Attachment A14

Esk Landholdings Offset Area Management Plan, BAAM Pty Ltd 2026

Offset Area Management Plan (EPBC 2019/8575)

Esk Landholdings

Version 4 (Final)

June 2026

Prepared for Cherish Enterprises Pty Ltd

www.baamecology.com
(07) 3286 7788
info@baamecology.com

BAAM ECOLOGICAL CONSULTANTS

Project Title: Esk Landholdings Offset Area Management Plan (EPBC 2019/8575)

File Number: 0102-059

Client: Cherish Enterprises Pty Ltd

Project Manager/s: Jedd Appleton

Project Author/s: Nicole Bonney, Conor O'Brien, Jedd Appleton

Project Summary: Offset Area Management Plan (OAMP) for Esk Landholdings (offset area) has been developed for the Springfield Residential Development (impact area).

Document Control:

Document No.	Date Dispatched	Issued by	Approved by	Final Approval
0102-059 Draft A	05/03/2025	Nicole Bonney	Jedd Appleton	N/A
0102-059 Version 0	08/04/2025	Jedd Appleton	Jedd Appleton	
0102-059 Version 1	15/04/2025	Jedd Appleton	Jedd Appleton	
0102-059 Version 2	01/12/2025	Jedd Appleton	Jedd Appleton	
0102-059 Version 3	30/01/2026	Jedd Appleton	Jedd Appleton	
0102-059 Version 4	10/06/2026	Jedd Appleton	Jedd Appleton	

NOTICE TO USERS OF THIS REPORT

Purpose of Report

Biodiversity Assessment and Management Pty Ltd has produced this report in its capacity as {consultants} for and on the request of Cherish Enterprises Pty Ltd (the "Client") for the sole purpose of preparing an Offset Area Management Plan for the Esk Landholdings offset area, developed for the Springfield Residential Development (the "Specified Purpose"). This information and any recommendations in this report are particular to the Specified Purpose and are based on facts, matters and circumstances particular to the subject matter of the report and the Specified Purpose at the time of production. This report is not to be used, nor is it suitable, for any purpose other than the Specified Purpose. Biodiversity Assessment and Management Pty Ltd disclaims all liability for any loss and/or damage whatsoever arising either directly or indirectly as a result of any application, use or reliance upon the report for any purpose other than the Specified Purpose.

This report has been produced solely for the benefit of the Client. Biodiversity Assessment and Management Pty Ltd does not accept that a duty of care is owed to any party other than the Client. This report is not to be used by any third party other than as authorised in writing by Biodiversity Assessment and Management Pty Ltd and any such use shall continue to be limited to the Specified Purpose. Further, Biodiversity Assessment and Management Pty Ltd does not make any warranty, express or implied, or assume any legal liability or responsibility for any third party's use in whole or in part of the report or application or use of any other information or process disclosed in this report and to the full extent allowed by law excludes liability in contract, tort or otherwise, for any loss or damage sustained by any person or body corporate arising from or in connection with the supply or use of the whole part of the report through any cause whatsoever.

Biodiversity Assessment and Management Pty Ltd has used information provided to it by the Client and governmental registers, databases, departments and agencies in the preparation of this report. Biodiversity Assessment and Management Pty Ltd does not know, nor does it have any reason to suspect, that the information provided to it was false, inaccurate, incomplete or misleading at the time of its receipt. This report is supplied on the basis that while Biodiversity Assessment and Management Pty Ltd believes all the information in it is deemed reliable at the time of publication, 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 any person or body corporate arising from or in connection with the supply or use of the whole or any part of the information in this report through any cause whatsoever.

Copyright and reproduction

This report and all indexes, schedules, annexures or appendices are subject to copyright pursuant to the Commonwealth Copyright Act 1968. Subject to statutory defences, no third party may reproduce, publish, adapt or communicate to the public, in whole or in part, the content of this report without the express written consent of Biodiversity Assessment and Management Pty Ltd.

Offset Area Management Plan

Esk Landholdings

Contents

1.0 INTRODUCTION 1
1.1 Purpose 1
1.2 Offset Outcomes and Objectives 2
1.2.1 Environmental outcomes 2
1.2.2 Management objectives 2

2.0 IMPACT SITE 3

3.0 OFFSET PROPERTY 7
3.1 Offset Property Description 7
3.2 Management History 7
3.3 Building Location Envelopes 10
3.4 Topography and Drainage 10
3.5 Vegetation 10
3.5.1 Qld Regulated Vegetation Mapping 10
3.5.2 Regional Ecosystem Mapping 10
3.6 Ecological Corridors and Landscape Context 15
3.7 Assessment Units 18
3.7.1 Assessment Unit 1 (AU1 regrowth) : "juvenile patchy regrowth" areas 18
3.7.2 Assessment Unit 2 (AU2 non remnant) : "open paddock" areas 21
3.7.3 Assessment Unit 3 (AU regrowth) : "remnant vegetation" areas 22
3.7.4 Assessment Unit 4 (AU regrowth): "remnant creek line (riparian) vegetation" areas 23

4.0 IMPACT MNES SPECIES 24
4.1 Koala 24
4.2 Grey-headed Flying-fox 26
4.3 Swift Parrot 28
4.4 Regent Honeyeater 28

5.0 METHODOLOGY FOR HABITAT QUALITY ASSESSMENTS AND SCORING 29
5.1 Offset Area Calculation 29
5.2 Habitat Quality Scoring Methodology for Koala 30
5.2.1 Site Condition 30
5.2.2 Site Context 31
5.2.3 Stocking Rate 32
5.3 Habitat Quality Scoring Methodology for Grey-headed Flying-fox 34
5.3.1 Site Condition 34
5.3.2 Site Context 36
5.3.3 Stocking Rate 38
5.4 Foraging Habitat Assessment Methodology for Swift Parrot 38
5.4.1 Baseline tree density 39
5.4.2 Planting capacity 39
5.4.3 Preferred foraging species planting 40
5.4.4 Net total of preferred foraging trees 40

5.5 Foraging Habitat Assessment Methodology for Regent Honeyeater 40
5.5.1 Baseline tree density *41*
5.5.2 Planting capacity *41*
5.5.3 Preferred foraging species planting *42*
5.5.4 Net total of preferred foraging trees *42*
5.6 Total Current Habitat Quality Scores and Foraging Habitat Assessment Results for the Proposed Offset Property 42
5.6.1 Habitat Quality for Koala and Grey-headed Flying-fox *42*
5.6.2 Foraging Habitat for Swift Parrot *42*
5.6.3 Foraging Habitat for Regent Honeyeater *44*

6.0 OFFSET MANAGEMENT MEASURES 45
6.1 Protection of Existing Habitat Values 45
6.2 Habitat Restoration Approach 46
6.2.1 Assisted Natural Regeneration *46*
6.2.2 Reconstruction *46*
6.3 Rehabilitation Methodology 47
6.3.1 Timing of offset delivery *47*
6.3.2 Timing of Rehabilitation Activities *47*
6.3.3 Access *47*
6.3.4 Fencing *48*
6.3.5 Burns and Soil Cultivation *48*
6.3.6 Weed Management *48*
6.3.7 Revegetation *49*
6.4 Feral Animal Control 50
6.5 BLE and Trespass Management 53
6.5.1 General Trespass Management *53*
6.5.2 BLE Land Use and Access Management *53*
6.6 Offset Management Actions 54
6.7 Monitoring and Reporting 54
6.8 Expected Improvement 63
6.8.1 Koala and Grey-headed Flying-fox *63*
6.8.2 Swift Parrot *65*
6.8.3 Regent Honeyeater *65*

7.0 OFFSET ASSESSMENT 67
7.1 Offset Assessment Guide Results 67
7.2 Offset Suitability 69
7.2.1 Commonwealth Environmental Offsets Policy *69*
7.2.2 Koala Conservation Advice *72*
7.2.3 Koala National Recovery Plan *72*
7.2.4 Grey-headed flying-fox National Recovery Plan *73*
7.2.5 Swift Parrot National Recovery Plan *73*
7.2.6 Regent Honeyeater National Recovery Plan *73*

8.0 RISK ANALYSIS 75
9.0 SECURITY MECHANISM 79
10.0 REFERENCES 80

Figures

Figure 2.1: Impact site context
Figure 2.2: Impact site assessment units and habitat quality transects
Figure 3.1: Offset area context
Figure 3.2: Offset site
Figure 3.3: Proposed Building Location Envelopes
Figure 3.4: Regulated Vegetation
Figure 3.5: Regional Ecosystem mapping
Figure 3.6: Pre-clear RE mapping
Figure 3.7: Baseline weed mapping
Figure 3.8: Ecological corridors
Figure 3.9: Offset site assessment units
Figure 4.1: Koala occurrence records
Figure 4.2: Grey-headed Flying-fox camps and occurrence records

Appendices

Appendix A Weed Transect Data
Appendix B Database Search Results for Proposed Offset Property: Wildlife Online
Appendix C BioCondition scoring sheets
Appendix D Koala and Grey-headed Flying-fox context mapping
Appendix E Tree plot data
Appendix F Grey-headed Flying-fox site condition scoring sheets
Appendix G Rehabilitation Management Plan
Appendix H Current and predicted habitat quality score tables
Appendix I OAG calculation score sheets

Terms and Abbreviations

AU/AUs	Assessment Unit/s
BAAM	Biodiversity Assessment and Management Pty Ltd
BioCondition	A vegetation condition assessment used to measure the capacity of a terrestrial ecosystem to maintain biodiversity values at a local or property scale
BLE	Building Location Envelope
BoM	Bureau of Meteorology
CEPL	Cherish Enterprises Pty Ltd
DBH	Diameter at Breast Height (for vegetation)
DCCEEW	Department of Climate Change, Energy, Environment and Water (from May 2022)
EDL	Ecologically dominant layer
EOP	Environmental offset policy
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
FHA	Foraging Habitat Assessment
GER	*Great Eastern Ranges*
GPS	Global Positioning System
ha	hectares
HVR	High Value Regrowth
LGA	Local Government Area
MHQA	Modified Habitat Quality Assessment
MNES	Matters of National Environmental Significance
NJHKT	Non Juvenile Koala Habitat Tree
NRM	Natural Resource Management
OAMP	Offset Area Management Plan
Proponent	Cherish Enterprises Pty Ltd (CEPL)
RE	Regional Ecosystem
SRC	Somerset Regional council
VM Act	Queensland *Vegetation Management Act 1999*
WONS	Weed(s) of National Significance

1.0 Introduction

This Offset Area Management Plan (OAMP) has been developed for the Springfield Residential Development, located at Mur Boulevard, Springfield, Queensland.

The Springfield Residential Development was referred under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and subsequently declared a "Controlled Action" on 9 April 2020 (EPBC 2019/8575), requiring assessment via Preliminary Documentation pursuant to sections 18 and 18A (listed threatened species and communities). The controlling provision was triggered due to potential significant impacts on threatened species which include:

- Koala (*Phascolarctos cinereus*) - Vulnerable
- Grey-headed Flying-fox (*Pteropus poliocephalus*) - Vulnerable
- Swift Parrot (*Lathamus discolour*) - Critically Endangered
- Regent Honeyeater (*Anthochaera phrygia*) - Critically Endangered

As part of the Preliminary Documentation requirements, a proposal was developed to offset the impacts of clearing and functional loss of 128 ha of critical habitat for the Koala and Grey-headed Flying-fox and the loss of 9,983 habitat features for the Swift Parrot and 9,868 habitat features for the Regent Honeyeater. This offset area, comprising the dedication and rehabilitation of 280.2 ha of land at the Esk Landholding (the offset area), is proposed to offset significant impacts on the above listed species associated with the Springfield Residential Development (EPBC 2019/8575).

1.1 Purpose

This OAMP has been developed to satisfy Item 6 of the Additional Information required for Preliminary Documentation and the EPBC Environmental Offset Policy (EOP), guiding the implementation and management of offset activities. Survey methodologies to ensure the approval conditions are met were agreed upon with the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) during the Preliminary Documentation phase.

