



VEGETATION
MANAGEMENT
PLAN

2 Caliope Street,
KIAMA
PREPARED FOR
DSM GENERATION PTY LTD



LODGE ENVIRONMENTAL • www.lodgeenviro.com.au • ABN 85 631 988 148

Project Name:

2 Caliope Street, Kiama NSW 2533 – Vegetation Management Plan

Project Code:

LE2062

Document Tracking:

Prepared by:	
Jade Smith <i>Junior Ecologist</i> Henry Dowling <i>Junior Ecologist</i>	Lodge Environmental Pty Ltd ABN 85 631 988 148
Reviewed by:	Scientific Licence SL102041 Animal Research Authority – Flora and Fauna Survey Mobile: 0423 296 045 Email: info@lodgeenviro.com.au
Olivia Gobran <i>Ecologist</i> Annabelle McTaggart <i>Ecologist, Accredited Biodiversity Assessor BAAS24024</i>	

Record of Distribution

Copies	Report No. & File Name	Status	Date	Prepared for:
1 x PDF	2 Caliope Street, Kiama VMP_v1	Rev.1	21 October 2025	DSM Generation Pty Ltd

COMMERCIAL IN CONFIDENCE

This document has been prepared consistent with accepted scientific practice, supported by available data and resource conditions, as determined by limited data acquisition during the assessment period, evident at Site at the time. The designated recipients of this report accept all risks and responsibility for losses, damages, costs and other consequences resulting directly or indirectly from using the results of the interpretation, the data, and any information or conclusions drawn from it, whether or not caused by any negligent act or omission.

To the maximum permitted by law, *Lodge Environmental* excludes all liability to any person or identity, arising directly or indirectly from using the information or material contained herein.

INTELLECTUAL PROPERTY LAWS PROTECT THIS DOCUMENT

Copyright in the material provided in this document is owned by *Lodge Environmental Pty Ltd*. *Lodge Environmental* reserves the right to revoke this report, its content and results derived during the scope of work. Third parties may only use the information in the ways described in this legal notice:

- Temporary copies may be generated, necessary to review the data.
 - A single copy may be copied for research or personal use.
 - The documents may not be changed, nor any part removed including copyright notice.
 - Request in writing is required for any variation to the above
- An acknowledgement to the source of any data published from this document is mandatory.

TABLE OF CONTENTS

1.0	Introduction.....	5
1.1	<i>Objectives.....</i>	5
1.2	<i>Associated documents</i>	5
2.0	Legislative Framework	7
2.1	<i>Water Management Act.....</i>	7
3.0	Site Description	8
4.0	Vegetation Management Plan	11
4.1	<i>Vegetation Management Zones & Treatments.....</i>	11
4.2	<i>Weed Control Techniques.....</i>	18
4.2.1	Annual Grasses	18
4.2.2	Perennial Grasses	18
4.2.3	Woody Weeds	18
4.2.4	Creepers and Climbers.....	18
4.2.5	Herbaceous Weeds.....	19
4.2.6	Management of Weed Waste	19
4.2.7	Herbicide Use	19
4.3	<i>Follow-up Treatments and Considerations.....</i>	19
4.4	<i>Weed Hygiene.....</i>	20
4.5	<i>Biosecurity Obligations.....</i>	20
4.5.1	Priority Weeds.....	20
5.0	Revegetation.....	29
5.1	<i>Revegetation Densities.....</i>	29
5.2	<i>Revegetation Species.....</i>	29
5.3	<i>Planting Approach & Landscaping.....</i>	30
5.3.1	Planting Approach & Timing	30
6.0	Action plan	31
6.1	<i>Implementation Schedule and Performance Criteria.....</i>	32
6.1.1	Implementation Schedule	32
6.1.2	Performance Criteria	32
6.2	<i>Monitoring and Reporting</i>	33
6.2.1	Monitoring.....	34
6.2.2	Monitoring Reports	34
7.0	Costing	35
8.0	References.....	37
9.0	Limitations.....	38

LIST OF TABLES, FIGURES & APPENDICES

TABLES

Table 1: Legislative framework for VMP and landholder	7
Table 3: Management Zones and Treatments	13
Table 4: Weed control techniques for priority weeds (NSW WeedWise, DPI).	20
Table 5: Revegetation densities.....	29
Table 6: Revegetation species required for Management Zone 4.....	30
Table 7: VMP Action Plan.....	31
Table 8: VMP Implementation Schedule	32
Table 9: VMP Performance Criteria	32
Table 10: Indicative establishment and annual costs (0 – 5 years) with total cost of VMP	36

FIGURES

Figure 1: Aerial of Study Area and Proposed Elements.....	6
Figure 4: PCT 3013 in disturbed condition within the VMP Area	9
Figure 5: PCT 3013 in good condition within the VMP Area	9
Figure 6: Validated Vegetation	10
Figure 7: Vegetation Management Plan.....	12

APPENDICES

Appendix A: PCT 3013 – Illawarra Lowland Subtropical Rainforest Description Table
Appendix B: Observed Flora and Fauna Species List
Appendix C: Monitoring & Reporting Template

1.0 INTRODUCTION

Lodge Environmental were commissioned by DSM Generation Pty Ltd to prepare this Vegetation Management Plan (VMP) to accompany a Planning Proposal (PP) to rezone Lot 672/-/DP1308222, known as 2 Caliope Street, Kiama NSW 2533 (herein referred to as the **Study Area**). It is understood that the PP to rezone the Study Area is to allow for future subdivision of the land. The area relevant to this report includes the area to the east of proposed residential lots, including the proposed APZ, C2 and RU2 Zoning (**Figure 1**) (herein referred to as the **VMP Area**). This VMP will guide the restoration of the vegetation within the site to enhance natural values and assist in the establishment of a resilient ecosystem. Implementation of the VMP will be the responsibility of the future landholder.

1.1 OBJECTIVES

This VMP has been prepared to act as a guide to achieve the restoration of biodiversity values within the Study Area. This VMP includes the following objectives:

- Document weed control strategies recommended for the management zones within the C2 – Environmental Conservation and RU2 – Rural Landscape zones.
- Document fauna protection and habitat management measures to be implemented within the Study Area.
- Specify the extent of vegetation management works to be carried out within the Study Area and provide costed control measures for a 5-year period, targeted at on-going control of invasive exotic species and assisted regeneration of native species.
- To remove and reduce the abundance of exotic weed species and implement measures for long-term successful control and eradication.
- Document the on-going maintenance and monitoring required for fauna management, weed control and revegetation works.
- To restore the amenity of the area, including biodiversity values, through restoration of the rainforest and surrounding vegetation.

1.2 ASSOCIATED DOCUMENTS

- Flora and Fauna Assessment (FFA) Report, Lodge Environmental (2025).
- Bushfire Hazard Assessment: Scoping Proposal for Planning Proposal with Subdivision Layout, Harris Environmental (2025).
- 2 Caliope Street, Kiama Planning Proposal Indicative Subdivision Plan, Footprint Sustainable Engineering (2025).

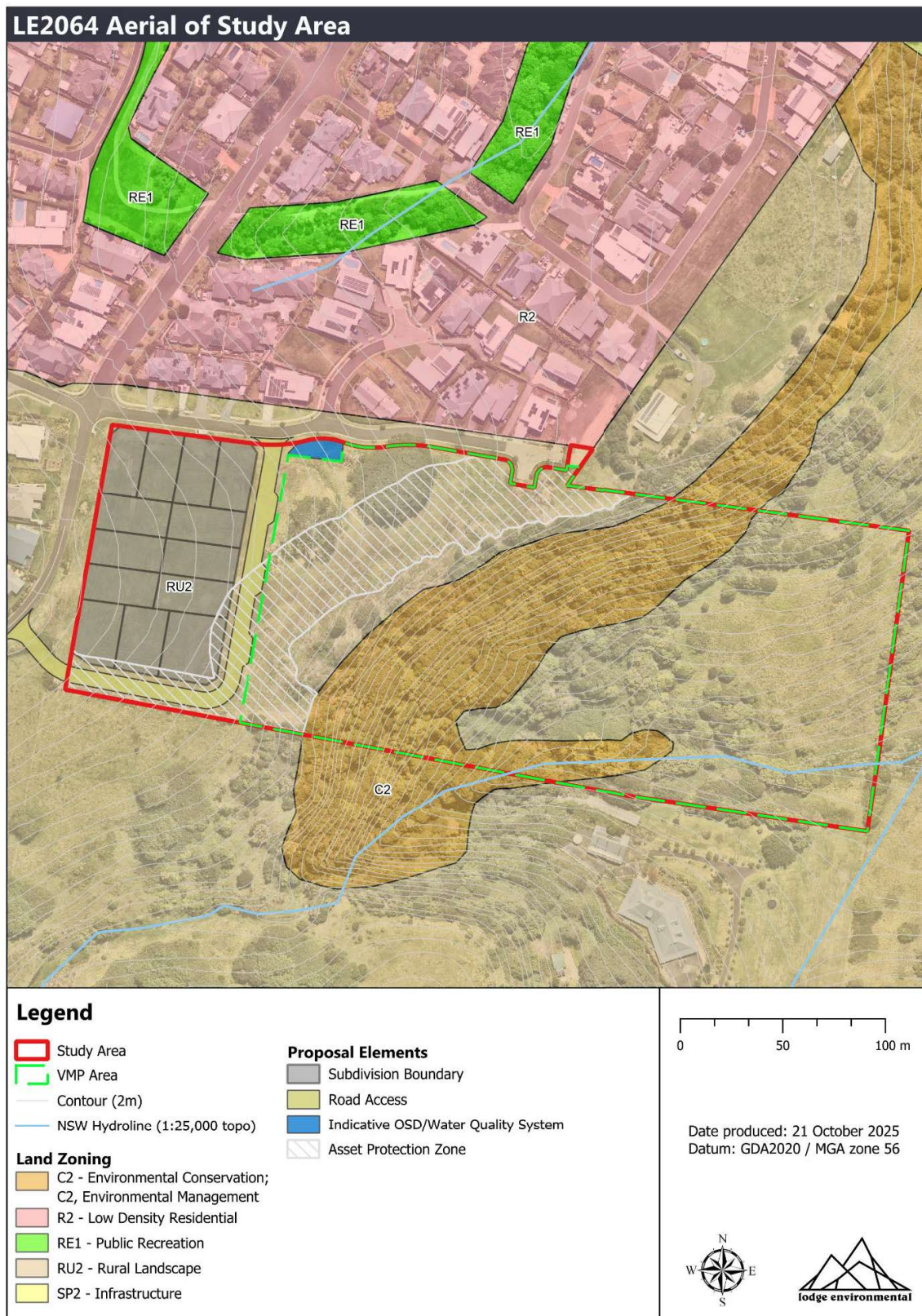


Figure 1: Aerial of Study Area and Proposed Elements

2.0 LEGISLATIVE FRAMEWORK

The following table outlines the requirements for the VMP and landholder under the relevant local, regional, and state policy and legislations.

