

SUSTAINABLE PARTNERSHIPS DEDICATED TO ACHIEVING ECOLOGICAL AND ECONOMICAL BALANCE

## LEADING THE WAY IN ENVIRONMENTAL MANAGEMENT

# VEGETATION MANAGEMENT PLAN 171 JOHN OXLEY DRIVE, PORT MACQUARIE

September 2024

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## Document Control Page

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## 1. Background Information

#### 1.1 Introduction

Biodiversity Australia Pty Ltd was requested to prepare a Vegetation Management Plan (VMP) for the management of Lot 22 DP1296583, along 171 John Oxley Drive, Port Macquarie (the Subject Land). This VMP will form part of the documentation to be submitted to Port Macquarie-Hastings Council (PMHC).

The purpose of this VMP is to provide a management plan which mitigates against the impacts identified in the associated Biodiversity Development Assessment Report (BDAR). This VMP covers the specifications for tree plantings, rehabilitation and weed control, vegetation maintenance, monitoring and reporting requirements for the development, timeframes, parties responsible for implementing the works and cost estimates to carry out the works. The VMP applies to the rehabilitation area which is situated in the southern half of the Subject Land (outside the Development Footprint).

### 1.2 Location of the Subject Land

The Subject Land comprises a 1.851 ha property located at 171 John Oxley Drive, Port Macquarie. It is formally described as Lot 22 DP1296583. The northern section of the Subject Land is zoned R1 – General Residential, whilst the southern half is C2 – Environmental Conservation. The C2 zoned area is the subject of this VMP, which is an area of approximately 0.86 ha. The area of land zoned R1 is 0.99 ha including the extension of Annabella Drive which contains 1,289m<sup>2</sup> in that area of the Development Footprint. The location of the Subject Land is shown in Figure 1, and the zoning of the subject site is presented in Figure 2.

The Subject Land consists of two vegetation communities with a number of different integrity conditions within those communities resulting in a total of four vegetation zones. Uses of the Subject Land range from managed grasslands featuring scattered mature trees, as well as a conservation area in the southern half of the property where most of the Biodiversity Values are concentrated.

The Subject Land is surrounded by residential dwellings. To the south there is a memorial park and scattered bushland/wetlands.

#### 1.3 Proposed Development Plans

Proposed development within the subject site includes the construction of a place of public worship, car parking and Annabella Drive road connection for The Point Community Church (TPCC). The proposed development layout can be seen in Figure 3.



BODAN IN Legend km Subject This mapping is to be considered indicative only and all derivations Project Manager: NC Figure Name: (e.g., vegetation communities) are best approximations and Location of the Subject Land subject to errors including individual interpretation and reliance on information provided to Bio Aus where were not independently Location: verified. All information is intended to be indicative only and no Drawn by: 171 John Oxley Drive, Port Macquarie, AR reliance for extrapolation, mapping etc. should be placed upon this NSW map without independent validation of the information by the user. Bio Aus takes no responsibility for any subsequent error Spatial Reference: WGS 84 / Pseudo-Mercator Job Number: Client: Date: losses etc. that may arise from the use of this data without ENS5978 August 2024 King and Campbell independent verification. Scale: 1:10000

Figure 1: Location of the Subject Land



Figure 2: Land Zoning Map





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Figure 3: Proposed Development Layout





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### 1.4 Vegetation Communities

The Development Footprint is largely cleared of remnant vegetation and exists as previously cleared grassland with scattered mature Eucalypts. Two areas of the Development Footprint support mature Eucalypts, the southwestern and northeastern corners. The ground layer is routinely mown, and no shrub layer is present. The southern boundary of the Development Footprint (within the footprint of the Annabella Drive connection) is highly disturbed, with several areas supporting bare ground and evidence of ongoing disturbance by vehicles accessing Annabella Drive.

The southern extent of the Subject land (Rehabilitation Area) supports a mature Eucalypt Forest dominated by Blackbutt (*Eucalyptus pilularis*) with a tall canopy and established shrub layer. The understorey contains several exotic species including lantana (*Lantana camara*), mickey mouse bush (*Ochna serrulate*), Winter senna (*Senna septemtrionalis*) and others. There are several tracks through the vegetation as well as evidence of human disturbance and established weed populations. This area is joined to the east and west by small patches of vegetation also zoned as C2 Environmental Conservation. To the south, the Subject Land borders onto a very small area of forested wetland surrounded largely by cleared areas.