The purpose of this OAMP is to establish key milestones and measurable actions, including success criteria, for the Esk Landholding offset area. Specifically, this plan outlines:

- The methodology used to determine ecological outcomes, based on baseline survey results, and proposed milestones that quantify the environmental gain of the offset.
- The management measures to achieve the required ecological outcomes.
- The ongoing monitoring of these management measures, including identifiable and quantifiable performance indicators.
- Contingency measures should the ecological outcomes compensating for the proposed action not be achieved.

This Offset Strategy addresses the significant residual impacts of the Springfield Residential Development (the "proposed action") on listed species, including the Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater. It has been prepared considering:

- The Commonwealth legislative offsets framework.
- The combined results of ecological investigations at the proposed offset location.
- Advice from the DCCEEW.
- The results of the application of the EPBC Act Offsets Assessment Guide.
- Conservation and ecological outcomes.

Following approval, the offset area will be permanently secured via a legal mechanism that is approved by the Land Holder and DCCEEW. . The Esk Offset Area OAMP will be published on the project website in accordance with approval conditions. Any non-compliances will be addressed in the relevant Annual Compliance Report.

1.2 Offset Outcomes and Objectives

This OAMP details the existing habitat quality for the Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater within the Esk Landholding offset area. It outlines the management actions designed to achieve required targets. This will be achieved through a direct offset proportionate to the species' statutory protection, ensuring the offset's size and scale are proportionate to the Springfield Residential Development's residual impacts.

1.2.1 Environmental outcomes

To achieve offsets proportionate to statutory requirements, this OAMP aims to achieve the following environmental outcomes:

- Food Availability: Increase food tree availability by establishing new trees, ensuring an 80% survival rate over the EPBC Act approval period.
- Recruitment: Improve recruitment to 100% of the Ecologically Dominant Layer (EDL).
- Habitat Structure: Enhance habitat structure by:
    - Increasing shrub layer species richness.
    - Improving tree canopy height and cover.
    - Improving shrub cover. *(All to established benchmarks)*
- Habitat Complexity: Increase coarse woody debris habitat.
- Habitat Quality: Improve food, foraging, and shelter habitat quality and availability.
- Threat Reduction: Decrease threats to the target species.
- Mobility: Enhance species mobility.
- Stocking Rates: Improve species stocking rates (where relevant).

1.2.2 Management objectives

Aligned with the EPBC EOP, this OAMP's management objectives are:

- Conservation Gain: Provide a conservation gain for the Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater, beyond existing legal requirements.
- Proportionality: Ensure the offset is proportionate to the impacts and species' protection levels.
- Risk Management: Effectively manage risks of not achieving objectives.
- Efficiency and Transparency: Be efficient, effective, timely, transparent, scientifically robust, and reasonable, with transparent governance.

The achievement of these outcomes will be measured using the methodologies, monitoring, and maintenance detailed in **Section 6**. Management actions aim to achieve EPBC Act approval (2019/8575) offset targets, focusing on protecting, restoring, and reconnecting habitat.

2.0 Impact Site

The action associated with this offset is for a residential development located at Mur Boulevard, Springfield, Queensland (EPBC Reference 2019/8575). The development site covers 161.4 hectares (ha) and is in the suburb of Springfield, approximately 15 kilometres (km) south-east of Ipswich City. The referable action requires an impact area of 133.9 ha, which includes the development extent (123 ha), bioretention basins (8.2 ha), external stormwater infrastructure to be approved by Council (0.1 ha) and temporary impacts and minor clearing (2.6 ha). It is noted that an area of 7.6 ha of the site is approved for impacts under EPBC 2014/7306 therefore has been removed from the impact analysis for this project. A total of 128 ha of habitat for the Koala and Grey-headed Flying-fox is proposed to be impacted and a total of 9,983 habitat features for the Swift Parrot and 9,868 habitat features for the Regent Honeyeater will be impacted. A total of 27.5 ha will be set aside as ecological retention/rehabilitation areas.

Neighbouring land uses include residential development, education (The Springfield Anglican College), recreation and open space (i.e. Brookwater Golf Course, reserves and parklands). The Kalina Village One residential development bounding the site to the south-east (EPBC 2014/7306) has progressed, where clearing has been undertaken, and the estate is close to completion since the referral of this proposed action.

Figure 2.1 shows the site context and **Figure 2.2** shows an aerial view of the site.

The subject site is mostly vegetated; however, areas of the site have been exposed to weed invasion and historical logging activities. Vegetation across the site is dominated largely by eucalypt woodland and over 150 ha is mapped as regulated vegetation under the Queensland *Vegetation Management Act 1999* (VMA). Vegetation surrounding the referral area is mostly reflective of that mapped on-site, containing similar flora species and regional ecosystem characteristics.

Drainage lines are mapped within the proposed action area and were not observed to retain pooled water during field survey. Woogaroo Creek lies adjacent to the north-western boundary of the site and Opossum Creek is situated adjacent to the western and south-western boundary. An unnamed waterway is situated adjacent to the eastern boundary in a north-south direction traversing a small section of the site. These waterways provide a somewhat distinct boundary for the site.

Habitat for Koala and Grey-headed Flying-fox within the impact area was assessed using a Modified Habitat Quality Assessment (MHQA) to determine the quality of habitat present within the impact area. Two (2) AUs were defined across the site to reflect the differing states of in situ vegetation composition, with transects completed within each assessment unit (**Figure 2.2**). The two AUs were deciphered based upon aerial imagery and field survey, and it was determined that quantifying the vegetation condition of these two vegetation communities separately would provide the most accurate insight into the differing state of the vegetation across the AUs.

The two AUs and associated transects site numbers are as follows:

- AU1 represents regional ecosystem (RE) 12.9-10.19 (Transects 1, 4, 5 and 6).
- AU2 represents RE 12.9-10.3 (Transects 2 and 3).

Habitat quality scores for Koala and grey-headed Flying-fox at the impact site are presented in **Table 2.1.**

As noted above, a total of 9,983 habitat features for the Swift Parrot and 9,868 habitat features for the Regent Honeyeater will be impacted.

LEGEND

Impact Site

Scale 1 : 250,000 at A4

0 2.5 5.0 7.5km

Aerial Photograph: Nearmap

BAAM ECOLOGICAL CONSULTANTS

Client: Cherish Enterprises Pty Ltd

Project: Tamborine
Offset Area Management Plan

Design: BAAM	Date: 20.02.2025	NTP580	
Drawn: MP	Date: 20.02.2025	Project #0102-059	

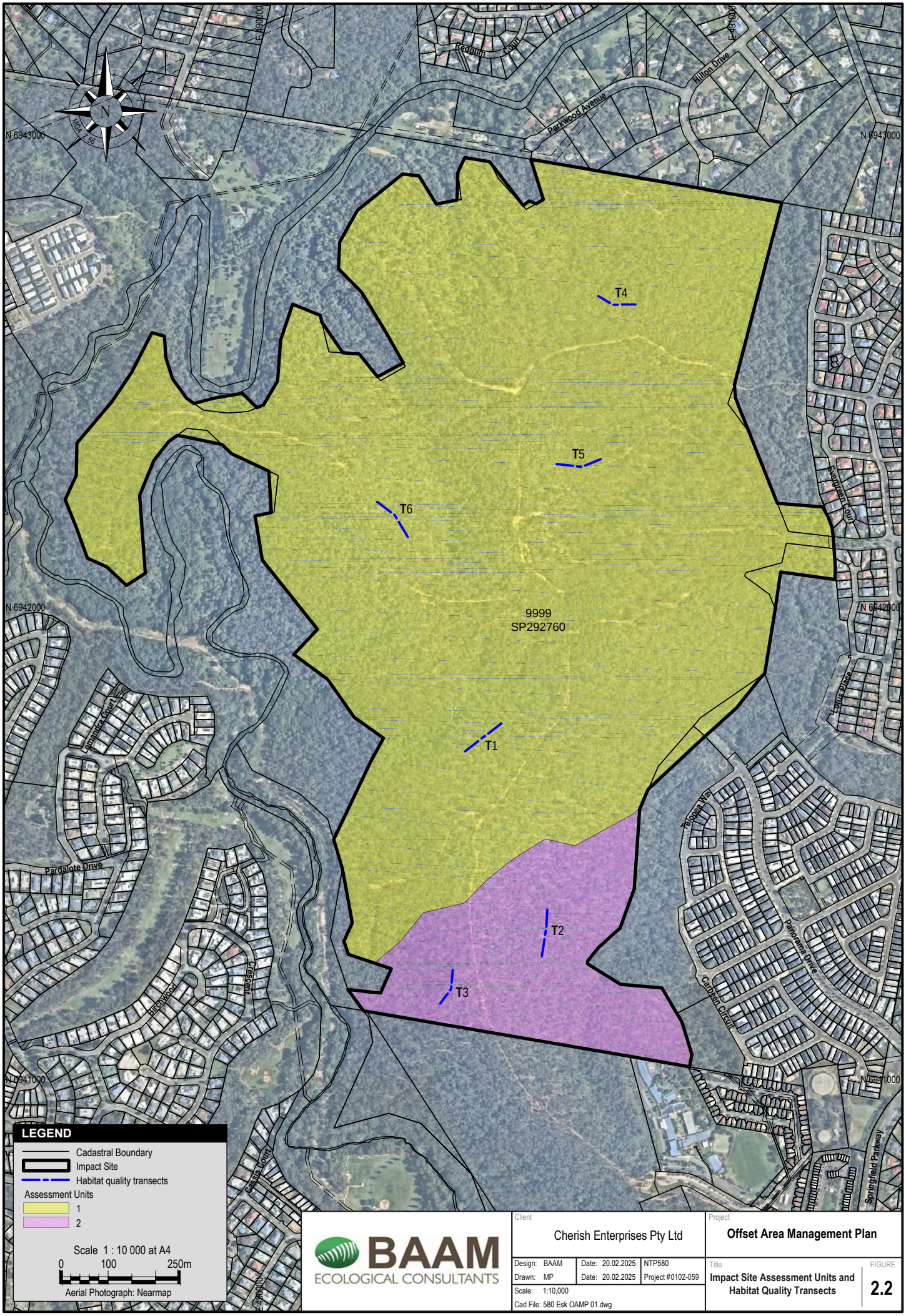
Scale: 1:250,000

Cad File: 580 Esk OAMP 01.dwg

Title: **Impact Site Context**

FIGURE **2.1**

©Biodiversity Assessment and Management Pty Ltd. While every care is taken to ensure the accuracy of this data, Biodiversity Assessment and Management makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation liability in negligence) for all expenses, losses, damages (including indirect consequential damage) and costs which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.



BAAM ECOLOGICAL CONSULTANTS

Client: Cherish Enterprises Pty Ltd

Project: **Offset Area Management Plan**

Design: BAAM	Date: 20.02.2025	NTP580
Drawn: MP	Date: 20.02.2025	Project #0102-059
Scale: 1:10,000		
Cad File: 580 Esk OAMP 01.dwg		

Title: **Impact Site Assessment Units and Habitat Quality Transects**

FIGURE **2.2**

©Biodiversity Assessment and Management Pty Ltd. While every care is taken to ensure the accuracy of this data, Biodiversity Assessment and Management makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation liability in negligence) for all expenses, losses, damages (including indirect consequential damage) and costs which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.

Table 2.1. Impact site MHQA and Habitat Feature summary

Koala		
	Assessment Unit 1	**Assessment Unit 2**
Site Condition (/3)	1.95/3.00	2.15/3.00
Site Context (/3)	2.52/3.00	2.52/3.00
Species Stocking Rate (/4)	2.29/4.00	2.29/4.00
AU Weighted Score (/10)	**5.90**	**0.88**
Total Weighted Score (/10)	**6.78 (rounded to a 7)**	
Grey-headed Flying-fox		
	Assessment Unit 1	**Assessment Unit 2**
Site Condition (/4)	2.52/4.00	2.72/4.00
Site Context (/3)	2.60/3.00	2.60/3.00
Species Stocking Rate (/3)	2.40/3.00	1.80/3.00
AU Weighted Score (/10)	**6.59**	**0.88**
Total Weighted Score (/10)	**7.47 (rounded to a 7)**	

3.0 Offset Property

Cherish Enterprises Pty Ltd own 300 ha of land, comprising three partially cleared, rural zoned lots located approximately 4 km south-east of Esk, off the Gatton Esk Road, within the Somerset Regional Council (SRC) local government area. **Table 3.1** below provides key details. **Figure 3.1** shows the offset property in the context of the surrounding landscape and the impact site; the offset area is located in the SEQ bioregion, the same bioregion as the impact site, and is approximately 56.5 km, north-west as the crow flies, from the impact site (refer **Figure 3.1**). **Figure 3.2** shows an aerial view of the offset property.

