representative	The environmental responsibilities of the Centennial Environmental Representative include (but are not limited to) the following: • Monitor the implementation of the CFFMSP and conduct inspections; • Restrict or stop any activity that has the potential to cause or has caused environmental harm; • Maintain records of results of monitoring and compilation of reports; • Arrange for nest boxes to be installed as per the conditions of SSD-5144; • Ensuring that all *M. biconvexa, T. junceca, G. parviflora and R. rubescens* individuals are fenced off as no-go areas prior to the commencement of any vegetation clearing activities;

Role	Responsibility
	• Identify any weed and pest infestations to be controlled prior to clearing, particularly Phytophthora or myrtle rust (*Pucciniales*); • Notify the relevant authorities in accordance with the Centennial Mandalong Pollution Incident Response Plan of any environmental harm or potential environmental harm; • Arrange for a suitably qualified person to be present to supervise hollow-bearing tree clearing.
Contractor's Project Manager / Contractor's Vegetation Clearance Supervisor	The environmental responsibilities of Contractor's Project Manager include (but are not limited to) the following: • Monitor the implementation of the CFFMSP and conduct inspections; • Act as the 24-hour contact in case of an emergency; • Restrict or stop any activity that has the potential to cause or has caused environmental harm; • Ensure that a trained and competent supervisor is present for all vegetation clearing activities; • Ensuring that all *M. biconvexa, T. junceca, R. rubescens and G. parviflora* individuals are fenced off as no-go areas in accordance with the pre-determined clearing chart prior to the commencement of any vegetation clearing activities; • Follow the procedure in this CFFMSP for clearing, particularly of hollow-bearing trees for access tracks; • Manage contractors so that they do not enter areas of native vegetation unless permission is sought and granted from the Centennial Environmental Representative using the Permit to Enter an Environmentally Sensitive Area form (refer to **Section 4.1.6** of the CEMP); • Notify the Centennial Environmental Representative and Centennial Project Manager of any environmental harm or potential environmental harm; • Provide written notification to the Centennial Environmental Representative and Centennial Project Manager 24 hours prior to undertaking work that may impact upon sensitive areas. • Ensure the prompt implementation of measures to mitigate flora and fauna impacts. • Provision of adequate resources to effectively implement this CFFMSP; • Ensuring all contractor activities comply with the requirements of this CFFMSP; • Arrange for the marking out of access track clearing to avoid unnecessary clearing; • Include a description of the designated work area in the site induction process; • Implement a 40km/hr speed limit on site to reduce the potential for fauna strike and dust generation; • Arrange for methods to prevent the spread of weeds; • Establish and maintain sediment control fencing to prevent contaminated soil with weed seeds from washing into waterways; • Do not enter areas of native vegetation unless permission is sought and granted from the Centennial Environmental Representative using the Permit to Enter an Environmentally Sensitive Area form (refer to **Section 4.1.6** of the CEMP); and • Include relevant flora and fauna control information in toolbox talks when

Role	Responsibility
Wider Project Team	The environmental responsibilities of the wider Project Team include (but are not limited to) the following: Immediately reporting any environmental incidents or potential incidents to your Supervisor; • Undertaking any environmental duties as instructed; and • Following site procedures in place to reduce the impact to flora and fauna (e.g. vehicle speeds, using existing tracks).

2.6 Communication

Communication mechanisms will be consistent with those outlined in **Section 12** of the CEMP.

2.7 Training

2.7.1 Inductions

The site induction and training process for personnel will outline the key requirements of this CFFMSP, including but not limited to:

- The key ecological values in the 33 kV power line disturbance footprint, as outlined i n **Section 2.2** of the CFFMSP;
- Providing clear instructions to personnel regarding the limits of vegetation clearing and an understanding of the site specific clearing chart;
- Pathogen management protocols, as detailed in **Section 2.3** of this CFFMSP;
- Speed limits for traffic while in the Construction Zone;
- Outlining expectations for appropriate behaviour toward ecological values;
- Identification and reporting of noxious weeds and feral animals; and
- Protocols for the management of native wildlife encountered during construction.