Two Plant Community Types were confirmed present within the Subject Land:

- PCT 3166 Northern Escarpment Brush Box-Tallowwood-Maple Wet Forest of the NSW North Coast Bioregion.
- PCT 3553 Northern Sands Bloodwood-Swamp Turpentine Forest of the NSW North Coast Bioregion.

The following section provides a description of the native vegetation within the Subject Land. The rehabilitation area, the subject of this VMP, contains PCT 3166. No PCTs are listed as Threatened Ecological Communities (TECs) or Endangered Ecological Communities (EECs) under the EPBC Act or BC Act.

	PCT 3166 – Northern Escarpment Brush Box-Tallowwood-Maple Wet Forest of the NSW North Coast Bioregion
	Wet Sclerophyll Forests (Shrubby sub-formation)
	North Coast Wet Sclerophyll Forests
	Low - 0.188 ha
	N/A
	60%, however the accuracy of the estimate has not been assessed.
	1
	1
	In the southern portion of the Subject Land, some representative trees scattered throughout.
Description	Canopy: Structure and Species: A closed forest dominated by <i>Eucalyptus pilularis</i> , this is the only canopy species present. Shrub layer: Structure and Species: The mid-stratum only existed as one <i>Tristaniopsis laurina</i> . Ground layer:

Table 1: Community 1 - Description



<ul> <li>Structure and Species: The ground stratum featured managed exotic grasses as well as natives scattered amongst the area. <i>Lobelia purpurascens</i> and <i>Centella asiatica</i> were species that were prevalent throughout. <i>Paspalum mandiocanum</i> was heavily present.</li> <li>a) Lianas, scramblers, etc.:</li> <li><i>Hibbertia scandens</i> occurred.</li> </ul>
This community is overall in poor condition, due to heavy clearing and invasive species accounting for a significant portion of species observed at the time of survey.

Throughout the Subject Land this PCT is present in a disturbed state. The area;

- Does not contain any hollow bearing trees,
- Contains some large trees over 49cm DBH,
- Species diversity is low, &
- Weed coverage is high.

#### Table 2: Community 2 - Description

	PCT 3553 Northern Sands Bloodwood-Swamp Turpentine Forest of the NSW North Coast				
	Dry Sclerophyll Forests (Shrubby sub-formation)				
	Coastal Dune Dry Sclerophyll Forests				
	Low – 1.2 ha				
	N/A				
	98% however the accuracy of the estimate has not been assessed.				
	1				
	1				
	Occurs predominantly in the northern half of the Subject Land				
	Canopy:				
	Structure and Species: An Open Forest dominated by <i>Eucalyptus tereticornis</i> and <i>Corymbia intermedia</i> are dominate throughout, and <i>Glochidion ferdinandi</i> is also present.				
	Shrub layer:				
	Structure and Species: The mid-stratum only featured <i>Breynia oblongfolia</i> as an occasional shrub. <i>Phyllostachys spp.</i> were also in abundance.				
Ground layer:					
	Structure and Species: The ground stratum predominately featured manicured grasses with occasional native groundcovers. <i>Viola hederacea, Hypericum gramineum</i> and <i>Oplimenus aemulus</i> were abundant. The high threat exotic <i>Paspalum mandiocanum</i> was also present.				
	This community is overall in poor condition, due to heavy clearing and invasive species accounting for a significant portion of species observed at the time of survey. This community has potential to be a TEC				

The area is present in a slightly highly disturbed state. Overall, the condition of the area is considered poor. The area;

- Contains several large trees,
- Contains a low percentage cover of litter,
- Contains relatively high cover of weeds, &
- Has low diversity.



Figure 4: PCT's within the Subject Land





## 1.5 Significant Environmental Features

#### 1.5.1 Preferred Koala Food Trees

Field surveys identified 25 mature and semi-mature Eucalypts within the Development Footprint, including 12 listed as koala food trees (KFTs) in the South Lindfield KPoM. KFT species included Forest red gum (*Eucalyptus tereticornis*), Tallowwood (*Eucalyptus microcorys*), Pink bloodwood (*Corymbia intermedia*), and Blackbutt (*Eucalyptus pilularis*). Of these, four individuals were listed as juveniles with a DBH under 10cm.

#### 1.5.2 Threatened Flora

The NSW Government SEED portal shows previous records of threatened species, Native guava (*Rhodomyrtus psidioides*) within the Subject Land, which is listed as critically endangered under the BC Act and EPBC Act. This species was also located on the Subject Land from a targeted flora survey undertaken by Biodiversity Australia in March 2019. Targeted flora surveys conducted in March 2024 from Biodiversity Australia failed to detect the presence of any threatened flora species within the Subject Land.