Table 1: Legislative framework for VMP and landholder

	Overview/Relevancy	How it applies
Local Policies		
<i>Kiama Municipality Council Development Control Plan (2020)</i>	The VMP Area is partially zoned as C2 - Environmental Conservation with the western half and easternmost portion zoned as RU2 - Rural Landscape (Figure 1). The local legislation provides detail and provisions for the use of land within the Shoalhaven LGA.	<i>C2 - Environmental Conservation</i> The primary objective of this zone is to protect, manage and restore areas of high ecological, scientific, cultural or aesthetic value. Limited development is permitted, provided it does not have adverse effects on these values. <i>RU2 - Rural Landscape</i> The primary objectives of this zone are to encourage sustainable primary industry production, protecting agricultural land and provide opportunities through development that adds to agricultural production. Development aligned with the objectives of this zone are permitted with consent.
State Legislation		
<i>Biosecurity Act, 2015</i>	The primary object of this Act is to provide a framework for the prevention, elimination, and minimisation of biosecurity risks posed by and dealing with biosecurity matters, carriers and potential carriers, and other activities that involve biosecurity matter, carriers, or potential carriers.	Under the <i>Biosecurity Act 2015</i> , all landowners or land managers have a "General Biosecurity Duty" to prevent or minimise the Biosecurity Risk posed or likely to be posed by Priority Weeds. Under this Act, the local control authority has a legal obligation to manage the biosecurity risk posed or likely to be posed to human health, the economy, community, and environment by Priority Weeds.
<i>Environmental Planning and Assessment Act, 1979 (EP&A Act)</i>	To protect the environment, including the conservation of threatened and other species of native animals, plants ecological communities and their habitats	The NSW EP&A Act is the principal planning legislation for the state, providing a framework for the overall environmental planning, and development assessment process.
<i>Water Management Act 2000 (WM Act)</i>	The WM Act Vegetated Riparian Zone (VRZ) is provided adjacent to the channel to provide a protective buffer between catchment land uses and aquatic habitat.	Required to assess activities carried out on waterfront land. Waterfront land includes the bed and bank of any river, lake or estuary and all land within 40 meters of the highest bank of the river, lake, or estuary
Other		
<i>Southeast Regional Strategic Weed Management Plan 2023-2027</i>	Outlines strategic actions to guide a collaborative weed management and provides guidance for coordinated actions to identify, minimise, respond and manage high risk weeds	Obligation to control, reduce or eliminate certain weeds from property

2.1 WATER MANAGEMENT ACT

The NSW Natural Resource Access Regulator (NRAR) administers the *Water Management Act 2000* (WM Act) and is required to assess activities carried out on waterfront land. Waterfront land includes the bed and bank of any river, lake or estuary and all land within 40 meters of the highest bank of the river, lake, or estuary. Certain activities within this land are defined as a 'controlled activity' and require approval from the Office of Water. One 3rd Order Watercourse (Strahler Stream Order classification) is mapped on the State Hydro Line layer within the Study Area, approximately 110 m east of the proposed development. Therefore, the development will not occur on waterfront land and further consideration of the WM Act is not required.

3.0 SITE DESCRIPTION

The Study Area covers a total of 5.71 ha, existing as cleared exotic land in the western half and consolidated rainforest vegetation and a small, cleared area in the eastern half. One 3rd Order watercourse is mapped on the NSW State Hydro Lines Map, located within the rainforest vegetation. The VMP Area encompasses 4.51 ha across the eastern majority of the Study Area including the rainforest vegetation. A patch of the threatened flora species, *Zieria granulata* (Illawarra Zieria) exists on the boundary of this vegetation and within the small, cleared portion to the east. Neighbouring land consists of agricultural land to the south and residential housing to the north.

Vegetation within the VMP Area consists mainly of rainforest vegetation and some cleared exotic grassland. Native vegetation within the VMP Area has been validated as PCT 3013 – Illawarra Lowland Subtropical Rainforest, existing as two conditions, disturbed condition and good condition. The disturbed condition PCT 3013 within the VMP Area exists as a sparse native mid and ground stratum (**Figure 4**) including the species, *Acacia melanoxylon* (Blackwood), *Pittosporum undulatum* (Sweet Pittosporum), *Glochidion ferdinandi* (Cheese Tree), *Pittosporum multiflorum* (Orange Thorn) and *Dichondra repens* (Kidney Weed) with high weed incursion of *Araujia sericifera* (Moth Vine), *Ageratina adenophora* (Crofton Weed), *Axonopus fissifolius* (Narrow-leaved Carpet Grass), *Modiola caroliniana* (Red-flowered Mallow), *Sonchus oleraceus* (Sow Thistle), *Lantana camara* (Lantana) and *Senna pendula* (Cassia). Within this vegetation zone, a patch of the threatened flora species, *Zieria granulata* (Illawarra Zieria), is present. The good condition PCT 3013 represents a consolidated rainforest with native upper, mid and ground species present (**Figure 5**). The occurrence of this PCT within the Study Area is shown in **Figure 6**. A detailed description of this PCT and associated characteristics is included in **Appendix A**. All identified flora species observed within the Study Area are included in **Appendix B**.



Figure 2: PCT 3013 in disturbed condition within the VMP Area



Figure 3: PCT 3013 in good condition within the VMP Area



Figure 4: Validated Vegetation

4.0 VEGETATION MANAGEMENT PLAN

4.1 VEGETATION MANAGEMENT ZONES & TREATMENTS

This VMP has been prepared with the aim of reducing the presence of priority weeds and improving native biodiversity through assisting natural regeneration and reintroducing native species across the VMP Area. Ongoing weed prevention is essential throughout the VMP Area to allow assisted native regeneration to occur, whilst also maintaining the remaining native vegetation.

Four Management Zones (MZs) were established, based on the necessity for revegetation, weed management and assisted regeneration areas:

- Management Zone 1 - Biodiverse Asset Protection Zone (APZ)
- Management Zone 2 - *Z. granulata* Protection
- Management Zone 3 - Assisted Regeneration
- Management Zone 4 - Active Restoration

These are depicted in **Figure 7** and detailed below in **Table 3**.

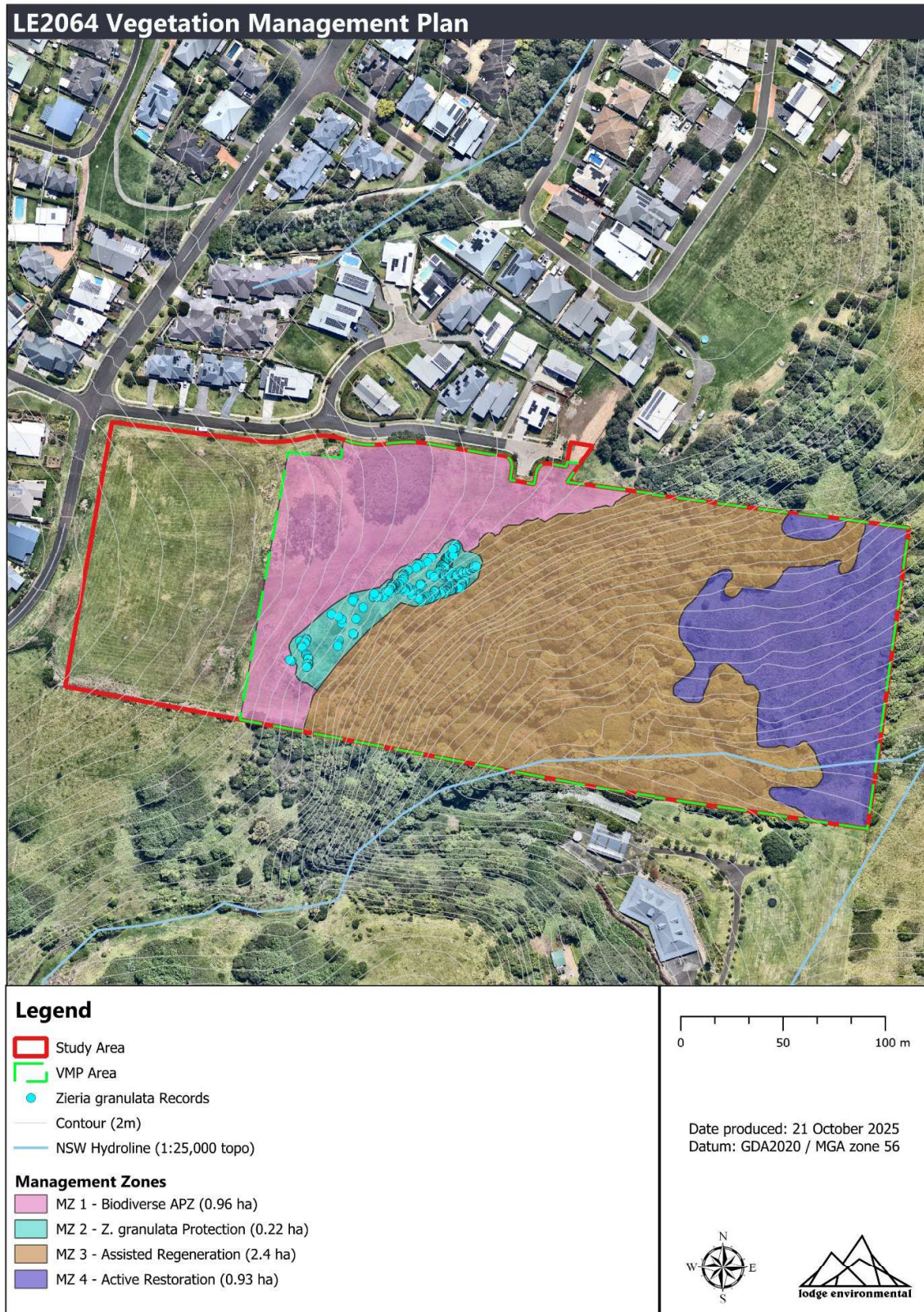


Figure 5: Vegetation Management Plan

Table 2: Management Zones and Treatments

Management Zone 1 - Management of Biodiverse APZ	
Objectives	To establish a buffer around existing <i>Zieria granulata</i> and Illawarra Subtropical Rainforest (ISR) managed to the requirements of the APZ.
Aims	• Maintain vegetation in accordance with the Bushfire Assessment Report APZ requirements (Harris Environmental 2025). • Control weed species and remove exotic flora infestations. • Reduce threatening processes such as weed encroachment. • Promote native biodiversity and provide a buffer for the threatened species <i>Z. granulata</i>.
Description	MZ 1 covers 0.96 ha and encompasses the western-most portion of the VMP Area consisting of historically cleared exotic grassland. This MZ is frequently managed through mowing and slashing, restricting vegetation to the ground stratum where exotic grasses and forbs are dominant including <i>Cenchrus clandestinus</i> (Kikuyu), <i>Axonopus fissifolius</i> (Narrow-leaved Carpet Grass), <i>Modiola caroliniana</i> (Red-flowered Mallow), <i>Plantago lanceolata</i> (Lamb's Tongue), <i>Trifolium repens</i> (White Clover), <i>Taraxacum officinale</i> (Dandelion) and <i>Sonchus oleraceus</i> (Sow Thistle). Sparse native forbs exist as scattered occurrences throughout this MZ including <i>Dichondra repens</i> (Kidney Weed). Several priority weed species (Section 4.5.1) are present across the MZ. <i>Senecio madagascariensis</i> (Fireweed), <i>Ageratina adenophora</i> (Crofton Weed), <i>Conyza bonariensis</i> (Fleabane) and <i>Onopordum acanthium</i> (Scotch Thistle) have significant incursions.
Rehabilitation works	The primary goal for this MZ is to reduce occurrence of priority weeds, manage vegetation to adhere to the APZ requirements and provide a buffer for the threatened flora species <i>Z. granulata</i> and threatened ecological community ISR. All weed species shall be removed with focus on priority weed species listed in (Section 4.5.1). Priority weed species pose a major threat to the threatened flora species <i>Z. granulata</i> and the threatened ecological community ISR adjacent to this MZ. Removal of these HTE and other exotic species will allow natural regeneration of native grasses and forbs. Exotic specimens and propagules should be bagged and removed from the site to a registered green waste facility. The following treatment methods are recommended to reduce soil disturbance and minimise herbicide run-off into sensitive areas: • Herbicide that has been specifically formulated for use in environmentally sensitive areas is recommended, such as Roundup Biactive®. • Spot spraying. • Hand-pulling and spot spraying are also preferred treatments for other exotic species. All pre-existing and regenerating native vegetation is to be retained, with special care taken when implementing weed management techniques, to avoid damage or disturbance to native species. Treatment methods and herbicide rates are detailed in Table 4. All priority weeds will require follow-up control 3-monthly for the first year to ensure successful establishment and regeneration of native species. This MZ will be managed as a biodiverse APZ. All vegetation must be in accordance with the APZ requirements outlined in the Bushfire Hazard Assessment Scoping Proposal (Harris Environmental 2025). Waste materials and rubbish should be removed from this zone immediately.