During construction works, all personnel involved will have access to a copy of this CFFMSP.

2.7.2 Toolbox Talks

Toolbox meetings will be conducted regularly to maintain and improve awareness of environmental issues. A wide range of topics will be covered over time with a focus on issues most relevant to current or upcoming works. In addition, all Project personnel will be provided with a toolbox talk on relevant flora and fauna issues prior to commencement of earthwork activities. A toolbox meeting will also be held in the event of a non-conformance with this CFFMSP.

It will be responsibility of the Contractor to arrange for toolbox talks relevant to flora and fauna management issues.

3. Monitoring and Response

The implementation of flora and fauna management requirements will be monitored and reported on a monthly basis by the Centennial Environmental Representative. Mechanisms for inspections, monitoring, reporting and incident response are outlined in the following subsections.

3.1 Inspections, monitoring and reporting

General environmental inspection requirements are detailed in **Section 14.1** of the CEMP. Inspections, monitoring and reporting specific to the management of soil and water that will be implemented during construction are listed below in **Table 3-1**.

Table 3-1 - Summary of Flora and Fauna Monitoring during Construction

Type of monitoring	Purpose and Scope	Frequency/Trigger	Reporting	Personnel / Responsibility
Clearing Extents and Site Feature Survey.	A survey of proposed clearing extents and site features to demarcate clearing extents and any environmental features that require management during clearing activities.	Undertaken prior to vegetation clearing as the first step in the clearing process.	N/a	Centennial Environment Manager
Pre-Clearing Survey.	An ecological survey to identify and demarcate key habitat features to be retained until Stage 2 clearing.	Undertaken after the clearing extents and site feature survey and prior to the pre-clearing inspection.	N/a	Suitably qualified ecologist
Pre-Clearing Inspection.	Final inspection of area proposed for clearing to confirm all habitat features have been identified, safety hazards identified and demarcated, and environmental controls are in place prior to the commencement of clearing.	Undertake after the pre-clearing survey and prior to the commencement of Stage 1 clearing.	Required corrective actions identified on Pre-Clearing Environmental Checklist.	Contractor's Project Manager
Ecological Monitoring During Clearing.	Monitoring of clearing activities to ensure all clearing is undertaken in accordance with the requirements of the CFFMSP, and wildlife is safely relocated or handed over to a local wildlife rescue organisation for treatment (as required).	During Stage 1 and Stage 2 Clearing.	N/a	Suitably qualified ecologist arranged by Centennial Environment Manager Contractor's Vegetation Clearance Supervisor
Sensitive Area Monitoring During Construction.	To ensure the clearing and construction activities are undertaken in accordance with the requirements of the CFFMSP and there are no incidental impacts to sensitive areas.	As required during work with potential to impact on sensitive areas	Notification to complete these works will be provided to Centennial 24 hours prior to the commencement.	Contractor's Project Manager Centennial Environmental Representative Suitable qualified ecologist

Type of monitoring	Purpose and Scope	Frequency/Trigger	Reporting	Personnel / Responsibility
Post-Felling Inspection.	Inspection of cleared areas to confirm clearing has been undertaken within the approved disturbance footprint and any maintenance requirements for environmental control measures are identified and addressed.	Following Stage 2 Clearing.	Any required corrective actions will be reported using the incident and non-conformance reporting process outlined in the CEMP. The outcomes of clearing programmes will also be reported to the Centennial Project Manager.	Contractor's Project Manager
Weekly Monitoring of Flora and Fauna Management Performance.	Site-wide inspection to identify any ad-hoc flora and fauna issues such as weed and pest infestations, injured wildlife, unapproved clearing, build-up of fuel loads, or the condition of bushfire access tracks.	Completed as part of routine weekly environmental inspections.	Any required corrective actions will be communicated to the Centennial Project Manager and a copy of the inspection will be provided to the Centennial Environmental Representative.	Contractor's Project Manager

3.2 Trigger Action Response Plan

A Trigger Action Response Plan (TARP) has been developed to summarise the actions and responses to be implemented as part of this CFFMSP (refer to **Table 3-2**).