#### 1.5.3 Threatened Fauna

The NSW Government SEED portal shows previous records of threatened species Koala (*Phascolarctos cinereus*), within the Subject Land, which is listed as Vulnerable under the BC Act and EPBC Act. Two dedicated Koala surveys using the Spot Assessment Technique (SAT) were conducted within the Subject Land by qualified Biodiversity Australia Ecologists. Despite targeted surveys, no evidence of the Koala was detected on the Subject Land.

The Subject Land was found to be in a modified state and included disturbances such as slashing, clearing, recreational activities and weed invasion. The Development Footprint does not contain areas of dense groundcover, fallen habitat logs and/or hollow-bearing trees. A range of habitat features were recorded which are described in Table 3.

Habitat/ Attribute Type	Vegetation Zone 1 3553 Low	Vegetation Zone 2 3166 Low
Groundcover	Open groundcover comprising of native and exotic herbs and grasses	Open groundcover comprising of native and exotic herbs and grasses
Leaf litter	Moderate leaf litter for most patches.	Moderate leaf litter for most patches.
Logs and debris	Absent.	Absent
Hollows	Absent	Absent
Nectar Sources	Eucalypt present on the Subject Land would flower throughout the year.	Eucalypt present on the Subject Land would flower throughout the year.
Sap and gum sources	Corymbia intermedia present in Zone 1.	Absent
Primary preferred Koala browse trees	Few Koala browse tree comprising <i>E.</i> tereticornis <i>E. microcorys, Corymbia</i> intermedia, and <i>E. pilularis</i>	Absent
Allocasuarinas	Absent	Absent
Aquatic/ wetland habitats	Absent	Absent
Fruiting species	Absent	Absent
Forest bird habitat	Absent. The patches of trees present within the zone are small and as such are highly exposed with significant edge effects and no connectivity. Absent. Forest area in the s portion of the site is highly of and dense with exotics spe	

#### Table 3: Summary of Site habitat Values



Habitat/ Attribute Type	Vegetation Zone 1 3553 Low	Vegetation Zone 2 3166 Low	
Caves, cliffs, overhangs, culverts, bridges	Absent	Absent	
Small terrestrial prey	Absent. No hollows and Subject Land lacks in groundcovers and dense vegetation to provide nesting opportunity.	Absent. No hollows and Subject Land lacks in groundcovers and dense vegetation to provide nesting opportunity.	
Habitat Linkages	Site is mostly surrounded by highly	Site is mostly surrounded by highly disturbed vegetation and urban infrastructure.	
	infrastructure.	Forest in the southern section may provide some linkage to surrounding areas such as the wetland to the south.	

## 1.6 Threats to Vegetation

Threats to vegetation comes from the direct removal of approximately 25 mature and young trees associated with the proposed works. The area of Biodiversity Values in the southern portion of the Subject Land will be used for offset planting with the aim to improve its current ecological function. In accordance with the KPoM Section 7.12, impacted KFT's must be replanted at a 2:1 ratio. As such, 24 trees are proposed for replanting to offset the 12 mature KFT's to be removed from the Development Footprint. A further 13 mature Eucalypt are also to be offset at a ratio of 1:1. Further details of this are provided in the upcoming sections.

### 1.7 Weed Occurrence

The Subject Land is currently subject to moderate to high levels of weeds. A wide range of exotic species were recorded on site. The site vegetation list can be seen in Table 10. Of the weeds observed, the majority were recorded in disturbed areas throughout the subject site and included:

- Exotic grass and groundcover species such as Broadleaf Paspalum (*Paspalum mandiocanum*), Parramatta Grass (*Sporobolus africanus*), Flatweed (*Hypochaeris radicata*) and others. These weeds occur in disturbed open areas of the subject Land as well as in the forested rehabilitation area.
- Many woody weeds occur in the understorey of the rehabilitation area. Some of these
  weeds include Lantana (*Lantana camara*), mickey mouse bush (*Ochna serrulate*), Winter
  senna (*Senna septemtrionalis*), bamboo (*Bambusa species*) and others.

Different species have different levels of potential threat ranging from low, with agricultural grasses like paspalum; to a high threat with transformer species such as camphor laurel, lantana and ochna.