Site photos -
Management
Zone 1



Management Zone 2 - *Zieria granulata* Protection

Objectives	To monitor the natural regeneration of <i>Zieria granulata</i> individuals and provide protection from weeds encroachment.
Aims	• Monitor <i>Zieria granulata</i> regeneration and establishment in the MZ. • Identify and control threatening processes such as weed encroachment and grazing. • Aid in nutrient cycling for future restoration processes. • Promote biodiversity and help restore ecological processes.
Description	MZ 2 covers 0.22 ha of PCT 3013 in disturbed condition and all <i>Z. granulata</i> individuals recorded within the Study Area. This MZ dominated by native vegetation with canopy, mid stratum and ground stratum species present as well as regenerating trees. Previous disturbance has resulted in significant weed encroachment of the priority weed species <i>Senecio madagascariensis</i> (Fireweed), <i>Ageratina adenophora</i> (Crofton Weed), <i>Lantana camara</i> (Lantana), <i>Conyza bonariensis</i> (Fleabane), <i>Senna septemtrionalis</i> (Winter Senna), <i>Asparagus aethiopicus</i> (Asparagus Fern), <i>Asparagus asparagoides</i> (Bridal Creeper), <i>Delairea odorata</i> (Cape Ivy) and <i>Araujia sericifera</i> (Moth Vine).
Rehabilitation works	The primary goal for this MZ is to reduce overall weed species and provide protection to the threatened flora species <i>Z. granulata</i> and the threatened ecological community ISR. All weed species shall be removed with focus on priority weed species listed in (Section 4.5.1). Priority weed species pose a major threat to the regeneration of this MZ. <i>Lantana camara</i> (Lantana) is already abundant in patches and, without control will spread across the MZ. Exotic specimens and propagules should be bagged and removed from the site and disposed of at a registered green waste facility. The following treatment methods are recommended to reduce soil disturbance: • Herbicide that has been specifically formulated for use in environmentally sensitive areas is recommended, such as Roundup Biactive®. • Spot spraying. • Cut stump method for <i>Ligustrum</i> spp. and <i>Olea</i> spp.

	- Avoid herbicide use within a 2m buffer around <i>Z. granulata</i> patches to avoid overspray. - Hand-pulling and spot spraying are also preferred treatments for other exotic species. All pre-existing and regenerating native vegetation are to be retained, with special care taken when implementing weed management techniques, to avoid damage or disturbance to native species. Treatment methods and herbicide rates are detailed in Table 4. All priority weeds will require follow-up control 3-monthly for the first year to ensure successful establishment and regeneration of native species Waste materials and rubbish should be removed from this zone immediately.
Site photos - Management Zone 2	
Management Zone 3 - Assisted Regeneration	
Objectives	To control weed species and monitor natural regeneration of native vegetation structure, including improvements in vegetation structure, biodiversity and overall ecosystem function.
Aims	- Control weed species and remove exotic flora infestations. - Monitor natural native vegetation regeneration and establishment in the MZ. - Reduce threatening processes such as weed encroachment. - Aid in nutrient cycling for future restoration processes. - Promote biodiversity and help restore ecological processes.
Description	MZ 3 covers 2.4 ha, consisting of the good condition PCT 3013 rainforest identified as the threatened ecological community Illawarra Subtropical Rainforest. Canopy coverage is good across the MZ, comprised of established, tall rainforest species <i>Ficus macrophylla</i> (Moreton Bay Fig), <i>Toona ciliata</i> (Red Cedar), <i>Glochidion ferdinandi</i> (Cheese Tree), <i>Dendrocnide excelsa</i> (Giant Stinging Tree) and <i>Acacia melanoxylon</i> (Blackwood). A dense mid stratum of <i>Pittosporum multiflorum</i> (Orange Thorn), <i>Streblus brunonianus</i> (Whalebone Tree), <i>Geitonoplesium cymosum</i> (Scrambling Lily) and <i>Melicytus dentatus</i>

	(Tree Violet) is present with high native vine cover including the species <i>Pandorea pandorana</i> (Wonga Vine), <i>Stephania japonica</i> (Snake Head Vine) and <i>Tylophora barbata</i> (Bearded Tylophora) present. Some HTE weed incursion is present in this MZ. Smothering vines such as <i>Delairea odorata</i> (Cape Ivy), <i>Asparagus asparagoides</i> (Bridal Creeper) and <i>Araujia sericifera</i> (Moth Vine) are abundant in patches and without control will spread across the MZ and broader VMP Area. These weeds may threaten the natural rehabilitation of the native vegetation in this zone.
Rehabilitation works	The primary goal for this MZ is to reduce overall weed cover, reduce disturbance, protect biodiversity from weed encroachment as a result of the proposed development and improve vegetation structure and ecosystem function. All weed species shall be removed with specimens and propagules bagged and removed from the site and disposed of at a registered green waste facility. The following treatment methods for weed removal are recommended to minimise disturbance to stream banks and herbicide run-off into the nearby watercourse: • Herbicide that has been specifically formulated for use in environmentally sensitive areas is recommended, such as Roundup Biactive®. • Spot spraying. • Hand-pulling and spot spraying are also preferred treatments for other exotic species. Treatment methods and herbicide rates are detailed in Table 4. All priority weeds will require follow-up control 3-monthly for the first year to ensure successful establishment and regeneration of native species. Waste materials and rubbish should be removed from this zone immediately.
Site Photos - Management Zone 3	
Management Zone 4 - Active Restoration	
Objectives	Remove exotic species and extend adjacent rainforest through native plantings and ongoing management.

Aims	• Control weed species and remove exotic flora infestations. • Reduce threatening processes such as weed encroachment. • Introduce native vegetation structure. • Aid in nutrient cycling for future restoration purposes. • Promote biodiversity and help restore ecological processes.
Description	MZ 4 covers 0.93 ha and encompasses the eastern portion of the lot, a historically cleared grassland with native regeneration evident. MZ 4 is dominated by exotic species and presence of the priority and environmental weeds in the ground stratum and mid stratum, including the priority weeds listed in Table 4, may threaten the rehabilitation efforts within the adjacent rainforest.
Rehabilitation works	The primary goal for this MZ is to reintroduce native rainforest species, reduce overall weed species, to enable establishment of native vegetation and extend the adjacent rainforest. All weed species shall be removed prior to revegetation works with specimens and propagules bagged and removed from the site and disposed of at a registered green waste facility. The following treatment methods are recommended to reduce soil disturbance to stream banks and minimise herbicide run-off into the watercourse: • Hand-pulling • Spot spraying • Herbicide that has been specifically formulated for use in environmentally sensitive areas is recommended, such as Roundup Biactive®. • Hand-pulling and spot spraying are also preferred treatments for other exotic species. Treatment methods and herbicide rates are detailed in Table 4. All priority weeds will require follow-up control 3-monthly for the first year to ensure successful establishment and regeneration of native species. Waste materials and rubbish should be removed from this zone immediately.
Site Photos - Management Zone 4	No image available

4.2 WEED CONTROL TECHNIQUES

Weed control involves a combination of mechanical, physical and chemical techniques to remove the weeds and prevent regrowth. Weed control will be undertaken at all management zones. A selection of the best suited weed control methods within the site depends on several factors including:

- The species or combination of weeds being targeted.
- The density of weeds.
- Resources available (time, labour, equipment, and finances).
- Weather and climactic conditions of the day.

Detail of weed specific control techniques to be used such as cut and paint, scrape and paint, herbicide spraying, and hand weeding are given in Brodie (2010). The principles of bush regeneration and techniques to trigger natural regeneration are to be in accordance with the Bradley Method and other techniques described in Buchanan (2009). Management techniques for different types of weeds are provided below.

4.2.1 Annual Grasses

Annual grasses should be hand removed where isolated or in low concentrations. The patches of annual grasses that exist in the VMP Area would be more appropriately slashed/brush cut. Monitoring of annual species should be undertaken and if new growth occurs, the same treatment will be applied to the new growth to prevent seed production. Individual plants should be hand removed, bagged and disposed of appropriately offsite.

4.2.2 Perennial Grasses

Perennial grasses will be hand removed where isolated or in low concentrations. Any larger patches within the VMP Area would be more appropriately slashed prior to seed production in Spring or Summer (depending on the growth cycle of the species) and regrowth spot-sprayed 2-3 weeks later when it is actively growing and approximately 10 cm in length. Monitoring of these species will occur and if new seed production occurs, the same treatment will be applied again as required. However, slashing will not reduce the presence of exotic grasses on its own and must always be combined with targeted removal to reduce densities and allow for native regeneration. Individual plants should be hand removed, bagged and disposed of appropriately offsite.

4.2.3 Woody Weeds

Woody weeds will be controlled by cut and paint or drill and fill methods using a non-selective herbicide. The most appropriate method to be used depends on the size of the individual to be removed. Primary weed control should use techniques that will not encourage flushes or secondary weed growth. All seedlings of woody weeds will be hand pulled or spot-sprayed with a non-selective herbicide.

4.2.4 Creepers and Climbers

The control of creepers varies depending on the species. For the most part, seedlings will be hand pulled, while mature plants can be controlled by the stem-scrape method or spot spraying

using a non-selective herbicide. The precise method to be used will be determined by the land manager depending on the species, size and reproductive status of the individual. All vegetative material should be bagged, removed from site and disposed of appropriately. Based on the site assessment, there are minimal creepers and climbers present and would be of appropriate size to remove by hand.