Table 3-2 - Flora and Fauna Trigger Action Response Plan

Trigger	Action	Response
Injured fauna during tree-felling process.	Cease tree-felling activities. Contact a wildlife carer and inform of the presence of injured wildlife, coordinating a pickup time and location.	Injured wildlife picked up and removed from site by wildlife carer.
Injury to fauna as a result of vehicle interaction/ collision in construction area.	Contact a wildlife carer and inform of the presence of injured wildlife, coordinating a pickup time and location.	Injured wildlife picked up and removed from site by wildlife carer.
Identification of pathogens during pre-clearance surveys.	Person undertaking survey to contact the Centennial Project Manager to organise competent personnel to administer fungicide, as soon as practicable. Centennial Environmental Representative to report to government department.	Competent personnel to apply fungicide and advise dosage administered and any requirement for follow-up.
Weed or pest species identified by construction personnel.	Weed or pest species sighting reported to the Centennial Project Manager to identify the measures to be undertaken.	Suitably qualified personnel undertake relevant management actions.
Unapproved clearing of vegetation identified by construction personnel.	Cease clearing immediately and commence incident reporting and investigation in accordance with CEMP.	Undertake corrective and/or disciplinary actions as required following completion of incident investigation. Centennial Environmental Representative to determine reporting requirements.

3.3 Corrective Action and Contingency Plans

Incidents and corrective actions in relation to flora will be managed in accordance with the procedure detail in **Section 14** of the CEMP. Incidents relating to flora and fauna may include, but are not limited to:

- Impacts on listed threatened species;
- Injury to native fauna;
- Clearing of vegetation outside the disturbance footprint and clearing limits; and
- Introduction of weed and pest species.

3.4 Emergency Contacts and Response

The details of emergency contact personnel and the external incident reporting procedure are provided in **Section 14** of the CEMP.

4. Review and Improvement

Review requirements for all sub-plans of the CEMP are provided in **Section 16** of the CEMP. This CFFMSP will be reviewed annually, as a minimum, to update relevant information, management strategies, performance requirements or recommended monitoring and corrective actions where relevant or where legislation, policy or guideline changes require it. Review of this CFFMSP may also be undertaken in response to:

- Changes to relevant legislation;
- Changes to construction methodologies, equipment or design;
- Incidents and non-compliance with this CFFMSP; or
- Relevant modifications to the Development Consent, EPL, or other relevant approvals.

5. References

Centennial Mandalong. (2018). *Pollution Incident Response Plan.*

Department of Infrastructure, Planning and Natural Resources. (2004). *Guideline for the Preparation of Environmental Management Plans.* Sydney, NSW: Department of Infrastructure, Planning and Natural Resources.

Fisheries, N. (2003). *Policy and Guidelines for Fish Friendly Waterway Crossing .*

Fisheries, N. (2003). *Why Do Fish Need to Cross The Road? Fish Passage Requirements for Waterway Crossings.*

GHD Services Pty Ltd. (2016). *Mandalong Mine Water Management Plan.*

Landcom. (2004). *Soils and Construction, Managing Urban Stormwater, Volume 2D, 4th Edition.*

Landcom. (2004). *Soils and Construction: Managing Urban Stormwater, Volume 1, 4th Edition.* Landcom.

RPS Australia East Pty Ltd. (2019). *Mandalong 33 kV Transmission Easement Biodiversity Development Assessment Report.* Newcastle: RPS Australia East Pty Ltd.

SLR. (2019). *Mandalong 33 kV Power Line Project Statement of Envionmental Effects.*

APPENDIX

Appendix A Pre-Clearing Checklist

Mandalong MSSS 33kV Construction Project - Pre-Clearing Checklist

Description of Proposed Clearing Area:

Proposed Clearing Date:
Responsible Person:

Coordinates of Proposed Clearing Area (GDA 94)