## 2. Information Sources

The following links to local, State and Commonwealth legislation, databases and Geographic Information System (GIS) layers were searched/obtained:

- Biodiversity Conservation Act 2016
- Environment Protection and Biodiversity Conservation Act, 1999
- State Environmental Planning Policy (Biodiversity and Conservation) 2021
- State Environmental Planning Policy (Resilience and Hazards) 2021
- NSW Department of Planning and Environment BioNet/Atlas of Wildlife
- NSW Department of Planning, Industry and Environment BioNet Vegetation Classification
- NSW Government SEED Portal
- Port Macquarie-Hastings Council Local Environment Plan, 2011
- Port Macquarie-Hastings Council Development Control Plan
- Koala Plan of Management (KPoM) South Lindfield 2018
- Guidelines for the preparation of Vegetation Management Plans (VMPs) Port Macquarie-Hastings Council 2023



## 3. Environmental Management Units (EMUs)

### 3.1 Objective

The primary objective of this VMP is to improve ecological values across the Subject Land through passive and active management.

### 3.2 Proposed Environmental Management Units

A total of two management units (MU) have been developed for the subject site, in order to address the relevant environmental and vegetation compliances.

- Management unit 1 (MU1) Weed Management: Occurs over the southern portion of the Lot (rehabilitation area) and involves weed control across the entirety of this area.
- Management unit 2 (MU2) Offset Planting: Involves offsetting vegetation that is to be cleared for the proposed development, as per the requirements of the South Lindfield KPoM 2018.

The location of each management unit within the subject site is presented in Figure 5. The following sections provide details on the proposed actions/activities for each management unit.

### 3.2.1 Description of Management Units

#### Management unit 1

MU1 involves a management strategy to significantly reduce the coverage of exotic flora species within the Subject Land. The Subject Land is currently subject to moderate to high levels of weeds. The forested rehabilitation area is in moderate condition, with woody weeds mainly occurring in the understorey. A Site inspection was undertaken by Biodiversity Australia to assess the existing condition of the rehabilitation area and determine the required treatment. Weeds present in this area include lantana (*Lantana camara*), mickey mouse bush (*Ochna serrulate*), Winter senna (*Senna septemtrionalis*) and others. Management actions for MU1 will involve control of all woody and herbaceous weeds, for a minimum of 5-years, to improve the ecological condition of the Lot.

#### Management unit 2

MU2 involves offsetting 13 mature Eucalypts and 12 KFT's that are to be removed for the proposed development. The 13 mature Eucalypts are to be offset at a ratio of 1:1 and the KFT's at a ratio of 2:1, as per the requirements of the South Lindfield KPoM 2018. Therefore, a total of 37 trees must be planted to meet the offset requirements. The offset area for this MU will be within the rehabilitation area of the Subject Land, which contains moderately dense forested vegetation. Proposed planting locations are a guide only and should be adjusted by the project manager if necessary.

The KFT offset plantings are to comprise Tallowwoods, Forest Red Gum and Swamp Mahogany and are to be located in available canopy spacings within existing forest (Biodiversity Australia, 2018). A recommended layout for the planting locations can be seen below in Figure 5. Recommended species for **the non KFT's** should include locally indigenous Eucalypts, Angophoras, Grevilleas, Banksias, Melaleucas, Acacias, Allocasuarinas and Callistemons (especially Winter-flowering species which are useful for the Little Lorikeet, gliders, honeyeaters and Grey-headed Flying Fox e.g. Banksia integrifolia); and fruiting rainforest species such as Brush Cherry (*Syzygium australe*), figs, *Acronychia* spp, *Cryptocarya* spp, etc. The Subject Land



should be assessed by qualified Ecologists and/or Bush Regenerators to determine the exact species to be planted.

Table	Δ·	Tree	Planting	Specifications
Table	4.	IIEE	ганшу	Specifications

Tree species to be removed	No.	KFT	Offset Ratio	No. of trees to be offset	Species to be offset
Forest Red Gum	9	Yes	2:1	18	Tallowwoods, Forest Red Gum and Swamp Mahogany
Tallowwood	3	Yes	2:1	6	Tallowwoods, Forest Red Gum and Swamp Mahogany
Pink Bloodwood	4	No	1:1	4	KFT or other suitable species
Blackbutt	9	No	1:1	9	KFT or other suitable species
	25			37	



Figure 5: Location of Environmental Management Units and Trees to be removed



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## 4. Performance Criteria

#### 4.1 Aims and Objectives

The primary objective is to a) undertake vegetation management to protect the function of native species within the areas surrounding the subject site and b) ensure the required offset plantings for the proposed development are effectively implemented to achieve positive environmental outcomes for the site and the broader area.