4.2.5 Herbaceous Weeds

Where individual plants or herbaceous weeds are found, they will be hand pulled prior to flowering. Where large patches of these species occur, they will be sprayed using a non-selective herbicide. If high densities of mature stands occur, weeds may be slashed first using a brush cutter and any subsequent regrowth sprayed. Monitoring of these species will be required to prevent seed production. All vegetative material that is pulled out and has the potential to regrow if deposited on the ground will be bagged and removed from site.

4.2.6 Management of Weed Waste

All propagules, especially priority weeds, will be bagged and disposed of as directed by legislation at a facility licensed to receive green waste.

4.2.7 Herbicide Use

The use of herbicide to control weeds should be carefully considered. Herbicide use should assess potential long-term impacts of the technique including whether the proposed works actually address the source of the weed infestation. However, herbicide application forms an important and useful component of an integrated weed management approach and can be the most appropriate method to control some weed species.

Herbicide use should occur during the active growing season for plants to encourage the chemical uptake into the plant. The selection of herbicides should also consider the type of weed and the location. Where non-selective herbicides are required for use, glyphosate is the most suitable. If herbicides are required to be used near waterways, a glyphosate-based herbicide formulated for use near waterways will be used (e.g. Erazo 360 Bi-Aquatic).

Broad-leaf selective herbicide is extremely toxic to aquatic life and must not be used in, or adjacent to, waterways. Registration and records must be kept in accordance with the NSW Pesticide Regulation 2009.

4.3 FOLLOW-UP TREATMENTS AND CONSIDERATIONS

Successful weed control relies on follow-up treatments after the initial efforts using a combination of treatments provided above in **Section 4.2**. If suggested chemicals are to be used and are deemed safe in a wetland environment, chemical rotation should be implemented to manage potential resistance amongst various weed species. Following the initial stages of control, management of weeds should occur regularly with a minimum of four visits per year. Other factors that should be considered are as follows:

- Identify priority species, populations or ecological communities at risk near weed infestations.
- Remove weeds causing direct threats to provide short-term protection.

- Control plants before they produce fruit.
- Use appropriate methods of control for the size of the plants.
- Treat and control new seedlings prior to seed set.
- Eradicate any new weed species to the area.
- Reduce the height and density of weed species, to allow other treatments.
- Ensure if using chemical treatment, that climactic conditions are appropriate (e.g. wind speed, temperature, humidity).

4.4 WEED HYGIENE

During work, the following weed hygiene practices and maintenance requirements must be complied with:

- All vehicles entering or leaving the site must be cleaned of dirt, sand and other materials to avoid the spread of seeds, weed propagules and contaminated soils.
- Stockpiles must be solarised and covered with black plastic to reduce the potential of weed germination.

All machinery must be cleaned of dirt, sand and other material prior to the commencement of works each day.

4.5 BIOSECURITY OBLIGATIONS

4.5.1 Priority Weeds

Specific control and treatment methods are detailed for priority weeds within the Study Area in **Table 4** below. Priority weeds include nationally recognised 'Weeds of National Significance', NSW 'Priority Weeds' identified under the *Biosecurity Act 2015* and those considered 'Regional Priority Weeds' in the *South East Regional Weed Strategic Management Plan 2023-2027*.

Table 3: Weed control techniques for priority weeds (NSW WeedWise, DPI).

Weed Management	
To improve biodiversity and condition of the regenerating vegetation, the following 16 weeds identified within the Study Area will need to be eradicated and controlled, to prevent future weed invasion. The following weed species are a threat to the overall health of the riparian corridor and surrounding vegetation, due to their invasive nature and are considered Weeds of National Significance (WoNS) or environmental weeds within the State of NSW and Shoalhaven LGA.	
Herbicide that has been specifically formulated for use in environmentally sensitive areas is recommended, such as Roundup Biactive®. This will be utilised when viable. Additional specific herbicides for the targeted priority weeds are described below and will be used when possible, with consideration of the riparian corridor.	
Ageratina adenophora (Crofton Weed)	
Description	Crofton Weed is a rapid spreading shrub along the eastern coast of Australia. Mature plants can produce between 10,000 and 100,000 seeds per year with most infestations occurring on bare, disturbed sites than heavily vegetated areas.
Classification	NSW Priority Weed

Control	Removal of this species within the VMP Area relies on follow up after the initial efforts, aiming to remove and kill regrowth or seedlings. Using a combination of control methods is usually more successful.	
Control Methods	Mechanical	Plants can be hand pulled prior to seeding; remove all material from the site. Ensure plants are bagged and disposed of at Council approved sites.
	Chemical	Spot Spraying (mixed herbicide): <i>Fluroxypyr 140 g/L + Aminopyralid 10 g/L (various products)</i> – spot spray at a rate of 700 mL/100 L of water on actively growing plants during October to April.
<i>Araujia sericifera</i> (Moth Vine)		
Description	Moth Vine is a fast-growing climbing plant with hairy twining stems and large green fruit. It is poisonous to people and animals and smothers native vegetation. Invasion and establishment of these exotic vines and scramblers have been identified as a Key Threatening Process for many vulnerable and endangered species in NSW.	
Classification	NSW Priority Weed	
Control	Physical removal is preferred for smaller infestations, such as present in the VMP Area. Chemical controls can be utilised in conjunction with mechanical controls. Take care to avoid contact with the milky sap (latex) that is released when the plant is damaged and wear gloves and other personal protective gear. Plants produce approximately 400 seeds to each fruit, which are viable for up to 5 years so follow up work is required. Return to control areas regularly to check for any regrowth and re-treat when needed.	
Control Methods	Mechanical	Seedlings and small plants can be hand pulled or dug out. Remove roots from at least 10 cm below ground to avoid regrowth of the plant. Ensure all plants and fruit are bagged and disposed of at Council approved land tips.
	Chemical	Spot Spraying: For seedlings or low growing vines, spray to thoroughly cover all foliage. If vines are growing over native plants spot spraying will not be appropriate and other options should be used. Spraying will not kill the fruit, it must be collected and disposed of appropriately. <i>Glyphosate 360 g/L (various products)</i> – spot spray seedling plants at a rate of 200 mL/10 L of water plus a surfactant. Stem Scraping: Gently scrape a thin layer of bark off along the stem. Apply herbicide within 15 seconds. Do not scrape all the way around the stem as this will ringbark the vine and prevent the herbicide from moving through the plant effectively. This method is preferred in the VMP Area and is suitable for sensitive environments. <i>Glyphosate 360 g/L (various products)</i> – stem cut, scrape and paint application.
<i>Asparagus athiopicus</i> (Asparagus Fern)		
Description	Asparagus Fern grows very densely above the ground and forms thick mats of tubers and roots underground. It is a serious environmental weed because it: • Outcompetes native plants for water and nutrients • Smothers and kills small native herbs and shrubs • Reduces habitat and restricts movement for native animals • Changes soil and leaf litter composition, affecting soil life Asparagus Fern competes with some threatened native plant species and plants that are within endangered ecological communities.	
Classification	NSW Priority Weed	

Control	Successful weed control requires follow up after the initial efforts. This means looking for and killing regrowth or new seedlings. Using a combination of control methods is usually more successful.	
Control Methods	Mechanical	Very small plants can be hand pulled, ensuring that all of the crown is removed. Dispose of crown and fruit. Crowning is a technique of digging out the entire crown that sits just below the surface of the soil. The roots and tubers are left in the soil. This helps prevent excessive soil disturbance in sensitive areas.
	Chemical	Cut Stump (gouge and paint): Cut the stems then gouge out a section of the crown with a knife. Picloram 44.7 g/L + Aminopyralid 4.47 g/L (Vigilant II ®) - apply the herbicide to the gouged crown immediately. Spot Spraying: Spot spray larger infestations, regrowth, or seedlings. Use a penetrant in coastal areas as Asparagus Fern forms a waxy coating. Spot spraying is most successful between flowering and berries forming. Take care to avoid off-target damage. <i>Fluroxypyr 200 g/L (various products)</i> – spot spray from mid-June to late August at a rate of 500 mL/ 100 L of water.

Asparagus asparagoides (Bridal Creeper)

Description	Bridal Creeper is a climbing perennial plant that grows during autumn and winter. It dies back over summer or when conditions are dry. If there is enough moisture over summer the leaves will not fall over summer. Bridal Creeper is a smother vine that: • Outcompetes native plants • Reduces food and habitat for native animals • Forms thick root mats that can stop other plants and seedlings growing Invasion and establishment of exotic vines and scramblers has been identified as a Key Threatening Process for many vulnerable and endangered species in NSW.	
Classification	NSW Priority Weed	
Control	Successful weed control requires follow up after the initial efforts. This means looking for and killing regrowth or new seedlings. Using a combination of control methods is usually more successful.	
Control Methods	Mechanical	Hand pulling and digging out plants can be used for seedlings and small plants in a small to medium sized infestation or in areas near sensitive plants. All rhizomes need to be dug up for this method to be effective. If possible, collect all fruit including green fruit, which can still ripen even if the plants have been cut.
	Chemical	Herbicides can kill Bridal Creeper, though several applications may be necessary. Spot Spraying: <i>Fluroxypyr 200 g/L (various products)</i> – spot spray application at a rate of 500 mL/ 100 L of water from mid-June to late August.

Asphodelus fistulosus (Onion Weed)

Description	Onion weed produces abundant fertile seeds that can germinate most of the year, and this makes it difficult to control. Hardy weed, ignored by stock. Establishes in disturbed situations, favouring alkaline sandy soils. Now widespread and common from coast to arid inland. Weed of cereal crops and a major threat to arid rangelands.	
Classification	NSW Priority Weed	
Control	Successful weed control relies on follow up after the initial efforts. This means looking for and killing regrowth or new seedlings. Onion Weed has smaller bulblets attached to the main bulb, these will often be dislodged during hand pulling and support regrowth. Using a combination of control methods is usually more successful.	
Control Methods	Mechanical	To prevent the survival of bulblets, the whole plant and surrounding soil must be dug out before flowering. Ensure all material is removed and that no bulbs are left in the soil. Ensure plants are bagged and disposed of at Council approved sites, do not compost.
	Chemical	Spot Spraying (mixed herbicide): <i>Glyphosate 360 g/L (various products)</i> – spot spray with a knapsack on actively growing plants at a rate of 50 mL/10 L of water.
Conyza bonariensis (Fleabane)		
Description	Fleabane (<i>Conyza bonariensis</i>) is the most common species in NSW. It is up to 1 m tall, is grey green overall, very hairy and branched from the base, has leaves with toothed margins and whitish flowers that are present for most of the year. Fleabanes grow in all regions of NSW. They are widespread throughout dryland cropping areas.	
Classification	NSW Priority Weed	
Control	Fleabane has been confirmed as glyphosate resistant. An integrated weed management approach is required.	
Control Methods	Mechanical	Isolated plants should be removed by chipping or grubbing. Remove as much of the root as possible so that regrowth does not occur. Slashing or mowing is not effective as plants develop new growth from the base.
	Chemical	Spot Spraying: Picloram 100 g/L + Triclopyr 300 g/L + Aminopyralid 8 g/L (Grazon® Extra) – spray at rosette stage at a rate of 250-500 mL/100 L from October to May for areas of native vegetation and non-cropland areas.
Delairea odorata (Cape Ivy)		
Description	Cape Ivy is a fast-growing environmental weed that can form dense carpets on the ground and smother shrubs and trees. It is poisonous to people and animals and smothers native vegetation. Invasion and establishment of these exotic vines and scramblers have been identified as a Key Threatening Process for many vulnerable and endangered species in NSW.	
Classification	NSW Priority Weed	
Control	Cape Ivy can be controlled by herbicides and hand pulling or digging out plants. The key is to follow up any control work to make sure the plant has not regrown or spread. Cape Ivy can quickly re-infest areas if follow up control is not undertaken.	
Control Methods	Mechanical	Hand pulling or digging out plants is the most common way to get rid of small areas of Cape Ivy. To avoid damaging plants covered with Cape Ivy, cut stems at ground level and leave to dry out on trees and shrubs, taking care to:

		- Remove all stems that are in contact with the ground - Dig out and remove all root material - Dispose of plants properly
	Chemical	Spot Spraying: <i>Glyphosate 360 g/L (various products)</i> - spot spray evenly to cover all foliage at a rate of 200 mL/10 L of water. To limit off-target damage to plants covered with Cape Ivy: - Cut stems at waist height - Move intact stems away from native plants - Spray stems with recommended herbicide Scrape and Paint: <i>Glyphosate 360 g/L</i> - 1 part glyphosate to 1.5 parts water. Cut and scrape the stems and apply the herbicide mix to the stems within 15 seconds of scraping.