Point	Easting	Northing	Point	Easting	Northing

Checklist

Pre-Clearing Requirement	Complete	Additional Comments
All personnel involved in vegetation clearing have received a site induction and hold appropriate competencies for clearing activities	Yes ☐ No ☐ N/a ☐	
A local wildlife rescue organisation has been contacted to confirm the availability of care resources in the case of injured animals	Yes ☐ No ☐ N/a ☐	
The proposed clearing area has been clearly delineated with stakes and flagging tape by a qualified surveyor	Yes ☐ No ☐ N/a ☐	
The pre-clearing inspection has been undertaken by the Centennial Environmental Representative and any required environmental controls (e.g. weed management, fencing of no-go-zones, erosion and sediment control) have been established	Yes ☐ No ☐ N/a ☐	
Any threatened species or communities identified within the proposed clearing area during pre-clearing inspections have been clearly marked on the map accompanying the Land Disturbance Permit	Yes ☐ No ☐ N/a ☐	
All personnel involved in vegetation clearing have been informed of the location of any threatened species within the proposed clearing area	Yes ☐ No ☐ N/a ☐	
Habitat resources in the proposed clearing area have been identified and inspected by a qualified ecologist for signs of use and features that are to be retained for a minimum of 48 hours have been clearly marked	Yes ☐ No ☐ N/a ☐	
A suitable location for stockpiling of habitat resources (hollow bearing trees/logs and bush rock) has been identified	Yes ☐ No ☐ N/a ☐	
The proposed clearing area has been surveyed for Aboriginal cultural heritage and artefact salvages have been completed in accordance with the Construction Heritage Management Sub-Plan	Yes ☐ No ☐ N/a ☐	
Any Aboriginal cultural heritage sites identified as requiring in-situ preservation within the proposed clearing area have been fenced and signposted as no-go zones	Yes ☐ No ☐ N/a ☐	
Area approved for clearing? Yes ☐ No ☐ Reason not approved:		
<u>Centennial Environmental Representative Sign-off</u> Name: Signature: Date: Other Comments/Requirements:		

Appendix B Unexpected Finds Procedure for Threatened Species

Purpose

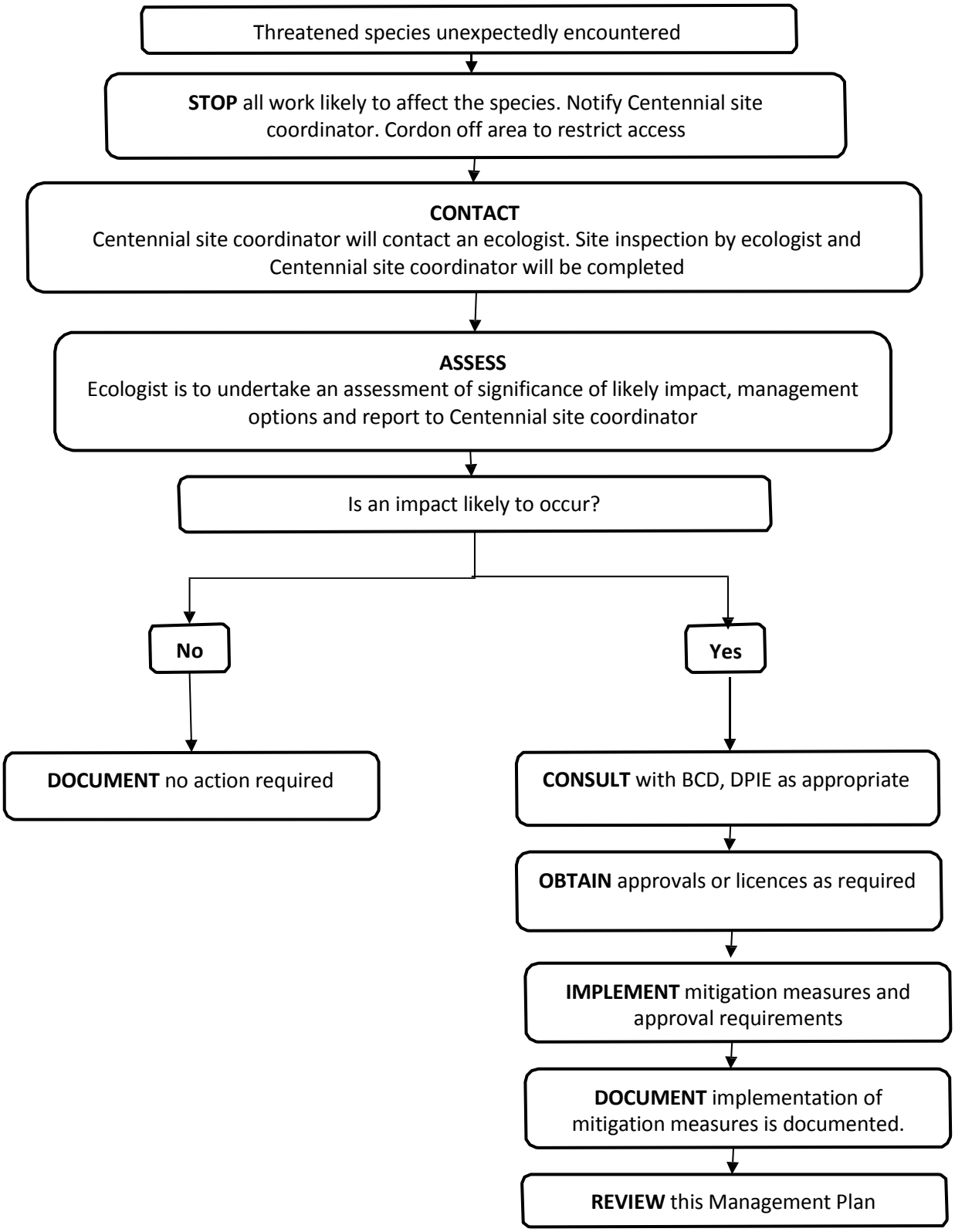
This procedure is to be used if *additional threatened species or communities are identified that have not been considered in the environmental assessment*. This procedure details the actions to be taken when threatened species are unexpectedly encountered during excavation/construction activities.