This will involve planting species suitable for foraging and habitat for koalas. In doing so the aim is to also mitigate the impact of introduced predators and weeds by allowing natural vegetation competition within the rehab zone and providing sufficient habitat for fauna.

EMU 1 - Weed Management

- Control of woody and herbaceous weeds in accordance with NSW WeedWise standards, including Lantana, Ochna, Senna, Parramatta Grass, Broad leaf paspalum, and other commonly occurring herbaceous and woody weeds
- Ongoing treatment of weeds across the Lot for a minimum of 5-years, as per the Rehabilitation Schedule of this VMP

EMU 2 – Offset Planting

- Offset KFT's to be removed as part of the proposed development in the northern portion of the Lot
- Ensure 100% survival of planting over 5-year period

The following table outlines the specific objectives, current condition of each management zone, and an achievable target condition which is the aim of this VMP. The sections following will detail the activities involved in reaching this proposed target condition.

Table 5. Current and	target conditions	for each management unit.
	. /	

MU	Objectives	Current Condition	Target Condition
	Control exotic species within the Subject Land and promote natural regeneration	Largely intact vegetation	Decreased density and presence of weed species
	Ongoing treatment of weeds across the Lot for a minimum of 5-years	Moderately dense canopy, understorey largely dominated by weeds	Improve the ecological quality of the site to a level where human assistance is no longer required
MU 1		No roosting opportunities (i.e. hollow bearing trees)	Establishment of native understorey species to replace exotics
			Increase density of native plants to outcompete weeds and mitigate edge effects
			Establishment of suitable native groundcover species



	100% survival of planting over 5- year period	Largely intact vegetation	Increase density of canopy species
	Offset KFT's to be removed so there are		
MU 2	supplementary food trees for koalas in the area	Moderately dense canopy, understorey largely dominated by weeds	Develop a midstory and increase density over time within planting zone
		No roosting opportunities (i.e.	Increased availability of KFT's within the area
		hollow bearing trees)	Increased foraging and roosting habitat for other native species





#### 4.2 Project Activities

The following activities are proposed in order to meet the above target conditions for each MU.

#### 4.2.1 VMU 1 - Weed Control

- Primary removal of woody weed infestations throughout the rehabilitation zone targeting areas as described by field investigations
- Weed infestations are to be monitored through establishing photo monitoring points to determine success of treatment over time
- · Primary treatment of herbaceous weeds throughout rehabilitation zone
- Within the first year of weed treatment, conduct follow-up treatment at months 3, 6 and 12
- After the first year of weed treatment, undertake ongoing weed treatment across the Subject Land annually for a minimum of 5-years, with a target of <5% overall weed cover

Weed control methods may vary depending on which treatment is effective for a particular species as well as which is most efficient, taking into account other site factors such as weather, surrounding vegetation and potential for off target damage to native species. Only herbicides registered for use on each particular weed species are used on that species and are used at the recommended label rate unless an applicable off-label permit is available.

The following table summarizes weed control techniques that may be used to treat weeds on the site.

Weed Control Type	Description	Types of weeds
Cut/scrape and paint	Cut plant close to base, paint with 1:1 mix of Glyphosate and water Scrape top layer of tissue at least 50% up each stem, paint with 1:1 mix of Glyphosate and water	Woody weeds
Basal bark	Diesel treatment of plants with basal diameters up to 10cm, heights of 30-100cm. Full circumference of plant trunk/stem sprayed or pained with herbicide solution, ensuring saturation.	Thin-barked woody weeds/trees Saplings/regrowth/multi-stemmed shrubs
Foliar spraying	Knapsack spray unit / vehicle mounted unit to apply mix of diluted herbicide and dye, sprayed over foliage of plant.	Woody weeds (i.e. lantana) Herbaceous, aquatic, grasses
Skirting	Stems cut approx. 30cm from ground, stems treated using CSP (above) or foliar spray.	Vines
Stem injection	Herbicide immediately applied into holes/cuts made by drilling/cutting bark into sapwood of trunks.	Woody weeds and trees
Splatter gun	Modified spray unit producing solid stream of large drops of concentrated herbicide mixture. Covers larger areas and requires fraction of foliage treatment due to concentration.	Dense woody weed thickets / inaccessible areas