Lantana camara (Lantana)

Description	Lantana is a scrambling shrub with colourful flowers. It is a widespread weed in coastal areas. Lantana can quickly colonise roadsides, power line and railway easements, creek banks, fence-lines, forestry, pastures, open native woodlands and subtropical rainforest edges. Lantana can grow in steep, inaccessible areas. Lantana often invades disturbed areas where vegetation has been cleared. A single plant can produce up to 12,000 fruit (and seeds) in a year. Most seeds are spread by birds and some animals that eat the fruit.	
Classification	Weed of National Significance (WoNS), NSW Priority Weed	
Control	Successful weed control takes time and follow up efforts to monitor and suppress weeds. A combination of control methods is usually needed.	
Control Methods	Mechanical	Hand pulling can work on small infestations, isolated plants and in steep areas that machinery cannot access. The best time is after rain when soil is moist. Wear gloves when hand pulling. Grub out roots with a mattock or hoe, then roll and haul the stems and roots away. Remove the roots and stems or the lantana will regrow.
	Chemical	Spot Spraying (mixed herbicide): <i>Glyphosate 360 g/L (various products)</i> - spot spray with a knapsack on actively growing plants at a rate of 10 mL/10 L of water.

Ligustrum lucidum (Broad-leaved Privet)

Description	Broad-leaf Privet is an evergreen shrub or tree with clusters of fragrant flowers and black fruit, which are poisonous to people. It outcompetes native plants and reduces yields in orchards, pastures and plantations. Broad-leaf Privet is a threat to three Endangered Ecological Communities in NSW: - Illawarra Subtropical Rainforest in the Sydney Basin Bioregion - present in the VMP Area - River-flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions - Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion.	
Classification	NSW Priority Weed	
Control	Successful weed control requires follow up after the initial efforts. This means looking for and killing regrowth or new seedlings. Using a combination of control methods is more successful. Early detection and removal of seedlings and young trees before they produce seed is effective for this species.	

Control Methods	Mechanical	Broad-leaf Privet is easy to pull up by hand when it has a stem diameter of less than 2-3 cm, particularly after rain. Larger plants may be dug out by earth-moving machinery, however mechanical removal is not recommended in steep areas or near waterways.
	Chemical	Spot Spraying: <i>Metsulfuron-methyl 300g/kg + Aminopyralid 375 g/kg (various products)</i> - spray actively growing plants up to 3 m tall. Cover all the foliage evenly. Cut Stump Method: <i>Glyphosate 360 g/L (various products)</i> - cut trunks and apply herbicide to the stump within 15 seconds of cutting. The cut-stump method is effective on young plants, suckers and regrowth.

Ligustrum sinense (Small-leaved Privet)

Description	Small-leaved Privet is a dense evergreen shrub that produces clusters of strongly perfumed white flowers. It has negative impacts on agriculture, native vegetation and human health. Small-leaved Privet invades forests, woodlands, orchards, plantation forests, gardens and areas along waterways. Dense strands of privet out-compete other plants for water, nutrients and sunlight.	
Classification	NSW Priority Weed	
Control	Wide dispersal of seed by birds cannot be controlled, therefore controlling the spread of privet requires the removal of seed trees and young seedlings before they produce seed. Successful weed control requires follow up after the initial efforts. This means looking for and killing regrowth or new seedlings. Using a combination of control methods is usually more successful.	
Control Methods	Mechanical	The following physical removal methods will reduce the seeding capacity of a large infestation but will not eradicate it. Follow-up with herbicide control or manual removal is required: • Hand removal – pull or dig out small to medium plants by hand. Dig out root segments to avoid regrowth. • Machine removal – earth-moving machinery may be used for removal of dense strands of privet if high levels of soil disturbance can be tolerated. • Slashing – large areas of seedlings or regrowth can be slashed.
	Chemical	Spot Spraying: <i>Metsulfuron-methyl 300g/kg + Aminopyralid 375 g/kg (various products)</i> - spray actively growing plants up to 3 m tall. Cover all the foliage evenly. Cut Stump Method: <i>Glyphosate 360 g/L (various products)</i> - cut trunks and apply herbicide to the stump within 15 seconds of cutting. The cut-stump method is effective on young plants, suckers and regrowth.

Olea europaea (Olive)

Description	Olive is a branching shrub or tree with clusters of creamy white flowers and purplish black fruits. It can outcompete native plants and dominate the understorey of forests and woodlands. In NSW, feral Olive has naturalised in the North West, Central West and Central Tablelands and Riverina regions. It is native to North Africa and Europe. It is cultivated for its edible fruit.
Classification	NSW Priority Weed

Control	Successful weed control requires follow up after initial efforts. This means looking for and killing regrowth or new seedlings. Using a combination of control methods is usually more successful. Ensure you have correctly identified feral Olive before controlling the trees, as there are similar looking native plants e.g. <i>Notelaea</i> spp.	
Control Methods	Mechanical	Hand pull seedlings and saplings 3 – 10 cm tall when the soil is moist (so that the tap root can be removed). Dig out small plants during drier times. For larger plants up to 1.5 m, use a mattock or chipping hoe.
	Chemical	Spot Spraying: <i>Glyphosate 360 g/L (various products)</i> – spray plants up to 1 m tall. Apply to actively growing plants. Thoroughly cover all of the foliage with the herbicide mix. Resprouting trunks can also be sprayed. Cut Stump Method: <i>Picloram 44.7 g/L + Aminopyralid 4.47 g/L (Vigilant II®)</i> – cut trunks or stems of mature plants close to the ground (preferably less than 10 cm above the ground) and apply herbicide to the remaining stump within 15 seconds. For multi-stem plants, treat at least 80% of the stems.
Onopordum acanthium (Scotch Thistle)		
Description	Scotch Thistle is an erect annual or biannual herb to 2 m high, generally one main stem with numerous branches covered with dense, appressed, woolly hairs and broad shiny wings along the stems. The flower heads are purple and round with spiny bracts.	
Classification	NSW Priority Weed	
Control	An integrated management program is the key to successful thistle management. The key to managing thistles is control of seed set, by preventing plants from ripening the seed the following year's population will be greatly reduced. Control isolated patches before they have a chance to spread. Implementation of physical removal and herbicide use within the VMP Area will be utilised to control Scotch Thistle.	
Control Methods	Mechanical	Isolated plants should be removed by chipping or grubbing. Remove as much of the taproot as possible so that regrowth does not occur. Slashing or mowing is not effective as plants develop new growth from the base. Immature seed heads that are cut and left lying on the ground can contain viable seed, ensure all parts are bagged and disposed of at a Council approved site.
	Chemical	Scotch Thistle can be difficult to kill, and the following critical factors must be considered when using herbicides: • Correct rate and timing of application – herbicides are most effective on seedlings and young rosettes however once plants begin stem elongation, herbicides may be less effective. • The hairy leaves of the thistles can reduce herbicide effectiveness through reduced absorption. Therefore, it is important to follow the herbicide label and use the recommended rate, application volume and adjuvant. • Control will be reduced if plants are stressed. Spot Spraying: <i>Clopyralid 300 g/L (Lontrel®)</i> - applied by handgun at a rate of 250 mL/100 L of water.

Senecio madagascariensis (Fireweed)		
Description	Fireweed is a serious pasture weed that is able to grow on most soil types and in all aspects. It forms a persistent seedbank if not controlled before it flowers and can rapidly take over heavily grazed and neglected pastures, competing strongly with existing pasture plants. It seeds prolifically and grows to maturity quickly.	
Classification	Weed of National Significance (WoNS), NSW Priority Weed	
Control	Prevent the plant from establishing by maintaining ground cover with competitive grass species, utilising chemical controls throughout the year and ensuring outbreaks of Fireweed are identified and acted on as soon as possible.	
Control Methods	Mechanical	Plants can be hand pulled. Dig out all roots. Ensure plants are bagged and burnt or disposed of at Council approved land tips.
	Chemical	Herbicides are a safe and effective method of control as part of an integrated Fireweed management plan. Spot Spraying (mixed herbicide): <i>Metsulfuron-methyl 600 g/kg</i> – spot spray via knapsack at a rate of 1000 L/ha. Application once per year.
Senna pendula (Cassia)		
Description	Cassia is a perennial spreading or sprawling shrub 2-4 m tall. If supported by other plants, it can grow up to 5 m. Cassia is a fast growing and it: • Invades bushland particularly in coastal areas, • Can outcompete native plants, and • Reduces food and habitat for native animals.	
Classification	NSW Priority Weed	
Control	Successful weed control requires follow up after the initial efforts. This means looking for and killing regrowth or new seedlings. Using a combination of control methods is usually more successful. Control plants before they flower and set seed.	
Control Methods	Mechanical	Pull or dig out plants when soil is damp or soft. Dig out the roots so the plants do not reshoot. Mulching can suppress new growth.
	Chemical	Spot Spraying: <i>Glyphosate 360 g/L (various products)</i> – spot spray seedlings and plants less than 2 m tall in dense infestations at a rate of 200 mL/10 L water. Cut Stem Method: <i>Glyphosate 360 g/L (various products)</i> – cut the stem low to the ground and apply herbicide within 15 seconds. If plants have seed pods, collect and dispose of the pods (contact local Council for further advice on how to dispose of seed pods).
Senna septemtrionalis (Winter Senna)		
Description	Winter Senna is a shrub with bright yellow flowers, growing to 1-3 m tall. Winter Senna is an environmental weed in coastal forest and woodlands. It grows quickly and can: • Form dense thickets, • Outcompete native plants, and • Reduce food and habitat for native animals.	
Classification	NSW Priority Weed	

Control	Successful weed control relies on follow up after the initial efforts. This means looking for and killing regrowth or new seedlings. Using a combination of control methods is usually more successful.	
Control Methods	Mechanical	Small seedlings can be hand pulled or dug out.
	Chemical	Spot Spraying: <i>Fluroxypyr 200 g/L (various products)</i> – spot spray actively growing plants at a rate of 500 mL/100 L water. Apply herbicide to all of the foliage to the point of visible wetness.