Scope

This procedure is applicable to activities that come into contact with threatened species.

Induction/Training

Where required, the induction will include photos and descriptions of threatened species occurring on the site. The induction will include the potential for identifying unexpected threatened species on the site and this procedure.


Threatened species unexpectedly encountered
STOP all work likely to affect the species. Notify Centennial site coordinator. Cordon off area to restrict access
CONTACT
Centennial site coordinator will contact an ecologist. Site inspection by ecologist and Centennial site coordinator will be completed
ASSESS
Ecologist is to undertake an assessment of significance of likely impact, management options and report to Centennial site coordinator
Is an impact likely to occur?
No
Yes
DOCUMENT no action required
CONSULT with BCD, DPIE as appropriate
OBTAIN approvals or licences as required
IMPLEMENT mitigation measures and approval requirements
DOCUMENT implementation of mitigation measures is documented.
REVIEW this Management Plan

Appendix C Myrtle Rust Management Plan

Our ref: 147268

Unit 2A, 45 Fitzroy Street
Carrington NSW 2294
T +61 2 4940 4200

Date: 13 August 2020

Kieran Fiatarone
Centennial Mandalong
12 Kerry Anderson Drive
Mandalong NSW 2264 Australia

Dear Kieran,

RE: MANDALONG 33KV MYRTLE RUST MANAGEMENT PLAN

RPS Australia East Pty Ltd (RPS) has been engaged by Centennial Mandalong to prepare a management plan to minimise and mitigate any unintended impacts associated with Myrtle Rust (*Austropuccinia psidii*) along the proposed 33kV powerline easement during clearance operations. The aim of this management plan is to reduce the risk of Myrtle Rust spread.

This management plan has been prompted as a result of the identification of Myrtle Rust within the 33kV alignment. In accordance with Section 2.3.2 of the Construction Flora and Fauna Management Sub-Plan for the Mandalong 33kV Power Line, if Myrtle Rust is identified as being present, it will require immediate and urgent control.

Myrtle Rust was found to have infected individuals of a threatened plant species, *Rhodamnia rubescens* (Scrub Turpentine) (listed as Critically Endangered under the *Biodiversity Conservation Act 2016* [BC Act 2016]) (**Figure 1; Attachment 1**). Myrtle Rust is a Key Threatening Process (KTP) under the BC Act 2016. However, it should be noted that Myrtle Rust is common throughout the Mandalong Valley, as indicated by annual monitoring for Mandalong Mine (which includes nearby State Forest).