Table 6: Recommended weed control measures



Seed collection	Seeds removed and bagged from seeding grasses using knife/secateurs. Seeds disposed in accordance with BA 2014. Plant treated with herbicide mixture.	Grasses
-----------------	--	---------

#### 4.2.2 VMU 2 - Offset Planting

For all planting activities, the following conditions are to occur:

- Installation of fencing / signage around planted areas to limit unauthorised access and potential damage to revegetated areas
- Land within 1m of the planting is to be free from weeds at the time of planting
- Weed control around plantings is to take place at least twice annually
- Supply of tubestock for planting works are to comprise locally sourced native stock
- Plantings are to occur within twelve months of VMP approval
- Appropriate locations of plantings are to be determined by a qualified ecologist or a suitably qualified bush regenerator who has an understanding of the species ecological requirements
- Planted trees and shrubs are to be protected using plastic grow tubes to protect the plants from weather extremes during their establishment period, and to prevent grazing from herbivores (e.g. rabbits, kangaroos, wallabies and deer). Grow tubes and 900mm stakes are recommended for all plantings to prevent deer and macropod browsing
- Watering of individual plants shall be undertaken on the day of planting to settle soil with a minimum of two litres of water
- Additional watering will vary according to seasonal climatic conditions
- Follow up maintenance of plantings, including watering, checking and replacing stakes, grow tubes and weeding, and replacing plants if any deaths occur
- Other landscape plantings within this area are to use native species identified within the study area (Appendix 1)

The following provides details on planting methods and requirements:

- Remove weed species including exotic grasses using environmentally acceptable methods (i.e. hand pulling and selective herbicide spraying) from nominated planting areas
- Plantings are to be protected with appropriate tree guards to prevent opportunistic grazing
- Fertiliser and water crystals are to be used for each plant, and placed at the base of the hole prior to installation of plant
- Each tree is to be provided with a mulch bed of native materials with a minimum one-metre radius and ten centimetres depth. This mulch material is recommended to be sourced from chipping of trees removed for the proposal
- Water at time of planting and in follow up visits as described, depending on climatic conditions (i.e. dry conditions may warrant additional watering)
- The plantings are required to have a 100% survival rate, with replacements of any failures made within three months using the same size or larger tree
- Any new weed infestations in planting areas should be sprayed with herbicide or hand pulled.



#### 4.3 Performance Criteria Activities

The following table details the performance criteria relevant for each MU. A project work plan for undertaking the proposed management actions and associated performance criteria is provided in Section 4. Discussion on the monitoring and reporting of these performance criteria are provided in Section 5.

Management Unit	Performance Criteria	Management Actions
MU 1	<ul> <li>5% or less weed coverage within the Subject Land</li> <li>0% weed coverage in planting area</li> <li>No establishment of new weed species</li> </ul>	Maintenance and monitoring schedule Weed management
MU 2	<ul> <li>100% success of planted KFT's and other planted trees</li> <li>Evidence of growth and maturity of planted trees</li> </ul>	Maintenance and monitoring schedule Weed management

Table 7. Performance criteria and associated activities for each MU

The following section provides further details of the identified management actions.

#### 4.3.1 Ongoing maintenance and monitoring

#### Long term replacement plantings

Any planted koala food trees which fall or die within the revegetated areas are to be offset with a replacement tree of the same species. This is to be planted in the immediate proximity of the fallen or dead tree to ensure that overall canopy cover within the revegetated area will not significantly alter over time.



## 5. Project Work Plan

The following details the proposed project plan (Table 8), schedule and budget for the identified activities within each MU. A Gantt chart detailing the proposed timeframe for the work schedule for each MU is also presented in Table 9. A proposed budget for the project plan is provided in Appendix 2.