Solanum mauritianum (Tobacco Bush)

Description	Tobacco Bush is a shrub or small tree with large, hairy leaves. It grows quickly and outcompetes native vegetation, usually flowering and fruiting in their first year following germination. Mature plants can produce 100,000 to 200,000 seeds per year, which are viable after one year and generally spread via animals and waterways. Tobacco Bush can grow from damaged stems and from root pieced.	
Classification	NSW Priority Weed	
Control	Successful weed control relies on follow up after the initial efforts, including looking for and killing regrowth or new seedlings. Using a combination of control methods is usually more successful.	
Control Methods	Mechanical	Hand-pull seedlings and smaller plants, large plants can be dug out. Follow up every 3 months until no evidence of seedlings or regrowth appears.
	Chemical	Spot Spraying: Spray seedlings up to 2 m tall. Spraying will kill the plant but not the viable seeds. Remove the fruit from each plant and dispose of appropriately. <i>Glyphosate 360 g/L (various products)</i> – spot spray foliage at a rate of 200 mL/10 L of water. Cut Stump Method (mixed herbicide): <i>Picloram 100 g/L + Triclopyr 300 g/L + Aminopyralid 8 g/L</i> – large and small plants can be controlled by the cut stump method. Dispose of the cut plant after treating the stump, especially if the fruit are present. Cut stems less than 15 cm above the ground and apply herbicide to the cut and the sides of the stump immediately.

Follow up treatments and considerations:

Successful weed control relies on follow up treatments after the initial efforts using a combination of treatments provided in above. If suggested chemicals are to be used, chemical rotation should be implemented to manage potential resistance amongst various weed species. Following the initial stages of control, management of weeds should occur regularly with a minimum of 4 visits per year. Other factors that should be considered are as follows:

- Identify priority species, populations, or ecological communities at risk near weed infestations.
- Remove weeds causing direct threats to provide short-term protection.
- Control plants before they produce fruit.
- Use appropriate methods of control for the size of the plants.
- Treat and control new seedlings prior to seed set.
- Eradicate any new weed species to the area.
- Reduce the height and density of weed species, to allow other treatments.
- Ensure if using chemical treatment, that climatic conditions are appropriate (e.g., wind speed, temperature, humidity).

5.0 REVEGETATION

Following the required five-year implementation of this VMP, two VI Plots in Management Zone 3 and one in Management Zone 4 are to be undertaken to determine if regeneration and restoration have been successful. MZ 3 targets weed control and assisting the rainforest with regeneration. MZ 4 targets replanting of native species in the cleared area in the eastern portion of the lot and successful implementation of this VMP will be evident through an increase in native tree, shrub, grass and forb cover.

5.1 REVEGETATION DENSITIES

Table 5 below identifies the desired revegetation densities to be achieved by the vegetation management. Densities are dictated by existing vegetation and regenerating species and may be altered at the time of implementation to reflect the state of the site.

Table 4: Revegetation densities

Zone	Description	Area (m ²)	Target Coverage Revegetation densities (indicative) Plants required (indicative)			Total Plants
			Tree	Shrub	Grass/Sedges	
Zone 1	Biodiverse APZ	9,600	<15% 1/1000m ² 10*	<10% 1/15m ² 640*	-	650
Zone 2	<i>Z. granulata</i> Protection	2,200	-	-	-	-
Zone 3	Assisted Regeneration	24,000	-	-	-	-
Zone 4	Active Restoration	9,300	75% 1/20m ² 465	35% 1/5m ² 1,860	60% 3/1m ² 27,900	30,225
Total required for regeneration works			475	2,500	27,900	30,875

*Plant numbers for Zone 1 are a guide only, with the priority being to meet APZ guidelines as outlined in Bushfire Hazard Assessment: Scoping Proposal for Planning Proposal with Subdivision Layout, Harris Environmental (2025)

5.2 REVEGETATION SPECIES

Revegetation works are to occur in Management Zone 4, aiming to use species indigenous to both PCT 3013 – Illawarra Lowland Subtropical Rainforest and TEC Illawarra Subtropical Rainforest in the Sydney Basin Bioregion. The flora species below in **Table 6** and further detail in **Appendix A** have been carefully selected based on the plants abilities to adapt to the conditions of the surrounding environment. Plants have also been selected with consideration to growth periods, fire and disturbance regimes, regeneration potential, biodiversity potential and stock availability. The below flora list can also be used to inform species planted in

Management Zone 1, in line with the Bushfire Assessment Report APZ requirements (Harris Environmental 2025).

Table 5: Revegetation species required for Management Zone 4

Management Zone	Required Revegetation Works		
Management Zone 4	This vegetation currently occurs as a cleared patch in the eastern portion of the lot. Revegetation aims to introduce species indigenous to PCT 3013 to the upper, mid and ground stratum as specified below. Care should be taken not to disturb existing native vegetation, with preference given to areas that were heavily weeded for planting.		
Suggested Species			
Ground Stratum	Mid Stratum		Upper Stratum
<i>Dianella caerulea</i> (Blue-flax Lily)	<i>Acacia longifolia</i> (Sydney Golden Wattle)		<i>Acacia binervata</i> (Two-veined Hickory)
<i>Entolasia marginata</i> (Bordered Panic Grass)	<i>Goodenia ovata</i> (Hop Goodenia)		<i>Allocasuarina littoralis</i> (Black She-oak)
<i>Entolasia stricta</i> (Wiry Panic)	<i>Kunzea ambigua</i> (Tickbush)		<i>Eucalyptus globoidea</i> (White Stringybark)
<i>Gahnia radula</i> (Thatch Saw Sedge)	<i>Leptospermum juniperinum</i> (Prickly Tea Tree)		<i>Casuarina glauca</i> (Swamp She-oak)
<i>Lomandra longifolia</i> (Spiky-headed Mat-rush)	<i>Leptospermum polygalifolium</i> (Tantoon)		<i>Corymbia maculata</i> (Spotted Gum)
<i>Commelina cyanea</i> (Scurvy-weed)	<i>Melaleuca ericifolia</i> (Swamp Paperbark)		<i>Eucalyptus longifolia</i> (Woollybutt)
<i>Tricoryne elatior</i> (Yellow Rush-lily)	<i>Melaleuca linariifolia</i> (Narrow-leaved Paperbark)		<i>Eucalyptus robusta</i> (Swamp Mahogany)
<i>Parsonsia straminea</i> (Common Silkpod)	<i>Persoonia linearis</i> (Narrow-leaved Geebung)		

5.3 PLANTING APPROACH & LANDSCAPING

5.3.1 Planting Approach & Timing

In most parts of NSW, the ideal time for planting is during autumn (March to May) or winter (June to August). This allows the plants to establish their root systems during the cooler months, giving them a better chance of surviving the hotter, drier summer months.

When there is natural regeneration occurring, it is important to assess the extent of the regeneration. Generally, if there is natural regeneration occurring, it is best to allow the natural process to continue without human intervention, as the existing vegetation will likely provide the necessary ecological functions and biodiversity. Planting is best undertaken in locations where regeneration has not occurred or in areas that have undergone dieback from weed control.

6.0 ACTION PLAN

The action plan, outlined in **Table 7**, details specific management actions in order of priority. The sequence of actions will ensure the success of protection measures both pre and post development.

Table 6: VMP Action Plan

Priority	Task	Resources/Persons Required	Key Activities
1	Baseline VI Plots in MZ 3 and MZ 4	Suitably qualified Ecologist or Ecological Restoration Contractor	Two VI plots are to be conducted in MZ 3 and one in MZ 4 to establish baseline integrity scores for each zone prior to implementation of the VMP.
2	Priority weed/exotic removal across all MZs	Qualified Bush Regenerator	Control and remove exotic and weed species.
3	Removal of waste	Contractor or Landholder	Any dumped materials, weed waste, or exotics considered noxious or environmental weeds, must be disposed of appropriately.
4	Revegetation within MZ 1 and MZ 4	Qualified Bush Regenerator	Installation of irrigation and mulch in MZ 4. Planting of tube stock in MZ 1 and MZ 4.
5	Secondary weed control in all MZs	Qualified Bush Regenerator	Weed control and maintenance should continue for 5 years after initial removal.
6	Follow-up revegetation within MZ 1 and MZ 4	Qualified Bush Regenerator	If required, replacement of unsuccessful plantings in MZ 1 and MZ 4.
7	Maintenance and monitoring	Qualified Bush Regenerator	Quarterly visits to maintain vegetation within all Management Zones including follow up weed treatments and establishment of monitoring program.
8	Post VMP implementation monitoring	Suitably qualified Ecologist or Ecological Restoration Contractor	Replicate VI plots to be completed in MZ 3 and MZ 4 to determine if the performance criteria have been met.

6.1 IMPLEMENTATION SCHEDULE AND PERFORMANCE CRITERIA

6.1.1 Implementation Schedule

An implementation schedule for these works is provided in **Table 8**. The implementation schedule is required for a 5-year period, with weed control and monitoring being the primary focus.

Table 7: VMP Implementation Schedule

Establishment	Year 1	Year 2	Year 3 (Recommended)	Year 4 (Recommended)	Year 5 (Recommended)
Site preparation of VMP areas including weed removal and removal of waste	-	-	-	-	-
Control all priority weeds and other exotic weeds	Maintenance and weed control (minimum 4 times per year)	Maintenance and weed control (minimum 4 times per year)	Maintenance and weed control (minimum 4 times per year)	Maintenance and weed control (minimum 4 times per year)	Maintenance and weed control (minimum 4 times per year)
Revegetation of MZ4	Replacement planting (if required)	Replacement planting (if required)	-	-	-
Monitoring and reporting, including baseline VI plots in MZ 3 and MZ 4	Monitoring and reporting (6 - monthly)	Monitoring and reporting (6 - monthly)	Monitoring and reporting (6 - monthly)	Monitoring and reporting (6 - monthly)	Monitoring and reporting (6 - monthly), including post implementation VI plots in MZ 3 and MZ 4

6.1.2 Performance Criteria

The performance criteria, required for the VMP Area, to be assessed during each monitoring round are listed in **Table 9**. If monitoring indicates that the VMP tasks are not resulting in achievement of the performance criteria, management will be adapted as needed.

Table 8: VMP Performance Criteria

Zone	Establishment Phase	Years 1 to 5: Maintenance Period				
MZ 1	An increase in native % cover and diversity through plantings.	Maintenance of native % cover in-line with APZ requirements				
	At the end of each year, a minimum of 85% survival rate of all vegetation strata planted in each zone (e.g., tree, shrub, and groundcover).					
	All adult seeding noxious weed individuals to be controlled and no establishment of new noxious species.	Target <40% priority weed cover	Target <20% priority weed cover	Target <10% priority weed cover	Target <5% priority weed cover	Maintain <5% priority weed cover
MZ 2	An increase in % native cover each year, relative to establishment phase, and each previous year.					