The infected *R. rubescens* have been individually flagged with pink flagging tape. These individuals have also been demarcated with black/yellow danger tape to establish a Restricted Area. Clearance personnel are aware of this species presence, location and importance, as communicated by RPS personnel.

In response to the identification of Myrtle Rust, RPS recommend the Management Procedures and Protocols detailed in **Table 1**. These procedures and protocols have been developed in consideration of site-specific attributes and hygiene protocols outlined in *Management Plan for Myrtle Rust on the National Parks Estate* (Office of Environment and Heritage NSW 2011).

Table 1 Management Procedures and Protocols for Myrtle Rust

Risk	Risk Management	Responsibility
Spread of Myrtle Rust among *R. rubescens* individuals recorded in cluster within easement	• Entering of the marked Restricted Area where *R. rubescens* are located is to be limited to essential removal of large trees and future management of regrowth by Ausgrid; • Avoid mulching of trees / shrubs within 30 m of infected *R. rubescens*; • Cleared vegetation is to remain on site, disposed preferably in adjacent bushland immediately to the east of the 33kV alignment; • Vegetation must be sensitively removed to ensure that the fall of any trees, shrubs, vines etc does not occur near marked *R. rubescens*; and • Commence each day with clean clothes.	All personnel involved and present on site, including Centennial Mandalong, clearance personnel, RPS Ecologists and where relevant Ausgrid maintenance personnel.
Spread of Myrtle Rust to adjoining areas of vegetation and offsite areas containing plant species susceptible to Myrtle Rust, including *R. rubescens*	In addition to the above, the following protocols apply to reduce risk of spreading Myrtle Rust to adjoining areas and offsite: • Footwear should be cleaned before entering the site - remove clumps of soil and plant material with stiff brush before spray cleaning soles of footwear using a 70:30% methylated spirits / water mix. The same protocol should be adopted after work has been completed within 50 m of infected *R. rubescens*; • Alcohol wipes should be used for personal effects, such as sunglasses, phones and GPS; • Vehicles/plant machinery should be cleaned before and after entering within 50 m of infected *R. rubescens*, as outlined below: – Remove all soil and organic material will be completed on-site (i.e. >50m from infected *R. rubescens*) with a high-pressure hose, garden hose or with brushes. Inspection of the following areas is to occur: • Body – Chassis, Inside, Underneath, Bumper Bars, Crevices, Mud Flaps; • Tyres – Inside Hub, Outside, Between Dual Wheels, Spare Wheel; • Cabin– Floor, Mats; • Engine – Radiator, Engine Bay & Grill; • Tray– inside and outside; and • Associated implements e.g. excavator buckets. – A 70:30% methylated spirits / water mix should be used (where practicable) as a final cleaning step for vehicles/plant machinery. Alcohol wipes are to be used to clean down the inside of vehicles.	All personnel involved and present on site, including Centennial Mandalong, clearance personnel, RPS Ecologists and where relevant Ausgrid maintenance personnel.
Spread of Myrtle Rust due to non-essential travel by persons and vehicles	• Limit movement of vehicles only to essential areas to complete the task; and • Minimise foot traffic within 50 m of infected *R. rubescens*.	All personnel involved and present on site, including Centennial Mandalong, clearance personnel, RPS Ecologists and where relevant Ausgrid maintenance personnel.

Our ref: 147268

We trust this information is sufficient for your purposes; however, should you require any further details or clarification, please do not hesitate to contact the writer.