#### Table 8. Proposed project plan

Management Unit	Requirement	Actions	Timing	Responsibility	Estimated Costing
		<ul> <li>Install photo monitoring points (PMPs) at areas of initial weed infestation to track progress</li> <li>Initial weed control around planting area</li> </ul>	3 months prior to planting	Bush regeneration contractor	\$1,475.00
Management Unit 1	Weed Control	<ul> <li>Ongoing weed control maintenance</li> <li>Take follow-up photo monitoring photos to determine progress of weed treatment</li> <li>Identify any new infestations, and manage regeneration of initially treated weeds</li> <li>Monitor for regrowth of weeds (maximum overall weed coverage of 5% across site)</li> </ul>	4 visits within the first year, annual visits years 2 - 5	Bush regeneration contractor	\$11,800
Management Unit 2	Planting preparation	<ul> <li>Identify areas for offset planting</li> <li>Acquire tube stocks and materials needed for planting (tree guards, fertiliser, mulch, etc)</li> </ul>	3 months prior to planting	Bush regeneration contractor	\$600.00
	Initial planting	<ul> <li>Planting of 31 trees (minimum 22 KFT's) with protective fencing installed</li> <li>Fertiliser used for each plant</li> <li>Mulch and tree guards placed around each plant</li> <li>All plants watered immediately after planting</li> </ul>	Throughout or immediately following construction works	Bush regeneration contractor	\$1,475.00
	Watering of plants	<ul> <li>Follow up watering of all plants to be undertaken three times within 6 weeks of planting.</li> <li>Additional ongoing watering if required to ensure 100% success performance criteria</li> </ul>	3 times within 6 weeks after planting Biannually/annually for 3 years if required (i.e. dry conditions)	Bush regeneration contractor	\$390.00
	Long-term tree replacements	Replacement of any fallen or dead trees within the MU	Annually for 3 years – onwards if required	Bush regeneration contractor	\$195.00
		Planted tree inspections – ensure 100% success	Annually for 5 years	Ecologist	\$700.00
All	Monitoring and reporting	VMP compliance inspections	Annually for 5 years	Ecologist	\$700.00
		Monitoring report	Ecologist	\$1,400.00	
		Total			\$18,735.00



MU Activity		Timeframe																
	Activity	3 months	3 months	3 months	3 months	3 months	3 months	Within 12			Мо	nths				Ye	ars	
		planting	of VMP	1	2	3	6	9	12	2	3	4	5					
All MUs	Treatment and removal of weeds																	
MU1	Ongoing weed control and maintenance																	
MU2	Tree planting																	
MU2	Watering of plants									If required	If required							
MU2	Assessment for loss of plantings, replant if necessary																	
All MUs	Monitoring and reporting																	

Table 9. Gantt table of proposed work schedule, including follow-up maintenance for up to 3 years after installation.



## 6. Monitoring and Reporting

### 6.1 Monitoring Requirements

Annual monitoring for the VMP is recommended to be undertaken to ensure the management actions within each MU are reaching the performance criteria targets. Monitoring will be recommended to occur annually for 5 years after the work schedule is initiated. The monitoring requirements are listed below:

- Walking transects through the site to monitor condition of habitat and success of regeneration/weed control measures and any VMP compliance issues such as evidence of damage, grazing or predation from feral species
- Koala usage survey including SAT surveys within planted areas and habitat surrounding
- Ensure no additional clearing or tree removal has been undertaken
- Review of EVNT fauna records (koalas)
- Inspection of plantings to monitor health and survivorship

### 6.2 Reporting Requirements

A combined monitoring report to address the requirements of this VMP will be required annually for five years. This will essentially address/detail the following matters where relevant as follows:

- Details of koala survey results and koala habitat usage of the site and planting areas
- Review of koala records from the koala hospital and Bionet
- Details on success of KFT planting, and evidence of natural regeneration
- Status of weeds and recommendations for further control where required
- Details on any feral predator sightings, weed infestations, and any controls
- Details of any management or maintenance issues that need to be addressed
- Details on compliance/implementation of other measures detailed in the VMP including fencing, signage regarding public access in revegetated areas, and recommendations for compliance enforcement
- Recommendations for improvements that will have to be implemented (with appropriate timelines to allow compliance). Implementation of these measures is to be detailed in the subsequent reports.

### 6.3 Compliance and Long-term Security

The requirements of this VMP will apply as conditions of development consent through both PMHC approval of the plans, inclusion within the consent conditions, and any specific conditions.

The project work plan and performance criteria activities listed in this document set out the specific actions to implement this VMP. Annual monitoring over five years will ensure plantings are effectively established and require little maintenance after this period. Compliance checks will be undertaken with each monitoring event and results, including the need for follow-up action or contingency measures, will be detailed in the annual reports.



The VMP will be deemed successful if monitoring determines that the objective stated in section 3.0 is achieved as per the listed specified performance criteria.

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## 7. Conclusion

This VMP has been developed to mitigate against the impacts raised in the associated BDAR (BA 2024) as well as to guide future management actions, restoration activities and monitoring at The Community Church development, in Port Macquarie. Management actions and performance criteria have been listed which aim to achieve positive environmental outcomes for the C2 zone conservation area and Biodiversity Values area within the Subject Land. These include habitat and foraging plantings for koalas, weed control, and ongoing monitoring. A project work plan has been prepared to guide the timing and completion of the required actions.