Table 3.1. Offset property details

Locality	Esk, Queensland
Lot/Plan	Lot 125 on CA31385 (45.52ha) Lot 60 on CA31149 (161.77ha) Lot 147 on CA31617 (92.67ha)
Total Area	300 ha
Tenure	Freehold
Loca Government Area (LGA)	Somerset Regional Council (SRC)

3.1 Offset Property Description

The offset property ranges from sparsely vegetated grassland to dense regrowth vegetation, with some remnant vegetation in the least accessible, higher-altitude rocky areas and riverine slopes. The terrain is mostly undulating foothills with some steeper slopes and gullies in areas of exposed sandstone rock. The comparatively wet season and reduced stocking rate have resulted in dense groundcover vegetative growth across the open grassland areas.

The soil is highly sodic, and there is evidence of substantial gully erosion along the main creek, known locally as Paddy's Gully. This semi-ephemeral gully centrally traverses the offset property before flowing into the Lake Wivenhoe water storage system, a tributary of the Brisbane River. Many of the smaller gullies that flow into Paddy's Gully also exhibit varying degrees of gully erosion. Several small dams are spread across the offset site; historically, stock watering appears to have relied primarily on gully water access, further exacerbating ongoing erosion.

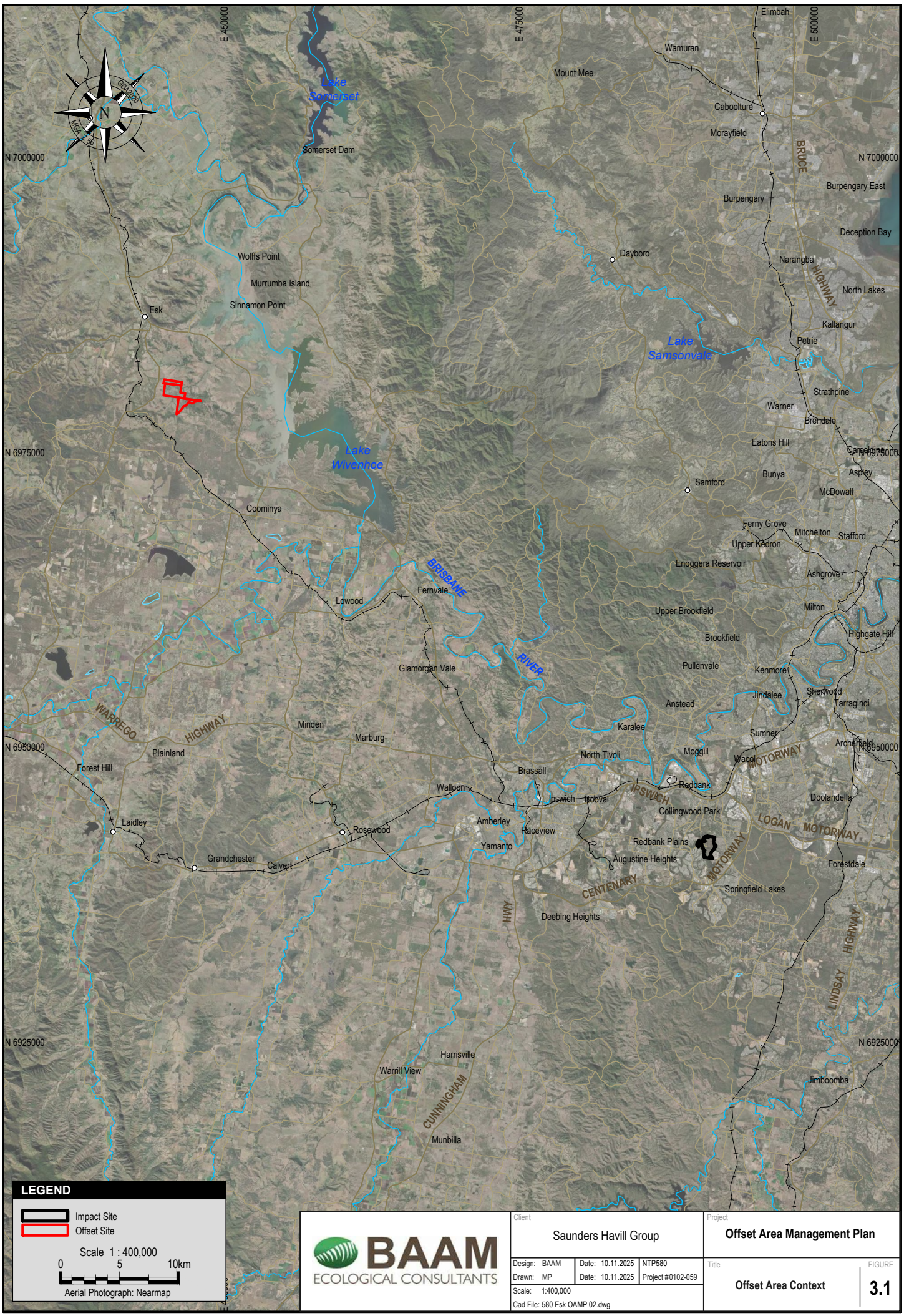
The closest weather station is the Somerset Dam weather station (040189). Data statistics indicate a mean average annual rainfall of 984.5 mm, with the highest rainfall months occurring from December to March. This coincides with the warmest season, which extends from November to March, with the highest average temperature occurring in December at 30.5°C. The driest month is August, coinciding with the cooler months of June, July, and August. June is the average coldest month, with a mean minimum temperature of 6.4 degrees Celsius (BOM 2025).

3.2 Management History

It can be assumed that the offset property was established by settlers after copper mining ceased in the area in the late 1800s. Once settled, the region was extensively logged for timber (including both cedar and hoop pine) and then used for grazing and dairying. The earliest satellite images, obtained in 1963, indicate that substantial clearing, including along riparian areas, had already occurred, and the property was being actively grazed.

Historically, cattle were not fenced from watercourses, and evidence of overgrazing, bank/gully erosion, loss of groundcover biodiversity, and weed proliferation is apparent.

Fire has been used as a management tool on the site and neighbouring properties to reduce fuel loads and decrease the risk of wildfire. Pasture burns to promote green pick were occurring on the neighbouring property during November 2024. There is some evidence in the eastern offset area of fire damage and subsequent regrowth from the 2019 wildfire events that occurred across the region. Consequently, most neighbours implement annual mosaic burning to avoid a repeat of intense fire events.



BAAM ECOLOGICAL CONSULTANTS

Client: Saunders Havill Group

Project: **Offset Area Management Plan**

Design: BAAM	Date: 10.11.2025	NTP580	
Drawn: MP	Date: 10.11.2025	Project #0102-059	

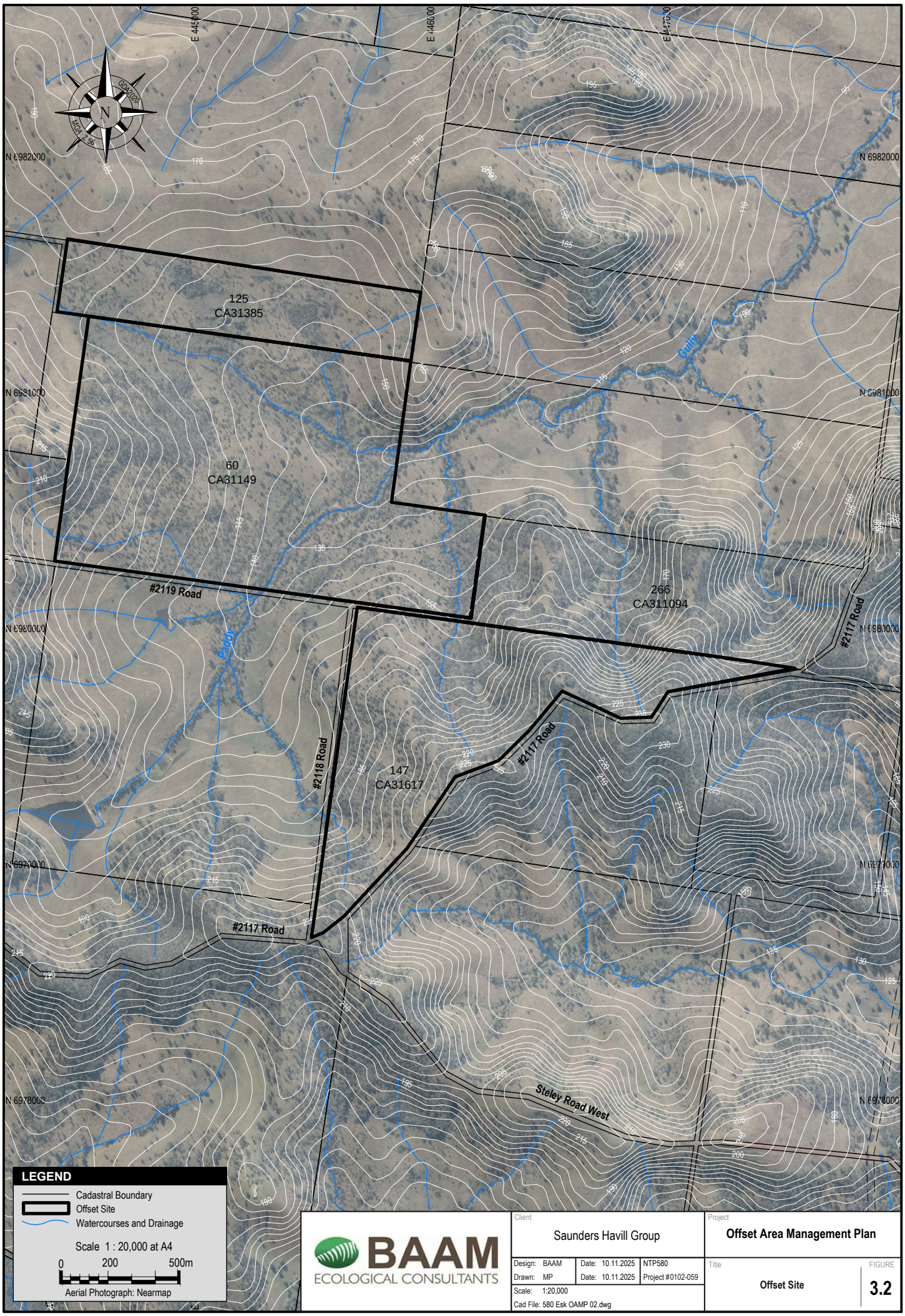
Scale: 1:400,000

Cad File: 580 Esk OAMP 02.dwg

Title: **Offset Area Context**

FIGURE **3.1**

©Biodiversity Assessment and Management Pty Ltd. While every care is taken to ensure the accuracy of this data, Biodiversity Assessment and Management makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation liability in negligence) for all expenses, losses, damages (including indirect consequential damage) and costs which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.



BAAM ECOLOGICAL CONSULTANTS

Client	Saunders Havill Group		
Project	Offset Area Management Plan		
Design: BAAM	Date: 10.11.2025	NTP580	
Drawn: MP	Date: 10.11.2025	Project #0102-059	
Scale: 1:20,000			
Cad File: 580 Esk OAMP 02.dwg			
Title	Offset Site	FIGURE	3.2

©Biodiversity Assessment and Management Pty Ltd. While every care is taken to ensure the accuracy of this data, Biodiversity Assessment and Management makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation liability in negligence) for all expenses, losses, damages (including indirect consequential damage) and costs which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.

3.3 Building Location Envelopes

Three areas within the property will be set aside for 'non-offset land use areas', each of which will entail the establishment of a residential dwelling and use for rural living (not for commercial gain). Each of these areas will include a building location envelope (BLE) and asset protection zone / bushfire management zone (**Figure 3.3**) that are excluded from the proposed offset area. The asset protection zone / bushfire management zone setback is approximately 40 metres, which has been based on the Queensland Department of Resources' definition of exempt clearing for a firebreak included in the *Accepted development vegetation clearing code: Clearing for Infrastructure* (November 2023): "On coastal lots and non-coastal lots, clearing for a necessary firebreak to protect infrastructure, other than a fence, road or vehicular track, is exempt clearing work if the maximum width of the firebreak is 1.5 times the height of the tallest vegetation next to the infrastructure, or 20 metres, whichever is wider."