Yours sincerely,
for RPS Australia East Pty Ltd

Alan Midgley
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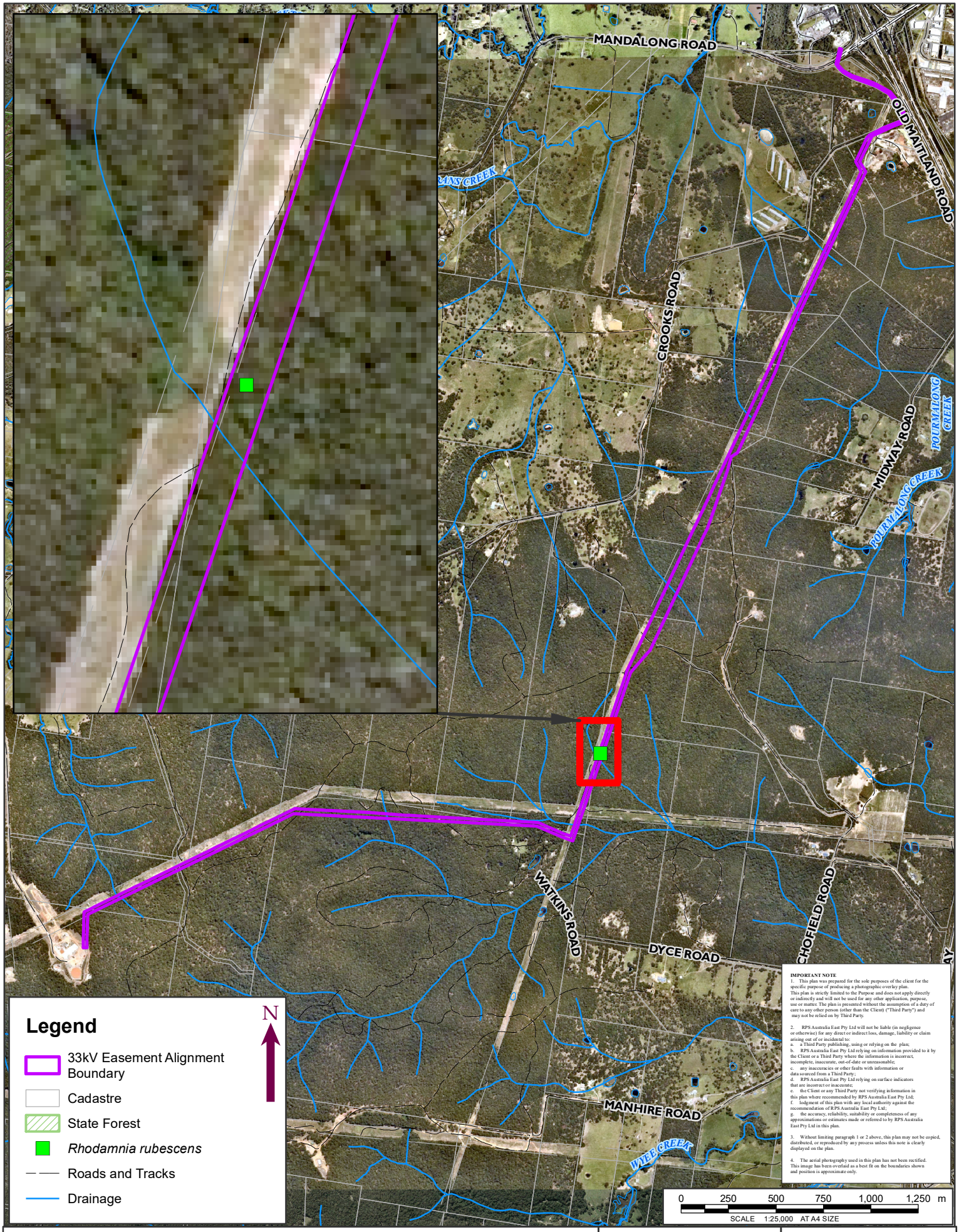

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4. The aerial photography used in this plan has not been rectified. This image has been overlaid as a best fit on the boundaries shown and position is approximate only.

FIGURE 1: LOCATION OF RHODAMNIA RUBESCENS

LOCATION: MANDALONG	DATUM: GDA94 PROJECTION: MGA Zone 56
JOB NO.: **PR 147268** PURPOSE: ECOLOGY Technician: Zach.Cotter Date: 1/07/2020	Data Sources: RPS, Client Nearmap 2019

CLIENT: CENTENNIAL COAL

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Our ref: 147268

Attachment 1: *Rhodamnia rubescens* location photo