	All adult seeding noxious weed individuals to be controlled and no establishment of new noxious species.	Target <10% priority weed cover	Target <5% priority weed cover	Target <2% priority weed cover	Maintain <2% priority weed cover	Maintain <2% priority weed cover
MZ 3	Conduct baseline VI plot to determine current % native and exotic cover.	An increase in % native cover each year, relative to establishment phase, and each previous year. A post VMP implementation VI plot will be conducted to show an increase in VI score.				
	All adult seeding noxious weed individuals to be controlled and no establishment of new noxious species.	Target <5% priority weed cover No new priority weed cover	No new priority weed cover	No new priority weed cover	No new priority weed cover	No new priority weed cover
MZ 4	Prior to plantings conduct baseline VI plot to determine current % native and exotic cover.	An increase in % native cover each year, relative to establishment phase (post-planting), and each previous year. A post VMP implementation VI plot will be conducted to show an increase in VI score.				
	At the end of each year, a minimum of 85% survival rate of all vegetation strata planted in each zone (e.g., tree, shrub, and groundcover).					
	Any localised plant failure within planting areas is addressed with no planting area larger than 2m x 2m without surviving plants at the end of each year.					
	Maintenance replanting is to replace plants by the same species, or where that species is not available, with the same growth from (i.e., tree for tree) and must not decrease species diversity.					
	All adult seeding noxious weed individuals to be controlled and no establishment of new noxious species.	Target: 50% reduction in priority weed cover from baseline	Target: 70% reduction in priority weed cover from baseline	Target: 90% reduction in priority weed cover from baseline	Target: 95% reduction in priority weed cover from baseline	Target: 95% reduction in priority weed cover from baseline
All zones	Commencement of all tasks outlined within the VMP. Overall increase in native cover and diversity and decrease in exotic cover by the end of the maintenance period.					

6.2 MONITORING AND REPORTING

A suitably qualified and experienced Ecologist or Ecological Restoration Contractor will monitor the vegetation for changes over time. Information gained through the monitoring and reporting process will identify works that have and have not been successful, and the reasons for their success or failure.

Photo points are to be established during the first round of monitoring and used as a benchmark. VI plots are to be undertaken in MZ 3 and MZ 4 at the establishment of the VMP, to be used as a benchmark.

The aim of monitoring is to measure the effectiveness of the control actions being undertaken to achieve the desired outcome. It will identify non-conformance and provide the Land Manager with the ability to implement corrective actions. Information derived from the results of monitoring will also be used in adaptive management (i.e. learning from past experience to

inform future priorities and work plans). For example, as annual grass weeds are removed, herbaceous and perennial weeds may establish.

6.2.1 Monitoring

Monitoring will be undertaken by rapid vegetation survey and photo monitoring using standardised pro-forma (**Appendix C** or similar).

Photo monitoring points should be set-up using a permanent reference point to provide a visual reference of changes in the vegetation.

Photo monitoring is to include two photo points minimum per Management Zone across the site. The points are to be established using the following methods:

- Mark the photo point with a wooden stake and map the location using GPS.
- Take a digital photo at a recorded bearing, preferably with a visual reference point in the background.
- Organise the digital photos logically with each image labelled with a unique reference number indicating the location of the photo point and the date the photo is taken.

At the end of the five-year VMP period, two VI plots should be conducted each in MZ 3 and MZ 4 to ensure the performance criteria has been met.

6.2.2 Monitoring Reports

An initial monitoring report will be prepared by Ecologists or Ecological Restoration Contractors to provide Council evidence of the establishment of remediation works.

Following the initial reporting, monitoring reports are to be provided six-monthly until the VMP works are complete. After two years, the monitoring frequency will be reviewed, and consideration given to any on-going future VMP implementation and monitoring. The reporting will include the implementation of the monitoring actions specified in this VMP. In addition to a brief description of the works that have been undertaken, this report should follow the structure of the pro forma within **Appendix C**.

The landowner and their contractors will ensure that reporting is consistent with the on-ground works and management tasks are being completed.

7.0 COSTING

The total cost to implement this VMP for five years is **\$250,998** exclusive of GST. An indicative costing timeline is provided in **Table 10**. Costs may vary significantly over consecutive years of management according to the response to management actions.

The costings provided are indicative and there is potential for variation across the sector along with changes due to inflation. Other assumptions have been made in regard to estimating costs and timing are outlined below.

A five-year maintenance period following initial implementation has been suggested based on consideration of the following:

NRAR Guidelines

Maintenance requirements should extend for a minimum of two years after the completion of works or until such time as a minimum 80% survival rate of each species planted and a maximum 5% weed cover for the area is achieved.

Key Threatening Processes

The alteration of the landscape through development contributes to Key Threatening Processes (KTPs) under the EPBC Act. Key threatening processes include the following:

- Clearing of native vegetation

These processes are recognised throughout the site and therefore this VMP has identified actions to ensure long term survival of native species effected by these processes. The VMP also takes into consideration time accrued for ecosystem establishment and function. To ensure restoration measures are supporting the development of ecosystem services, actions need to be taken over longer periods to ensure plant survival and longevity.

Biosecurity Obligations - Weed Management

In NSW all plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Two Weeds of National Significance (WoNS) and 16 NSW Priority Weeds were identified throughout the Study Area. To minimise the impacts that these weeds have on the landscape, ongoing control of weeds should be implemented over a minimum period of five years. These controls over a period of time will reduce weed seed bank and reduce germination, thus reducing weed populations and frequency control.

Revegetation of native species within the proposed areas will also assist in long-term weed control through native reforestation. This long-term method requires the development of mature trees to restrict potential weed establishment and growth. It can take 5 - 10 years before trees form a dense canopy and during this establishment phase it is critical to undertake other forms of weed control.



Table 9: Indicative establishment and annual costs (0 - 5 years) with total cost of VMP

Treatment		Establishment	Year 1	Year 2	Year 3	Year 4	Year 5	Grand Total
Management Works								
Revegetation	Site Preparation*	\$10,000	-	-	-	-	-	\$10,000
	Jute matting and mulch*	\$60,000	-	-	-	-	-	\$60,000
	Tubestock, supply and install*	\$95,475	-	-	-	-	-	\$95,475
	Replacement tubestock, supply and install*	-	\$9,548	-	-	-	-	\$9,548
	Irrigation*	\$6,975	-	-	-	-	-	\$6,975
Weed Control	Establishment*	\$25,000	-	-	-	-	-	\$25,000
	Maintenance - Years 1 to 5*	-	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$25,000
Associated Costs	Monitoring and reporting	\$4,500	\$2,500	\$2,500	\$2,500	\$2,500	\$4,500	\$19,000
Grand Total								<u>\$250,998</u>

*Indicative costs

8.0 REFERENCES

Australian Pesticides and Veterinary Medicines Authority. (n.d.). Australian Pesticides and Veterinary Medicines

Brodie, L., Whiley, L., & Roxburgh, J. (2010). The national trust bush regenerator's handbook. National Trust of Australia (NSW).

Centre for Invasive Species Solutions (2021). Weeds Australia. Retrieved July 2025 from: <https://weeds.org.au/>

Department of Planning and Environment (DPE). NSW BioNet. Retrieved July 2025, from <https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/nsw-bionet>

Department of Primary Industries (DPI). (2023). NSW Weedwise. Retrieved August 2025, from <https://weeds.dpi.nsw.gov.au/>

Landcom. (2004). Managing urban stormwater: Soils and construction (4th edition, Vol. Volume 1).

NearMap. (2023). Retrieved January 2025 from <https://www.nearmap.com/au/en>

NSW South East Local Land Services, South East Regional Strategic Weed Management Plan 2023-2027, 19 September 2022, retrieved December 2024 from: <https://isjo.nsw.gov.au/regional-weed-managment-plan/>

Pellow, B.J., Henwood, M.J. and Carolin, R.C. (2009). Flora of the Sydney Region. Sydney University Press. 5th Edition.

Robinson, L. (2003). Field Guide to the Native Plants of Sydney (3rd ed., Vol. 3). Simon & Schuster.

Rose, H., & Rose, C. (2021). Pasture "weeds" of coastal Nsw. Department of Primary Industries (DPI).

Royal Botanical Gardens and Domain Trust. (n.d.). PlantNET- National Herbarium of New South Wales. Retrieved August 2024, from <https://plantnet.rbgsyd.nsw.gov.au/>

Kiama Municipal Council. (2025). Kiama Development Control Plan 2020, Chapter 2 – Site Considerations. Retrieved August 2025.

Kiama Municipal Council. (2025). Kiama Local Environmental Plan (2011). Retrieved July 2025.

9.0 LIMITATIONS

This report and the associated services performed by Lodge Environmental are in accordance with the scope of services set out in the contract between Lodge Environmental and the Client. The scope of services was defined by the requests of the Client, by the time and budgetary constraints imposed by the Client, and by the availability of access to Site.

Lodge Environmental derived the data in this report primarily from visual inspections, and limited survey and analysis made on the dates indicated. In preparing this report, Lodge Environmental has relied upon, and presumed accurate, certain information provided by government authorities, the Client and others identified herein. The report has been prepared on the basis that while Lodge Environmental believes all the information in it is deemed reliable and accurate at the time of preparing the report, it does not warrant its accuracy or completeness and to the full extent allowed by law excludes liability in contract, tort or otherwise, for any loss or damage sustained by the Client arising from or in connection with the supply or use of the whole or any part of the information in the report through any cause whatsoever.

The data, findings, observations, conclusions and recommendations in the report are based solely upon the state of the Site at the time of the investigation. The passage of time, manifestation of latent conditions or impacts of future events (e.g., changes in legislation, scientific knowledge, land uses, etc) may render the report inaccurate. In those circumstances, Lodge Environmental shall not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on, the contents of the report.

This report has been prepared on behalf of and for the exclusive use of the Client and is subject to and issued in connection with the provisions of the agreement between Lodge Environmental and the Client. Lodge Environmental accepts no liability or responsibility whatsoever and expressly disclaims any responsibility for or in respect of any use of or reliance upon this report by any third party or parties.

It is the responsibility of the Client to accept if the Client so chooses any recommendations contained within and implement them in an appropriate, suitable and timely manner.