All three BLEs will require vehicular and associated services access and the BLE to the south will require bridge or road culvert development to gain access across Paddy's Gully. Indicative, private access to each BLE is shown on **Figure 3.3**, along with proposed signage denoting the only current access point to the property. Offset area / private access only signage will be added for any future access points.

Proposed management of the BLEs and associated access is outlined in **Section 6.5**.

3.4 Topography and Drainage

The offset area exhibits a varied topography characterized by open woodland and gully lines. Elevations range from 135 meters Above Sea Level (ASL) in the western portion, encompassing open woodland and floodplains, to 200 meters ASL in the eastern portion. The site gently slopes down from the northwest east and south, culminating in a low-lying gully area and waterway (Paddy's Gully) that flows downstream from the southwest, meandering across the offset area to the northeast**.** Additionally, multiple minor drainage lines traverse the south-eastern portion of the offset area (refer **Figure 3.2**).

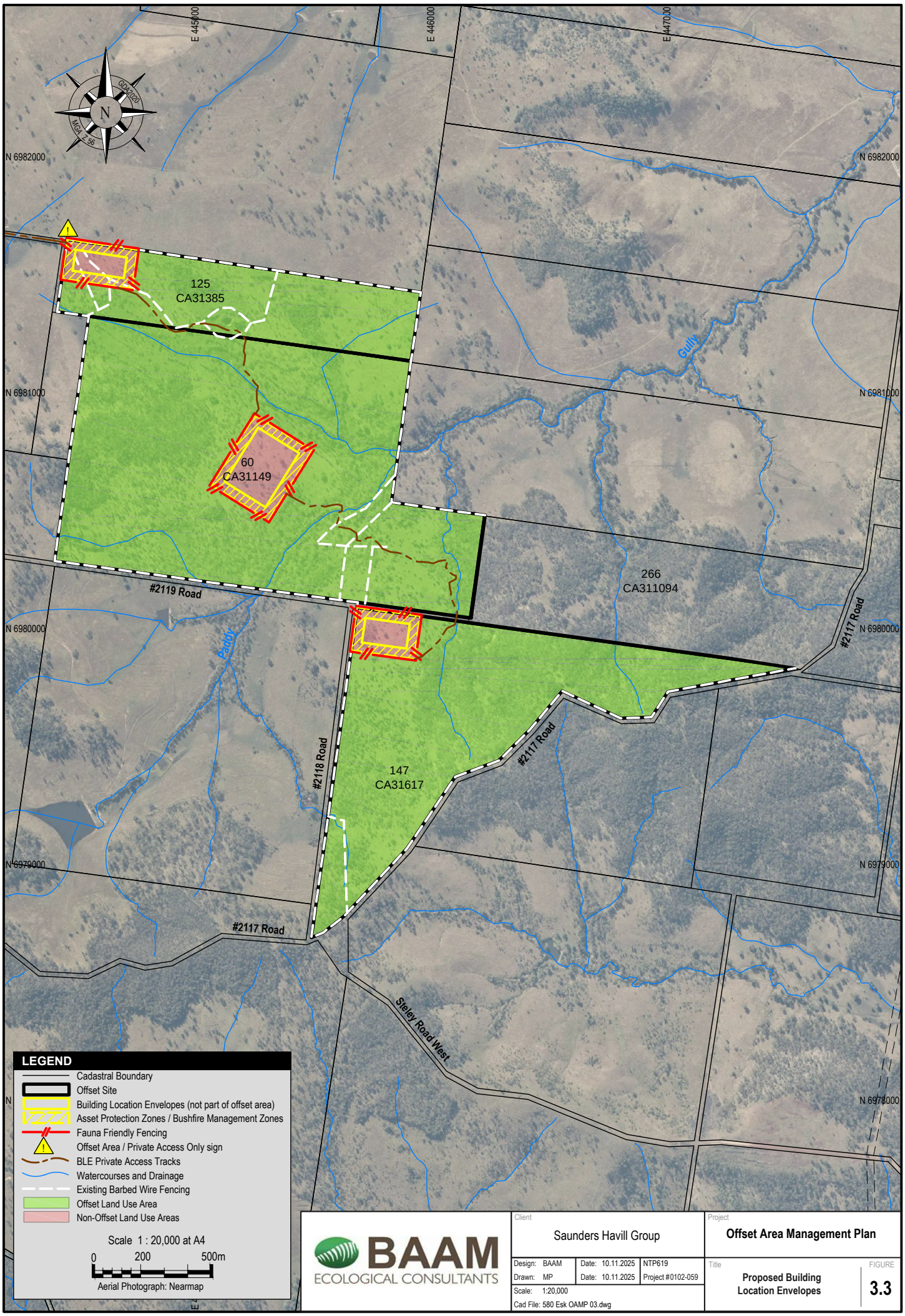
3.5 Vegetation

3.5.1 Qld Regulated Vegetation Mapping

Queensland Regulated Vegetation mapping for the offset site (**Figure 3.4**) shows the vast majority of the western and southern section of the property are mapped as 'non remnant". Paddy's Gully is mapped as Category B remnant vegetation and much of the eastern offset area is mapped as category C High Value Regrowth (HVR). The non-remnant land consists of cleared grazing areas, while the regrowth and remnant vegetation ranges from degraded to intact. Scattered juvenile regrowth and canopy trees observed include *Eucalyptus crebra* (Narrow-leaved Ironbark), *E. tereticornis* (Forest Red Gum), *E. siderophloia* (Grey Ironbark), *Corymbia citriodora* (Spotted Gum), and *C. tessellaris* (Moreton Bay Ash).

3.5.2 Regional Ecosystem Mapping

With the exception of the riparian vegetation along Paddy's Gully, the remnant and high-value regrowth within the offset property is mapped by the Queensland Government as comprising Regional Ecosystem (RE) 12.9-10.2: *Corymbia citriodora subsp. variegata +/- Eucalyptus crebra* open forest on sedimentary rocks (**Figure 3.5**). This RE is also identified on pre-clear mapping for areas currently mapped as non-remnant (**Figure 3.6**). The riparian vegetation is mapped as RE 12.3.7: *Eucalyptus tereticornis, Casuarina cunninghamiana subsp. cunninghamiana +/- Melaleuca spp.* fringing woodland (**Figure 3.5**).



BAAM ECOLOGICAL CONSULTANTS

Client: Saunders Havill Group

Project: **Offset Area Management Plan**

Design: BAAM	Date: 10.11.2025	NTP619
Drawn: MP	Date: 10.11.2025	Project #0102-059

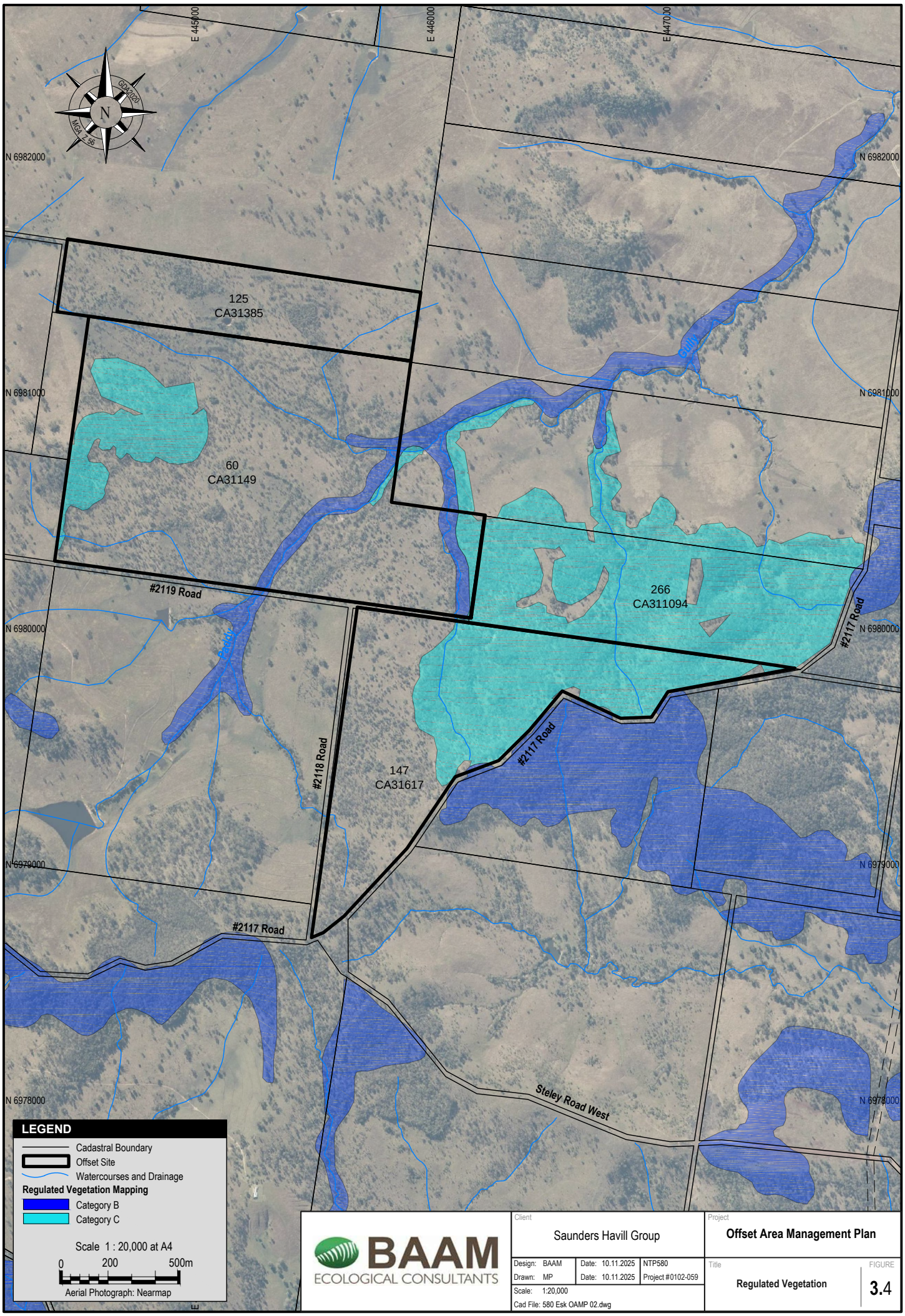
Scale: 1:20,000

Cad File: 580 Esk OAMP 03.dwg

Title: **Proposed Building Location Envelopes**

FIGURE **3.3**

©Biodiversity Assessment and Management Pty Ltd. While every care is taken to ensure the accuracy of this data, Biodiversity Assessment and Management makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation liability in negligence) for all expenses, losses, damages (including indirect consequential damage) and costs which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.