Implementation of these actions will allow the development to meet its offset requirements and ensure potential threats are effectively managed. Ongoing monitoring and reporting will provide feedback as to the success of the management actions and whether and changes in management techniques are required. The VMP will be deemed successful if monitoring determines that the performance criteria stated in Section 3.3 are achieved.





## 8. References

Biodiversity Australia (2018) Vegetation Management Plan: Lot 2 DP1091253, Beach Street Bonny Hills. Report prepared for Keiley Hunter Town Planning. Port Macquarie.

Biodiversity Australia. (2018). *South Lindfield KPoM Stage 3: Koala Plan of Management.* Retrieved from https://www.pmhc.nsw.gov.au/Your-Council/Policies-plans-andstrategies/Plans/Koala-Plan-of-Management

Biodiversity Australia. (2019). *Biodiversity Development Assessment Report. Proposed Residential Subdivision, Lot 3 DP533058 John Oxley Drive, Port Macquarie.* 

Biodiversity Australia (2024) Biodiversity Development Assessment Report - 171 john Oxley Drive Prot Macquarie– Point Community Church.

DPIE. (2021a). *Bionet/Atlas of Australia*. Retrieved from https://atlas.bionet.nsw.gov.au/UI\_Modules/ATLAS\_/AtlasSearch.aspx

DPIE. (2021b). State Environmental Planning Policy (Koala Habitat Protection) 2021.

DPIE. (2023). Retrieved from Restoring Koala Habitat - North Coast Koala Management Area: https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/programs-legislation-and-framework/nsw-koala-strategy/local-government-resources-for-koala-conservation/north-coast-koala-management-area

King and Campbell. (2019). Vegetation Management Plan. Residential Subdivision Lot 3 DP 533058, 165 John Oxley Dive Port Macquarie.

NSW Government. (2024). *SEED map.* Retrieved from https://geo.seed.nsw.gov.au/vertigisstudio/web/?app=cabd04d595ec43c1aaf4298e80e83ec2

Port Macquarie-Hastings Council. (2023). *Guidelines for the preparation of Vegetation Management Plans (VMPs)*. Retrieved from https://www.pmhc.nsw.gov.au/Plan-Build/Planning-controls/Vegetation-Management-

lans#:~:text=The%20purpose%20of%20a%20VMP,ensure%20their%20protection%20and%20e nhancement.



# 9. Appendix 1: Species List

Table 10. List of flora species associated within the Subject Land

Canopy Trees							
Camphor Laurel*	Cinnamomum camphora						
Pink Bloodwood	Corymbia intermedia						
Blackbutt	Eucalyptus pilularis						
Forest Red Gum	Eucalyptus tereticornis						
Cheese Tree	Glochidion ferdinandi						
Kanooka	Tristaniopsis laurina						
	Shrubs	i da serie de la companya de la comp					
Coffee Bush	Breynia oblongifolia						
	Grasses	i da serie de la companya de la comp					
Red Grass	Bothriochloa macra						
Barbed Wire Grass	Cymbopogon refractus						
-	Dichanthium spp.						
Blady Grass	Imperata cylindrica						
Australian Basket Grass	Oplismenus aemulus						
Water Couch	Paspalum distichum						
*Broadleaf Paspalum	Paspalum mandiocanum						
-	Phyllostachys spp.						
	Groundcovers	i da serie de la companya de la comp					
Indian Pennywort	Centella asiatica						
Spear Thistle*	Cirsium vulgare						
Wombat Berry	Eustrephus latifolius						
Common Fringe-sedge	Fimbristylis dichotoma						
-	Glycine spp.						
Small St. John's Wort	Hypericum gramineum						
Catsear	Hypochaeris radicata						
Lantana	Lantana camara						
Whiteroot	Lobelia purpurascens						
Wattle Mat-rush	Lomandra filiformis subsp. filiformis						
-	Oxalis spp.						
*Paddy's Lucerne	Sida rhombifolia						
* Veined Verbena	Verbena rigida var. rigida						
Ivy-leaved Violet	Viola hederacea						
Fuzzweed	Vittadinia cuneata var. cuneata						
	Vines						
Climbing Guinea Flower	Hibbertia scandens						
Key: Exotic species (*)							