Appendix A: PCT 3013 – Illawarra Lowland Subtropical Rainforest Description

PCT 3013 – Illawarra Lowland Subtropical Rainforest	
PCT ID	3013
Vegetation formation	Rainforests
Vegetation class	Subtropical Rainforest
Percent cleared	38.50%
TEC association	There are four TECs associated with PCT 3013, being: • Illawarra Subtropical Rainforest in the Sydney Basin Bioregion (Endangered, BC Act) • Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions (Endangered, BC Act) • Milton Ulladulla Subtropical Rainforest in the Sydney Basin Bioregion (Endangered, BC Act) • Illawarra-Shoalhaven Subtropical Rainforest of the Sydney Basin Bioregion (Critically Endangered, EPBC Act)
Generic PCT description taken from BioNet (DPE 2024)	Tall to very tall, mid-dense to dense rainforest, or rarely very tall to extremely tall sclerophyll open forest with a dense rainforest sub-canopy. This PCT occurs mainly on the Illawarra lowlands between Helensburgh and Nowra, with disjunct and restricted occurrences near Milton and on the lower slopes of Mount Dromedary. Overstorey composition is diverse and variable. The tallest rainforest trees very frequently include <i>Dendrocnide excelsa</i>, commonly with <i>Doryphora sassafras</i> and <i>Toona ciliata</i>, each of which sometimes has locally high foliage cover. Eucalypts are rare, however when present <i>Eucalyptus quadrangulata</i> is the most frequent. Other rainforest trees in the canopy or sub-canopy very frequently include <i>Streblus brunonianus</i>, <i>Diospyros australis</i>, <i>Acmena smithii</i> and <i>Elaeodendron australe</i>; and are sometimes locally abundant. The palm <i>Livistona australis</i> is also very frequent and sometimes locally abundant in the understorey. The climbing epiphytic fern <i>Arthropteris tenella</i> and vines <i>Eustrephus latifolius</i>, <i>Marsdenia rostrata</i>, <i>Pandorea pandorana</i> and <i>Gynochthodes jasminoides</i> are all very frequent, usually with low abundance. The typically sparse ground cover very frequently includes the fern <i>Adiantum formosum</i> and tall forb <i>Gymnostachys anceps</i>. This PCT occurs mainly in mild, wet locations receiving 1200-1770 mm mean annual rainfall, at low to mid-elevations of 60-300 metres asl. In its main area of occurrence on the Illawarra Lowlands, it occurs on or close to basalt or in sheltered sites on clay-rich sediments. In the two disjunct southerly localities, it occurs on monzonite. This community has been extensively cleared, which likely obscures its relationships with other PCTs. The most southerly occurrence at Mount Dromedary is at the fringe of cleared areas and near the dry end of the gradient for this PCT. It grades into PCT 3036 at higher elevations on the mountain.
Condition within VMP Area	Poor & good condition
Area within VMP Area	Poor condition: 0.5 ha Good condition: 2.29 ha
Survey effort	Random meander & 1 VI plot

TEC status	Represents the TEC Illawarra Subtropical Rainforest in the Sydney Basin Bioregion - Endangered under the BC Act		
PCT 3013 Characteristic Species by Stratum Recorded within Study Area	<u>Upper Stratum:</u> <i>Acacia melanoxylon</i> <i>Ficus macrophylla</i> <i>Pittosporum undulatum</i> <i>Glochidion ferdinandi</i> <i>Livistona australis</i> <i>Melia azedarach</i> <i>Toona ciliata</i> <i>Dendrocnide excelsa</i>	<u>Mid Stratum:</u> <i>Geitonoplesium cymosum</i> <i>Pandorea pandorana</i> <i>Pittosporum multiflorum</i> <i>Solanum aviculare</i> <i>Stephania japonica</i> <i>Trema tomentosa</i> <i>Tylophora barbata</i> <i>Melicytus dentatus</i>	<u>Ground Stratum:</u> <i>Adiantum formosum</i> <i>Asplenium flabellifolium</i> <i>Commelina cyanea</i> <i>Doodia aspera</i> <i>Oplismenus spp.</i> <i>Pteridium esculentum</i> <i>Viola hederacea</i>

Appendix B: Observed Flora and Fauna Species List

Flora species recorded within the Study Area

Scientific name	Common name	Native	Exotic
<i>Acacia melanoxylon</i>	Blackwood	x	
<i>Adiantum formosum</i>	Giant Maidenhair	x	
<i>Ageratina adenophora</i>	Crofton Weed		x
<i>Anagallis arvensis</i>	Scarlet Pimpernel		x
<i>Androcalva fraseri</i>	-	x	
<i>Araujia sericifera</i>	Moth Vine		x
<i>Asparagus aethiopicus</i>	Asparagus Fern		x
<i>Asparagus asparagoides</i>	Bridal Creeper		x
<i>Asparagus setaceus</i>	Asparagus Fern		x
<i>Asphodelus fistulosus</i>	Onion Weed		x
<i>Asplenium flabellifolium</i>	Necklace Fern	x	
<i>Axonopus fissifolius</i>	Narrow Leaved Carpet Grass		x
<i>Bidens pilosa</i>	Farmer's Friend		x
<i>Brassica rapa</i>	Field Mustard		x
<i>Breynia oblongifolia</i>	Coffee Bush	x	
<i>Briza minor</i>	Quaking Grass		x
<i>Bromus spp.</i>	-		x
<i>Cenchrus clandestinus</i>	Kikuyu		x
<i>Cirsium spp.</i>	Thistle		x
<i>Commelina cyanea</i>	Scruvy Weed	x	
<i>Conyza bonariensis</i>	Fleabane		x
<i>Delairea odorata</i>	Cape Ivy		x
<i>Dendrocnide excelsa</i>	Giant Stinging Tree	x	
<i>Dichondra repens</i>	Kidney Weed	x	
<i>Doodia aspera</i>	Rasp Fern	x	
<i>Echinopogon ovatus</i>	Forest Hedgehog Grass	x	
<i>Ehrharta erecta</i>	Panic Veldtgrass		x
<i>Entolasia stricta</i>	Wiry Panic	x	
<i>Erigeron spp.</i>	-		x
<i>Ficus macrophylla</i>	Morteton Bay Fig	x	
<i>Foeniculum vulgare</i>	Fennel		x
<i>Geitonoplesium cymosum</i>	Scrambling Lily	x	
<i>Glochidion ferdinandi</i>	Cheese Tree	x	
<i>Glycine tabacina</i>	Variable Glycine	x	
<i>Gomphocarpus physocarpus</i>	Balloon Cotton Bush		x
<i>Hedera helix</i>	Common Ivy		x
<i>Herbertia spp.</i>	Prairie Nymphs		x
<i>Hibbertia scandens</i>	Climbing Guinea Flower	x	

Scientific name	Common name	Native	Exotic
<i>Holcus lanatus</i>	Yorkshire Fog		x
<i>Lantana camara</i>	Lantana		x
<i>Ligustrum lucidum</i>	Broad-leaf Privet		x
<i>Ligustrum sinense</i>	Small-leaved Privet		x
<i>Livistona australis</i>	Cabbage Tree Palm	x	
<i>Lobelia anceps</i>	Angled Lobelia	x	
<i>Lobelia purpurascens</i>	Whiteroot	x	
<i>Marsdenia rostrata</i>	Milk Vine	x	
<i>Medicago lupulina</i>	Black Medic		x
<i>Melicytus dentatus</i>	Tree Violet	x	
<i>Melia azedarach</i>	White Cedar	x	
<i>Microlaena stipoides</i>	Weeping Grass	x	
<i>Modiola caroliniana</i>	Red Flowered Mallow		x
<i>Nephrolepis cordifolia</i>	Fishbone Fern	x	
<i>Notelaea venosa</i>	Veined Mock Olive	x	
<i>Olea europaea</i>	Olive Tree		x
<i>Onopordum acanthium</i>	Scotch Thistle		x
<i>Oplismenus spp.</i>	Basket Grass	x	
<i>Oxalis spp.</i>	-	x	
<i>Pandorea pandorana</i>	Wonga Vine	x	
<i>Paspalum spp.</i>	-		x
<i>Passiflora spp.</i>	Passion fruit		x
<i>Passiflora subpeltata</i>	White Passionflower		x
<i>Phyla nodiflora</i>	Carpet Weed		x
<i>Phytolacca octandra</i>	Inkweed		x
<i>Pittosporum multiflorum</i>	Orange Thorn	x	
<i>Pittosporum undulatum</i>	Sweet Pittosporum	x	
<i>Plantago lanceolata</i>	Lamb's Tongue		x
<i>Plectantherus parviflorus</i>	Little Spurflower	x	
<i>Pseuderanthemum variabile</i>	Pastel Flower	x	
<i>Pteridium esculentum</i>	Bracken	x	
<i>Pultenaea daphnoides</i>	Large-leaf Bush-pea	x	
<i>Rubus parviflorus</i>	Native Raspberry	x	
<i>Rumex spp.</i>	-		x
<i>Sarcopetalum harveyanum</i>	Pearl Vine	x	
<i>Senecio madagascariensis</i>	Fireweed		x
<i>Senna pendula</i>	Cassia		x
<i>Senna septemtrionalis</i>	Arsenic Bush		x
<i>Silene gallica</i>	Small Flowered Catchfly		x
<i>Solanum americanum</i>	Glossy Nightshade		x
<i>Solanum aviculare</i>	Kangaroo Apple	x	
<i>Solanum mauritianum</i>	Tobacco Bush		x
<i>Solanum spp.</i>	-		x
<i>Sonchus oleraceus</i>	Common Sowthistle		x

Scientific name	Common name	Native	Exotic
<i>Stellaria flaccida</i>	-	x	
<i>Stellaria media</i>	Common Chickweed		x
<i>Stephania japonica</i>	Snake Vine	x	
<i>Streblus brunonianus</i>	Whalebone Tree	x	
<i>Taraxacum officinale</i>	Dandelion		x
<i>Tecoma capensis</i>	Cape Honeysuckle		x
<i>Toona ciliata</i>	Red Cedar	x	
<i>Trema tomentosum</i>	Native Peach	x	
<i>Trifolium repens</i>	White Clover		x
<i>Tylophora barbata</i>	Bearded Tylophora	x	
<i>Viola hederacea</i>	Native Violet	x	
<i>Zieria granulata</i> *	Illawarra Zieria	x	

* Denotes species listed under the BC and/or EPBC Act

Fauna species recorded within the Study Area

Class Name	Scientific Name	Common Name
Aves	<i>Corvus coronoides</i>	Australian Raven
	<i>Eolophus roseicapilla</i>	Galah
	<i>Gymnorhina tibicen</i>	Australian Magpie
	<i>Hirundo neoxena</i>	Welcome Swallow
	<i>Pachycephala pectoralis</i>	Australian Golden Whistler
	<i>Psophodes olivaceus</i>	Eastern Whipbird
	<i>Ptilonorhynchus violaceus</i>	Satin Bowerbird
	<i>Rhipidura albiscapa</i>	Grey Fantail
	<i>Scythrops novaehollandiae</i>	Channel-billed Cuckoo
	<i>Sericornis frontalis</i>	White-browed Scrubwren
	<i>Strepera graculina</i>	Pied Currawong

Appendix C: Monitoring & Reporting Template

Site Name / Address and Monitoring Period	MZ #	Date	Field Personnel	Weather
Brief description of Study Area Management Zone condition and works undertaking during the reporting period:				
Priority weed cover % per zone				
Adherence to management requirements per zone				
Weeds species controlled during previous 12 months and methods used				
List any environmental threats present (i.e., erosion, weed incursions, salinity etc)				
List any environmental threats that have been controlled since previous monitoring				
List any environmental improvements which have been achieved since previous monitoring				
What management techniques have been successful				
What has been the survival rate of plantings (VMP extension only)				

What management tasks have not been successful	
Do any additional issues need to be addressed	
Are there any recommendations for revisiting the task program	
VI Plot Summary (MZ 3) (at establishment and end of 5th year)	
VI Plot Summary (MZ 4) (at establishment and end of 5th year)	
Photos from photo point within this Management Zone	