BAAM ECOLOGICAL CONSULTANTS

Client: Saunders Havill Group

Project: **Offset Area Management Plan**

Design: BAAM	Date: 10.11.2025	NTP580
Drawn: MP	Date: 10.11.2025	Project #0102-059

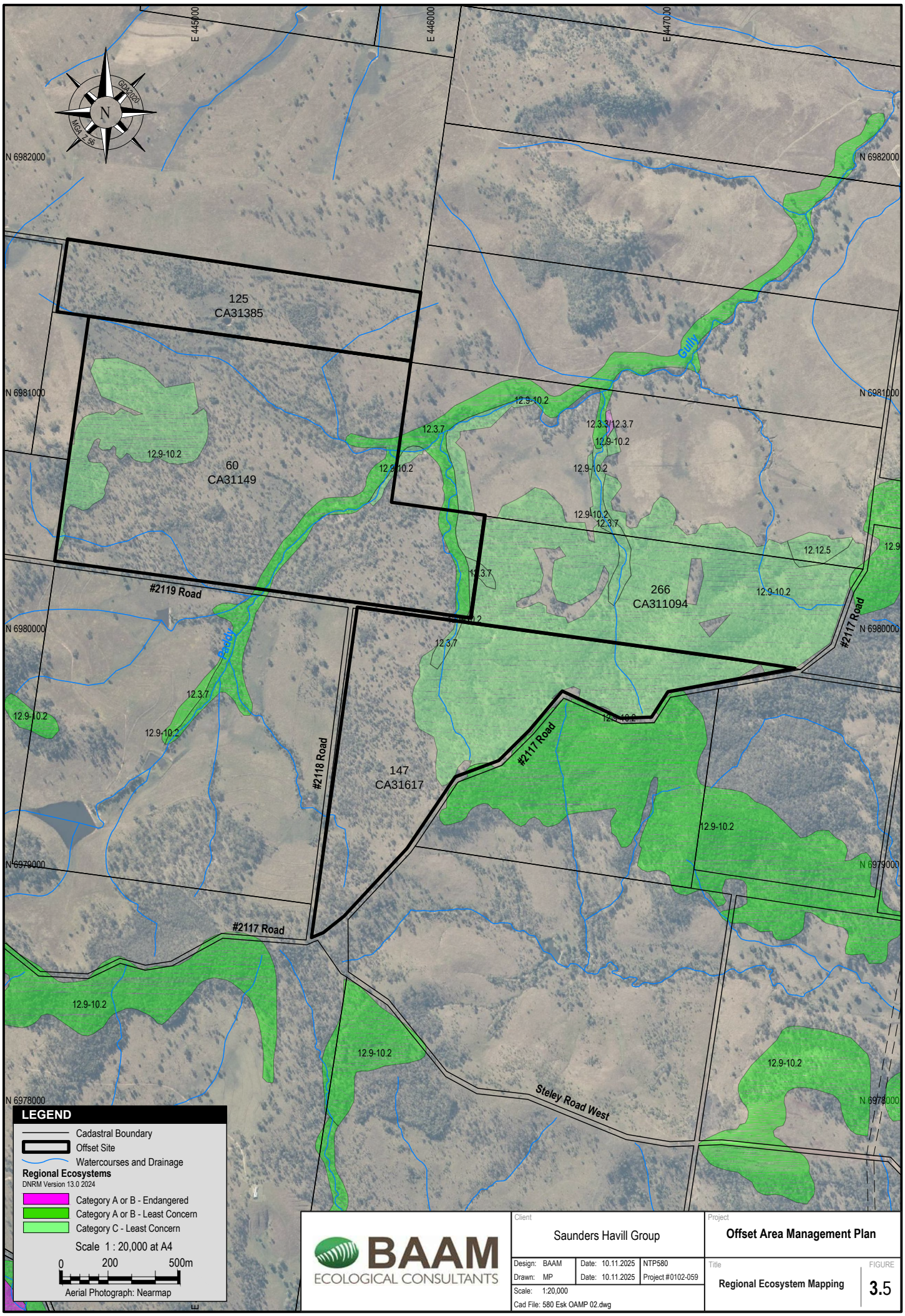
Scale: 1:20,000

Cad File: 580 Esk OAMP 02.dwg

Title: **Regulated Vegetation**

FIGURE **3.4**

©Biodiversity Assessment and Management Pty Ltd. While every care is taken to ensure the accuracy of this data, Biodiversity Assessment and Management makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation liability in negligence) for all expenses, losses, damages (including indirect consequential damage) and costs which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.



BAAM ECOLOGICAL CONSULTANTS

Client: Saunders Havill Group

Project: **Offset Area Management Plan**

Design: BAAM	Date: 10.11.2025	NTP580
Drawn: MP	Date: 10.11.2025	Project #0102-059

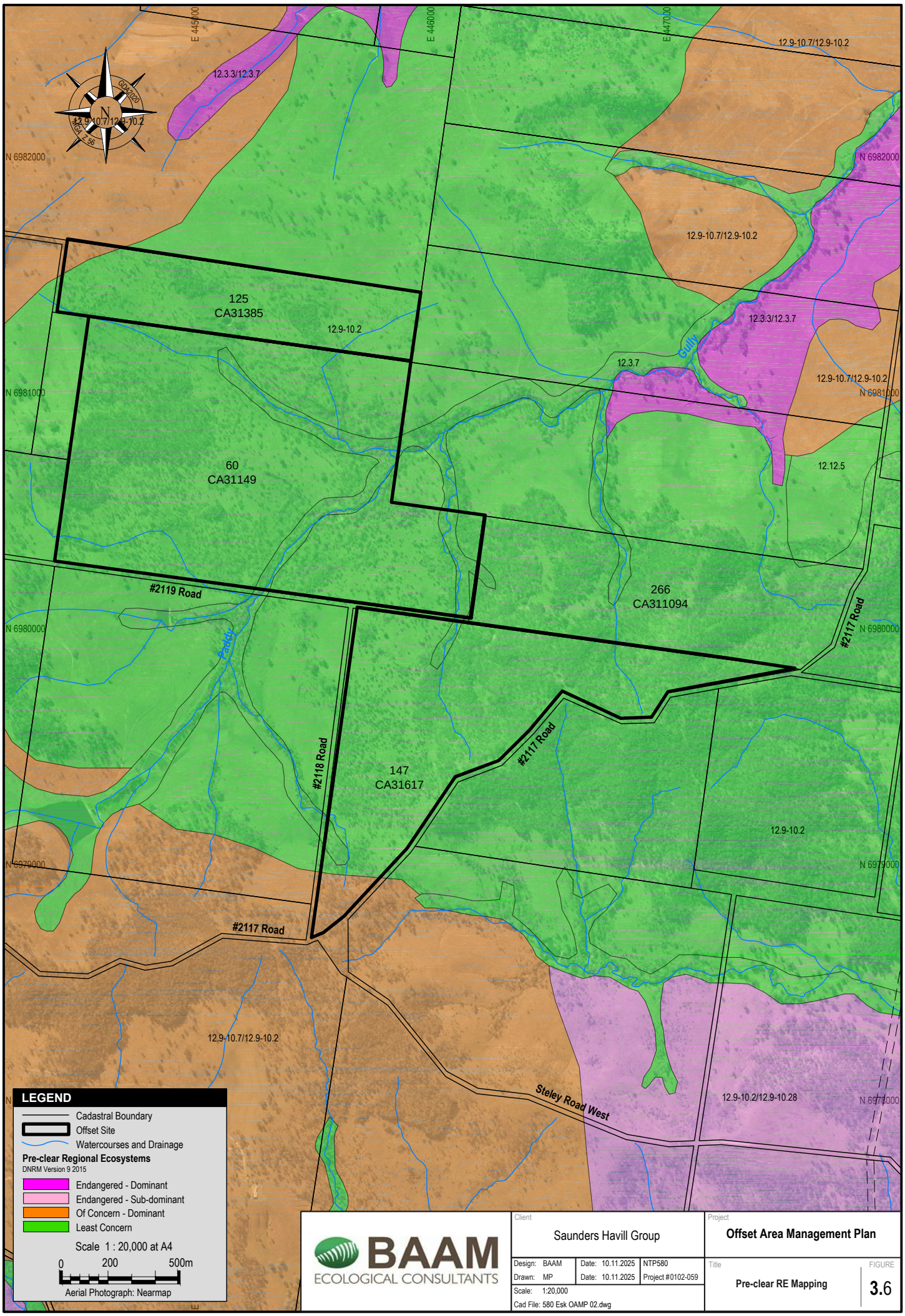
Scale: 1:20,000

Cad File: 580 Esk OAMP 02.dwg

Title: **Regional Ecosystem Mapping**

FIGURE **3.5**

©Biodiversity Assessment and Management Pty Ltd. While every care is taken to ensure the accuracy of this data, Biodiversity Assessment and Management makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation liability in negligence) for all expenses, losses, damages (including indirect consequential damage) and costs which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.



BAAM ECOLOGICAL CONSULTANTS

Client	Saunders Havill Group		
Project	Offset Area Management Plan		
Design: BAAM	Date: 10.11.2025	NTP580	
Drawn: MP	Date: 10.11.2025	Project #0102-059	
Scale: 1:20,000			
Cad File: 580 Esk OAMP 02.dwg			
Title	Pre-clear RE Mapping	FIGURE	3.6

©Biodiversity Assessment and Management Pty Ltd. While every care is taken to ensure the accuracy of this data, Biodiversity Assessment and Management makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation liability in negligence) for all expenses, losses, damages (including indirect consequential damage) and costs which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.

Recent field surveys have generally confirmed the accuracy of the State's mapping in terms of extent, though discrepancies were noted in terms of remnant status, density, and vegetation composition. While the currently mapped remnant and high-value regrowth was verified as REs 12.9-10.2 and 12.3.7, regrowth observed in the non-remnant areas during site surveys in 2024 was more representative of RE 12.9-10.7: *Eucalyptus crebra +/- E. tereticornis, Corymbia tessellaris, Angophora spp., and E. melanophloia* woodland on sedimentary rocks. Even so, AUs have been assigned on the basis of the pre-clear mapping (RE 12.9-10.2) and existing remnant vegetation, given this is expected to be the mature vegetation community that would develop over time.

Bank erosion from stock movement has significantly reduced species diversity along riparian areas, with a near absence of native grasses and very limited native forbs within this narrow zone. Following the removal of stock, native grasses and forbs have become more abundant on slopes and in regrowth areas. However, as expected on a grazing property, introduced pasture grasses and leguminous forbs are prevalent and abundant in the cleared areas.

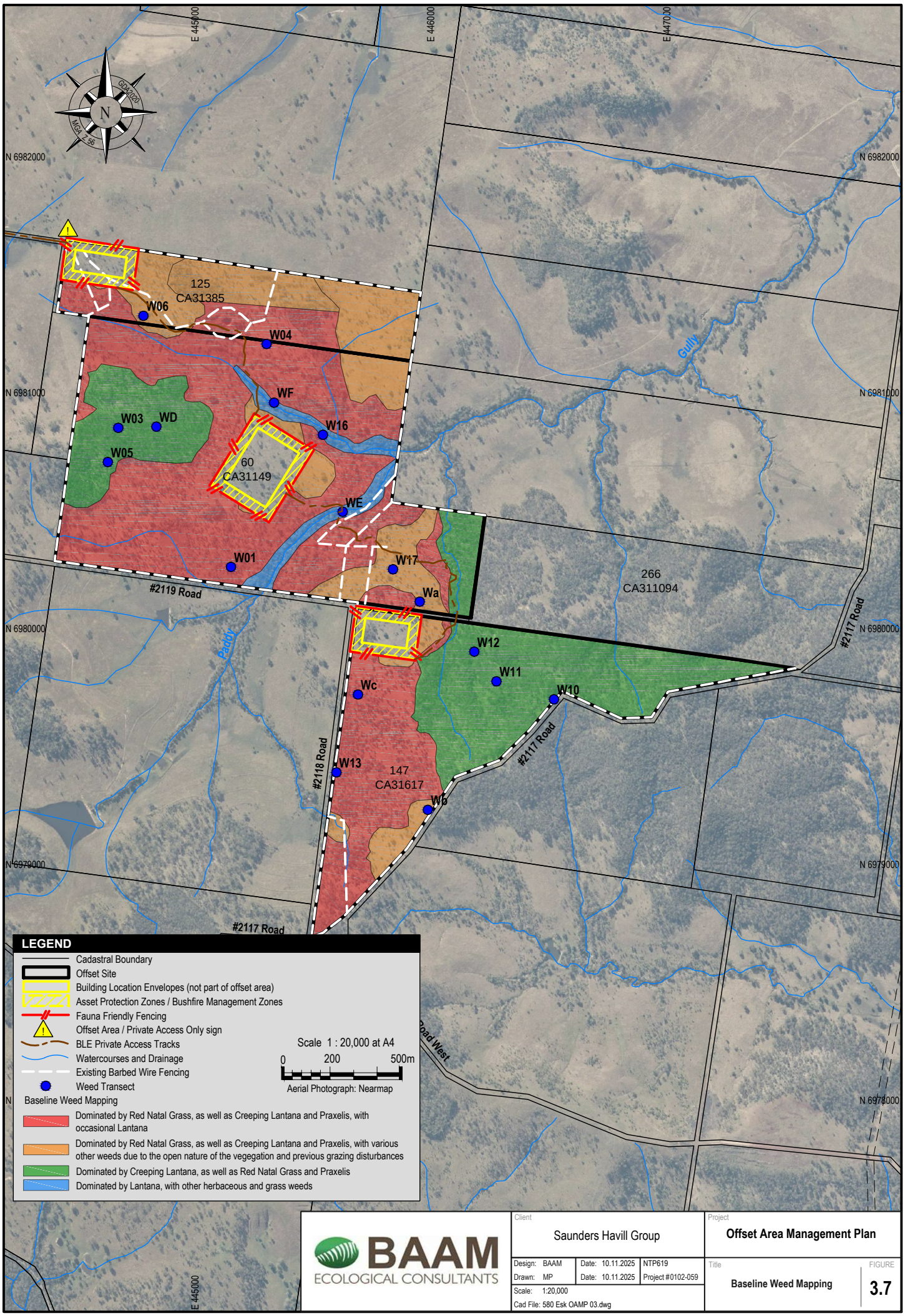
Declared restricted invasive species listed under the Queensland *Biosecurity Act 2014* that occur within the proposed offset area include *Lantana montevidensis,* which is one of the dominant weeds across the site, *Lantana camara*, which is especially prevalent in the gullies and along creek lines, and Prickly Pear *Opuntia sp*, occurring as sparsely scattered individuals. Much of the ground layer is dominated by exotic grasses, particularly Red Natal Grass, as well as some Giant Rat's Tail. **Figure 3.7** indicates the general distribution of weeds across the proposed offset area, based on recent surveys. **Appendix A** summarises data obtained from weed cover transects established at the location shown on **Figure 3.7**.

3.6 Ecological Corridors and Landscape Context

The offset area adjoins the South East Queensland Regional Plan — Regional Biodiversity Corridor (**Figure 3.8**), which spans from the Noosa headland in the north down to Mount Barney and Lamington National Park on the Queensland border. This corridor aims to encompass large tracts of vegetation, terrestrial and aquatic connectivity, species richness, diversity, and refugia, ecosystem representation and uniqueness, and climate resilience areas (Queensland Government 2017).

The SEQ Biodiversity Corridor forms part of the Great Eastern Ranges (GER) terrestrial corridor, which extends from the mountains of Victoria to the Atherton Tablelands in far north Queensland (Mackay, Watson & Worboys 2010). The GER corridor provides habitat and movement opportunities for a range of species of federal, state, and local significance, supports significant cultural heritage values, and offers scenic amenity and outdoor recreation opportunities (Mackay, Watson & Worboys 2010).

The offset area will conserve freehold land adjacent to the South East Queensland Regional Plan — Regional Biodiversity Corridor, linking remnant habitat with the legally secured environmental offset area. This linkage creates a valuable contiguous habitat corridor, minimizing habitat fragmentation and improving connectivity for the Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater within SEQ, thus contributing to these species' future protection and persistence.



BAAM ECOLOGICAL CONSULTANTS

Client: Saunders Havill Group

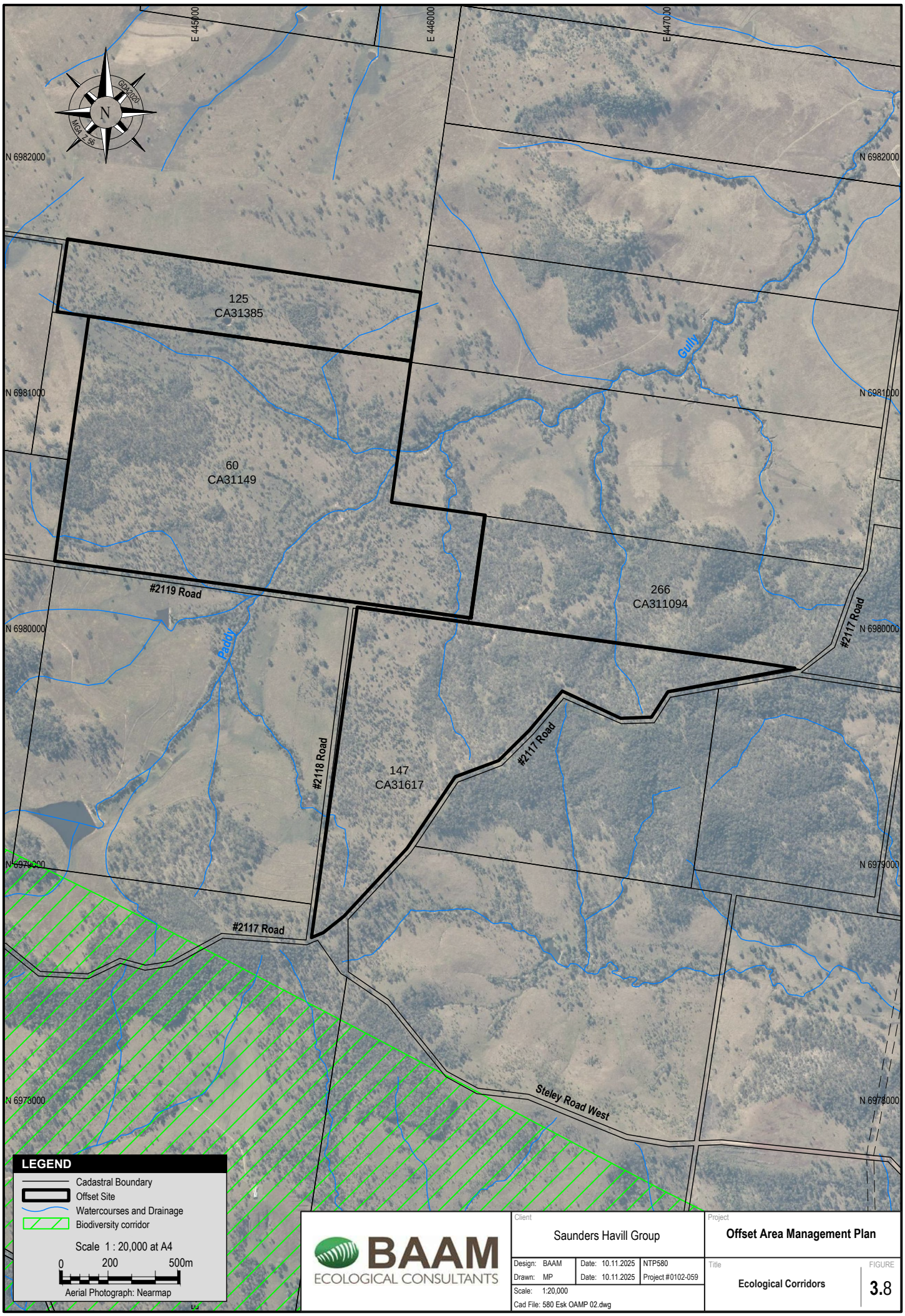
Project: **Offset Area Management Plan**

Design: BAAM	Date: 10.11.2025	NTP619
Drawn: MP	Date: 10.11.2025	Project #0102-059
Scale: 1:20,000		
Cad File: 580 Esk OAMP 03.dwg		

Title: **Baseline Weed Mapping**

FIGURE **3.7**

©Biodiversity Assessment and Management Pty Ltd. While every care is taken to ensure the accuracy of this data, Biodiversity Assessment and Management makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation liability in negligence) for all expenses, losses, damages (including indirect consequential damage) and costs which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.



BAAM ECOLOGICAL CONSULTANTS

Client: Saunders Havill Group

Project: **Offset Area Management Plan**

Design: BAAM	Date: 10.11.2025	NTP580
Drawn: MP	Date: 10.11.2025	Project #0102-059

Scale: 1:20,000

Cad File: 580 Esk OAMP 02.dwg

Title: **Ecological Corridors**

FIGURE **3.8**

©Biodiversity Assessment and Management Pty Ltd. While every care is taken to ensure the accuracy of this data, Biodiversity Assessment and Management makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation liability in negligence) for all expenses, losses, damages (including indirect consequential damage) and costs which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.

3.7 Assessment Units

Assessment units (AUs) and their respective areas were determined by Saunders Havill Group on the basis of surveys undertaken in 2024. The assessment methodologies were applied separately to the non-remnant, regrowth, and remnant vegetation across the site, taking into account the various factors that influence total habitat quality and species stocking rate.

The offset area is divided into four AUs, as detailed below and in **Table 3.2**, and shown on **Figure 3.9**:

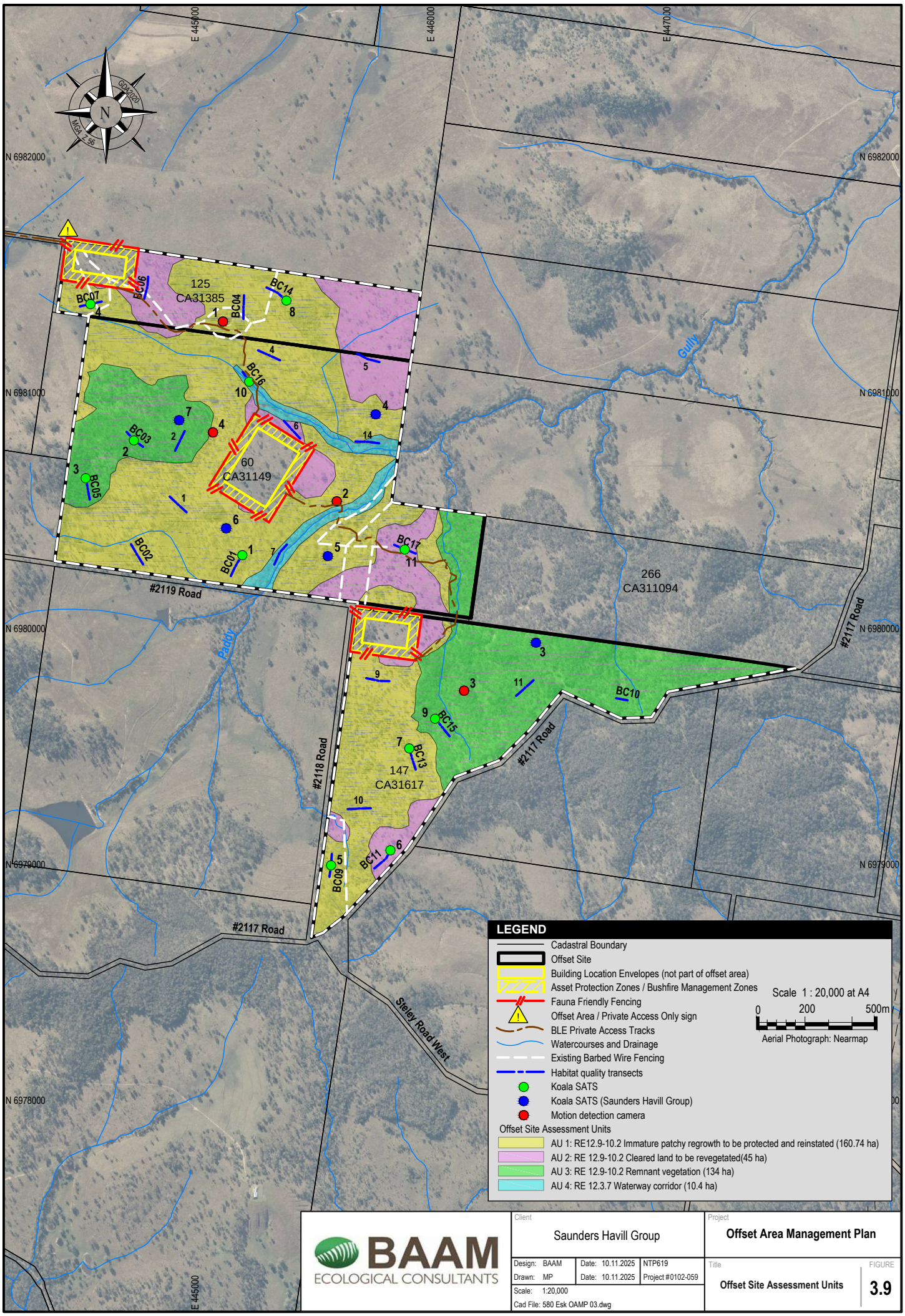
- AU1 – Juvenile Patchy Regrowth Areas (150.1 ha): This AU comprises a mix of recent and older regrowth vegetation, varying in density from sparse to abundant.
- AU2 – Open Paddocks (44.8 ha): This AU consists primarily of grassland areas.
- AU3 – Remnant Vegetation (75.9 ha): This AU ranges from dense younger regrowth to older regrowth, particularly on the steeper slopes to the east. This AU aligns with the Regional Vegetation Mapping (RVM) currently mapped as High Value Regrowth (HVR).
- AU4 – Remnant Creek Line Vegetation (9.4 ha): This AU is RVM-mapped as remnant vegetation. However, field studies indicate it is highly degraded and thus not accurately reflecting that status.

Table 3.2. Breakdown of AUs

AU	RE	Vegetation status	Area
AU1	12.9-10.2	Regrowth	150.1
AU2	12.9-10.2	Non remnant	44.8
AU3	12.9-10.2	Remnant	75.9
AU4	12.3.7	Riparian Remnant	9.4

3.7.1 Assessment Unit 1 (AU1 regrowth) : “juvenile patchy regrowth” areas

The regrowth native vegetation areas are predominantly located over the western aspect of the site covering 160ha of the total land holding. This vegetation community is characterized by regrowth *Eucalyptus tereticornis,* with scattered *Corymbia citriodora, E. siderophloia, E. crebra* and *C. tessellaris*. The regrowth vegetation is approximately 3-7 m in height, indicating its juvenile status, and more recent growth (approximately 5 years old). The regrowth native vegetation areas represent Koala foraging habitat (refer **Photo Set 1**).



BAAM ECOLOGICAL CONSULTANTS

Client	Saunders Havill Group		
Design: BAAM	Date: 10.11.2025	NTP619	
Drawn: MP	Date: 10.11.2025	Project #0102-059	
Scale: 1:20,000			
Cad File: 580 Esk OAMP 03.dwg			

Project: **Offset Area Management Plan**

Title: **Offset Site Assessment Units**

FIGURE **3.9**

©Biodiversity Assessment and Management Pty Ltd. While every care is taken to ensure the accuracy of this data, Biodiversity Assessment and Management makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation liability in negligence) for all expenses, losses, damages (including indirect consequential damage) and costs which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.

Photo Set 1: AU1

3.7.2 Assessment Unit 2 (AU2 non remnant) : "open paddock" areas

There are four (4) main open paddocks over the land holdings, currently holding horses. These areas are dominated by dense grazing grasses and defined by fencing edges (refer **Photo Set 2**).

Photo Set 2: AU2

3.7.3 Assessment Unit 3 (AU regrowth) : "remnant vegetation" areas

The majority of the remnant native vegetation areas are predominantly located over the eastern aspect of the site, with a smaller patch located along the western boundary. The vegetation in these areas is dominated by either *Corymbia citriodora* or *Eucalyptus crebra,* with occasional *E. microcorys*. Mid, shrub and ground layer vegetation vary greatly along with weed cover and grazing grass cover through this AU. Within the larger patch of vegetation in the east, intact areas of vegetation can be observed mixed with tracks, lineal clearing zones and lower foothill weeds. The western patch is significantly more modified, with greater areas containing a monoculture of grazing grasses in the understory and greater cattle impacts evident (refer to **Photo Set 3**).

Photo Set 3: AU3

3.7.4 Assessment Unit 4 (AU regrowth): "remnant creek line (riparian) vegetation" areas

The land holding includes two (2) incised natural drainage courses that are part of the Paddy's Gully stream flow. The larger of the two gullies contained slow running water during the November 2024 surveys, so appears to be of an ephemeral nature. The land zones and geology in this AU include a greater volume of alluvial soils mixed with rock outcrops. The gully lines vary contrastingly in value with areas of wholesale erosion, bedrock billabongs and an increase in species and age of individual mature specimen trees (refer **Photo Set 4**).

Photo Set 4: AU4

4.0 Impact MNES Species

4.1 Koala

The offset area includes Land Zones, Broad Vegetation Groups and species mixes listed as "Highly Suitable" for the Koala (Rhodes, et al. 2015). The Somerset Regional Council LGA, particularly the sub-area reflected by the former Esk Shire Council, is known to support a sizable and healthy Koala population.

There are 308 records of Koala in the Queensland WildNet database within 10 km of the property and 70 records within 5km (**Appendix A**). **Figure 4.1** shows the location of Atlas of Living Australia (ALA) Koala records that are publicly available, including those records held by the Queensland Government, within a 5 km radius of the site. Note that the majority of ALA records are to the west of the offset property in vegetation within semi-rural small acreage estate, where sightings are likely to be registered more regularly.

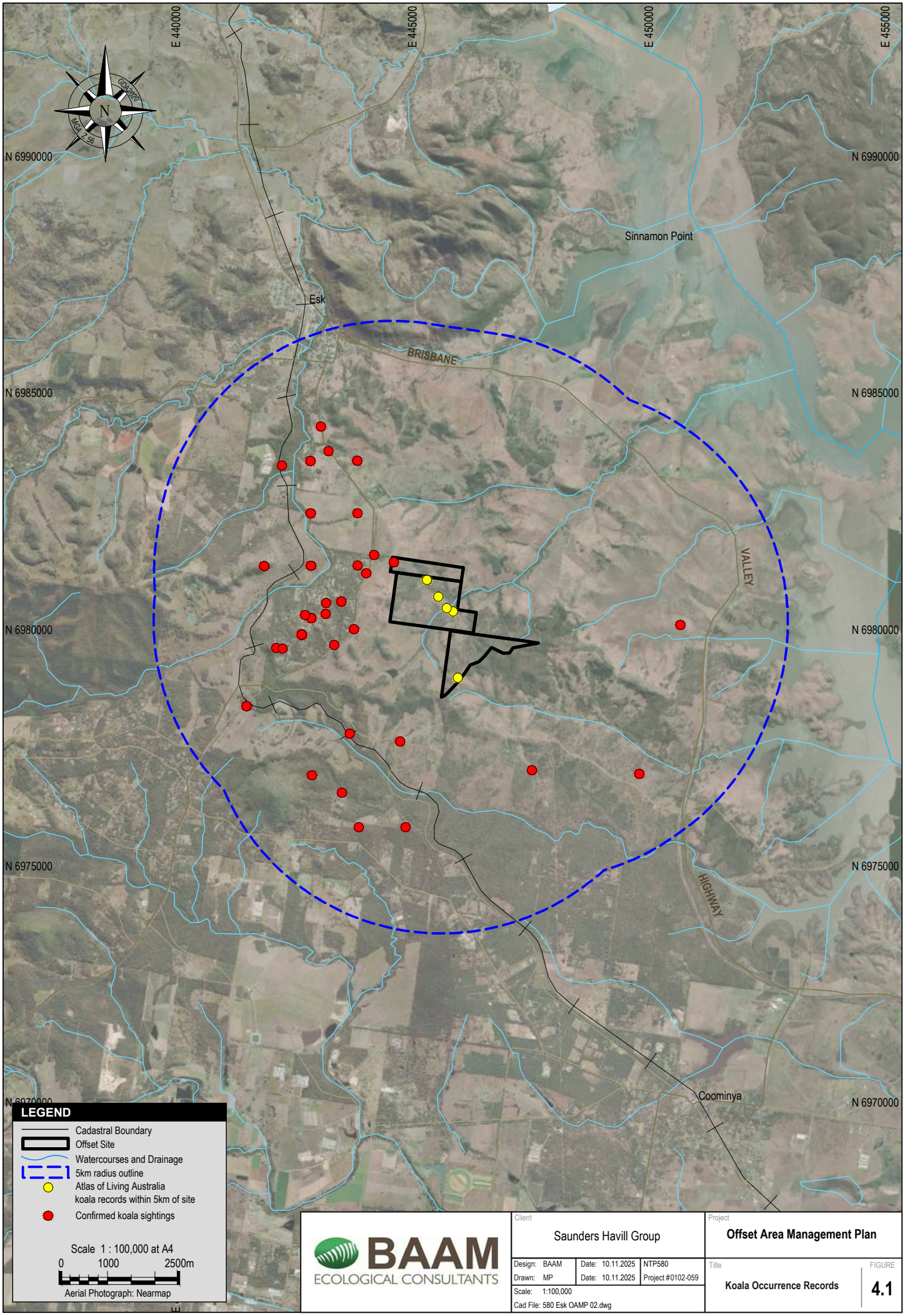
Figure 4.1 also shows sightings recorded during surveys within the offset area by BAAM in December 2024, including four confirmed sightings of adults (one confirmed female) and a juvenile. Koala scats were also observed in abundance throughout the property.

The offset area is located adjacent to a Regional Terrestrial Corridor mapped in the Shaping SEQ - South East Queensland Regional Plan 2017 (State of Queensland, 2017). There are no regulatory provisions controlling or achieving this regional biodiversity corridor, with the State Government yet to develop a program to incentivize ecological stewardship on large privately-owned farm holdings. This offset area provides a major opportunity to help establish this strategic outcome.

REs recorded within the offset property are known to provide suitable habitat for Koalas.

RE 12.9-10.2. is described as *Corymbia citriodora subsp. variegata* open forest or woodland usually with *Eucalyptus crebra*. Other species such as *Eucalyptus tereticornis, E. moluccana, E. acmenoides* and *E. siderophloia* may be present in scattered patches or in low densities. Understorey can be grassy or shrubby. Shrubby understorey of *Lophostemon confertus* (whipstick form) often present in northern parts of bioregion. Occurs on Cainozoic and Mesozoic sediments. A 'special value' of the RE from the RE description is that it is known to provide suitable habitat for Koalas (Queensland Government https://apps.des.qld.gov.au/regional-ecosystems/details). Consideration of the dominant canopy species indicates the RE has high foraging value for Koala (DAWE 2022a), while the Queensland Government's *Spatial modelling for Koalas in South East Queensland v4.0* (State of Queensland, 2023) ranks this RE as of medium value for Koala.

RE 12.3.7 is described as *Eucalyptus tereticornis, Casuarina cunninghamiana subsp. cunninghamiana +/- Melaleuca spp. fringing woodland*. A 'special value' of the RE from the RE description is that it is known to provide suitable habitat for Koalas. Consideration of the dominant canopy species indicates the RE has high foraging value for Koala (DAWE 2022a), while the Queensland Government's *Spatial modelling for Koalas in South East Queensland v4.0* (State of Queensland, 2023) ranks this RE as of medium value for Koala.



BAAM ECOLOGICAL CONSULTANTS

Client: Saunders Havill Group

Project: **Offset Area Management Plan**

Design: BAAM	Date: 10.11.2025	NTP580
Drawn: MP	Date: 10.11.2025	Project #0102-059

Scale: 1:100,000

Cad File: 580 Esk OAMP 02.dwg

Title: **Koala Occurrence Records**

FIGURE **4.1**

©Biodiversity Assessment and Management Pty Ltd. While every care is taken to ensure the accuracy of this data, Biodiversity Assessment and Management makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation liability in negligence) for all expenses, losses, damages (including indirect consequential damage) and costs which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.

4.2 Grey-headed Flying-fox

The offset area is located 6.3 km from a nationally important flying-fox camp in Esk (currently rated Category 3 in 2021 and, at its highest, Category 5 in 2012) (**Figure 4.2**), a site that consistently supports one of the larger Grey-headed Flying-fox colonies in south-east Queensland, as recorded on DCCEEW's National Flying-fox Monitoring Viewer. Additionally, the offset site is approximately 13 km from the nationally important Atkinsons Dam camp (currently rated a Category 6 in 2022). 'Nationally important flying-fox camps' are defined as camps that have contained ≥10,000 Grey-headed Flying-foxes in multiple years within the last 10 years or have been occupied by >2,500 individuals permanently or seasonally every year for the past 10 years.

Thirty-five Grey-headed Flying-fox records exist in the Atlas of Living Australia and 34 in the Queensland WildNet databases within 10 km of the property (**Figure 4.2, Appendix B**). These records likely underrepresent the species' abundance and distribution due to:

1) its common status in Queensland, which has historically limited targeted surveys;
2) the likelihood that records originate from the known camp within the 10 km radius;
3) the species' nocturnal activity, often in extensive and inaccessible woodlands and forests in response to flowering events; and
4) the difficulty in distinguishing Grey-headed Flying-foxes from Black Flying-foxes for untrained observers.

At night, Grey-headed Flying-fox typically forage on blossoms and fleshy fruits within 20 km of their roosts, though they can travel up to 50 km. They utilize remnant forests, vegetation patches on cleared land, and urban areas (Roberts et al., 2012). The offset area's habitats are within the typical foraging distance of the two camps shown in **Figure 4.2**.

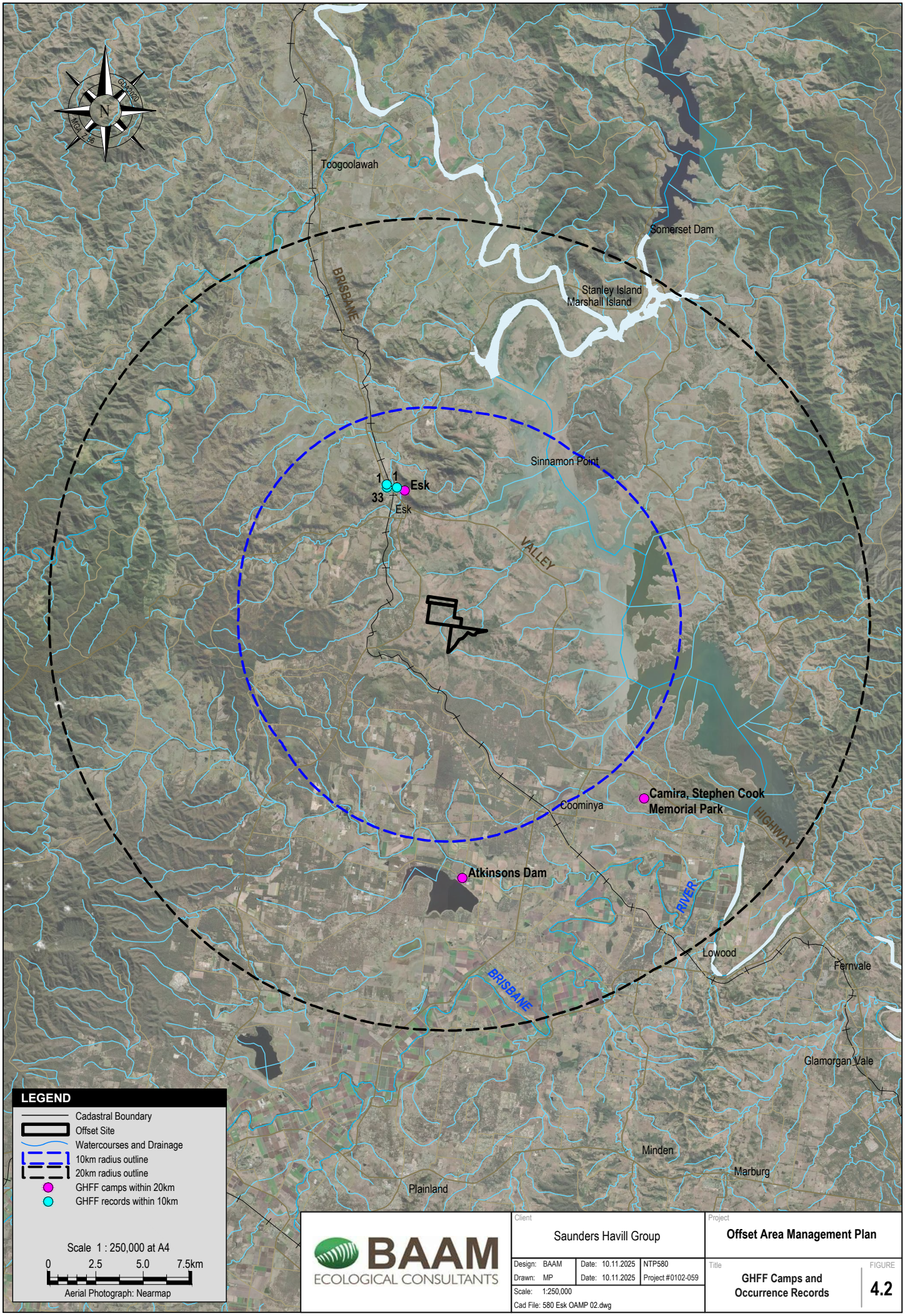
Research indicates that food source scarcity, particularly during winter and spring, results in Grey-headed Flying-fox weight loss and seasonal camp movements (Eby et al., 2008). Tree species providing nectar, flowers, or fruit within 50 km of a known Grey-headed Flying-fox camp are considered critical foraging habitat. The dominant canopy species within the present REs 12.9-10.2 and 12.3.7 are all recognized as high-value Grey-headed Flying-fox foraging habitat (DAWE 2021, Eby and Law 2008).

To augment current vegetation and support natural revegetation, tube stock plantings will be implemented within the offset area, focusing on species that provide flowers and fruit during winter and spring (refer to **Table 4.1**). Planting densities will align with pre-clearing RE benchmark stem densities as defined in the Regional Ecosystem Technical Descriptions (Queensland Herbarium 2018).

Table 4.1: Winter / Spring Flowering – Fruiting Tree Species – Offset Site

Offset Site Tree Species	Flowering period	Spring	Winter
Eucalyptus crebra (narrow-leaved ironbark)	Throughout Year	yes	yes
Eucalyptus tereticornis (forest red gum)	June- Nov	yes	yes
*Eucalyptus melanophloia (*silver-leaved ironbark)	Oct-Mar	yes	-
Lophostemon confertus (brush box)	Sept- Feb	yes	-
Corymbia erythrophloia (variable bloodwood)	Feb-April	-	-
Corymbia tessellaris (moreton bay ash)	Nov-Jan	yes	-
Corymbia citriodora (spotted gum)	April- Nov	yes	yes
Angophora subvelutina (broad leaved apple)	Nov-Dec	-	-
Eucalyptus siderophloia (ironbark)	May-Sept	yes	yes

This proposed offset will result in the legally securing of large tracts of foraging habitat listed as habitat critical to the survival within close proximity to a major known camp site.



BAAM ECOLOGICAL CONSULTANTS

Client: Saunders Havill Group

Project: Offset Area Management Plan

Design: BAAM	Date: 10.11.2025	NTP580
Drawn: MP	Date: 10.11.2025	Project #0102-059

Scale: 1:250,000

Cad File: 580 Esk OAMP 02.dwg

Title: GHFF Camps and Occurrence Records

FIGURE 4.2

©Biodiversity Assessment and Management Pty Ltd. While every care is taken to ensure the accuracy of this data, Biodiversity Assessment and Management makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation liability in negligence) for all expenses, losses, damages (including indirect consequential damage) and costs which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.

4.3 Swift Parrot

Swift Parrots are usually seen in small parties of up to 30 birds, or occasionally in flagger flocks (of several hundred birds) around sources of abundant food. Swift Parrots breed in Tasmania and then move to mainland Australia in Autumn for the non-breeding season. They feed preferentially in the largest trees available (Kennedy and Overs, 2001) and on psyllid lerps, seeds and fruit (Kennedy and Tzaros, 2005). Commonly used lerp infested trees include Inland Grey Box (*E. macrocarpa*), Grey Box *(E. moluccana),* Blackbutt (*E. pilularis*), and Yellow Box (*E. melliodora*). Preferred foraging tree species include winter flowering species such as Swamp Mahogany (*Eucalyptus robusta),* Spotted Gum (*Corymbia maculata or C. citriodora*), Red Bloodwood (*C. gummifera),* Forest Red Gum (*E. tereticornis*), Mugga Ironbark (*E. sideroxylon*) and White Box (*E. albens*) (DCCEEW 2024).

The REs containing preferred Swift Parrot forage tree species have been mapped and overlaid for the recorded areas of Swift Parrots in Queensland. A review of State vegetation mapping indicates the pre-clear REs mapped for the offset area include commonly used foraging species for the Swift Parrot, including *Eucalyptus moluccana* and *Eucalyptus tereticornis*. Due to historical clearing for agriculture activities, mature eucalypts are currently sparse within the Category X (non-remnant) vegetation areas located within the offset area.

A search of WildNet and the Atlas of Living Australia (ALA) using a 10 km search radius from the offset area returned no records for the species, although there are. five (5) records for the species within 20 km of the offset area.

Field surveys identified two (2) preferred foraging species, *Corymbia citriodora* (Spotted Gum) and *Eucalyptus tereticornis* (Forest Red Gum) present within the offset area. Given the proposed reconstruction of REs that support foraging species, and the highly mobile nature of the winter foraging Swift Parrot with records in the vicinity, the proposed offset is considered suitable to support the matter.

4.4 Regent Honeyeater

The Regent Honeyeater has a patchy distribution extending from south-east Queensland, through New South Wales and the Australian Capital Territory, to central Victoria. The species mostly inhabits inland slopes of the Great Dividing Range, in areas of low to moderate relief with moist, fertile soils. It is most commonly associated with box-ironbark eucalypt woodland and dry sclerophyll forest but also inhabits riparian vegetation such as Sheoak (*Casuarina sp.*) where it feeds on needle-leaved mistletoe and sometimes breeds. It sometimes utilizes lowland coastal forest, which may act as a refuge when its usual habitat is affected by drought. It also uses a range of other habitats including remnant patches in farmland and urban areas, roadside reserves and travelling stock routes.

Its diet primarily consists of nectar obtained from eucalypts and mistletoe, and it appears reliant on select species providing reliable nectar flows. Key tree species include Mugga Ironbark (*Eucalyptus sideroxylon*), Yellow Box (*E. melliodora*), White Box (*E. albens*), Yellow Gum (E. *leucoxylon*), Spotted Gum (*Corymbia maculata*) and Swamp Mahogany (*E. robusta)* (DotE 2016). Taller and larger diameter trees are preferred for foraging, as these typically produce more nectar (Franklin et al., 1989; Webster & Menkhorst 1992; Menkhorst et al., 1999; Oliver 2000).

The pre-clear REs mapped for the offset area include a wide variety of eucalypt foraging species that could be utilized by the Regent Honeyeater and also support their preferred Mistletoe foraging species. Due to historical clearing for agriculture activities, mature eucalypts are currently sparse within the Category X (non-remnant) vegetation areas located within the offset area. Field surveys identified one (1) preferred foraging species *Corymbia citriodora* (Spotted Gum) within the offset area

A search of WildNet and the Atlas of Living Australia using a 10 km search radius from the referral area returned no records for the species, although there are three (3) records for the species within 50 km of the offset area.

Given the proposed reconstruction of REs that support foraging species, and the highly mobile nature of the winter foraging Regent Honeyeater with records in the vicinity, the proposed offset is considered suitable to support the matter.

5.0 Methodology for Habitat Quality Assessments and Scoring

5.1 Offset Area Calculation

The action proposes to impact 128 ha of critical habitat for the Koala and Grey-headed Flying-fox and 9,983 habitat features for the Swift Parrot and 9,868 habitat features for the Regent Honeyeater.

The Offset Assessment Guide (OAG) (DSEWPaC 2012) was used in consultation with DCCEEW to identify a total quantum of impact of 76.8 ha for the Koala, 89.6 ha for the Grey-headed Flying-fox, 9,983 habitat features for the Swift Parrot and 9,868 habitat features for the Regent Honeyeater.

The offset area calculations for the Koala were determined through the application of the Modified Habitat Quality Assessment (MHQA) scores for the impact site and proposed offset area. The MHQA is a modified version of the Queensland Government *Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy* Version 1.2 April 2017.

The method used to quantify habitat quality is that endorsed by DCCEEW for informing offset calculations, uses a combination of indicators that measure the overall viability of the site and its capacity to support a prescribed environmental matter, and includes a desktop assessment to assess the landscape-scale attributes of the site, and on-ground assessments of habitat condition and other attributes relevant to the subject species, to determine a score of habitat quality for each matter area.

The DSEWPC (2012) document 'how to use the offsets assessment guide' states that '*it is important to note that the assessment of quality for threatened species habitat and ecological communities is not simply a scoring of vegetation 'pristineness*'. Rather, there are three components that contribute to the calculation of habitat quality:

Site condition: This is the condition of a site in relation to the ecological requirements of a threatened species or ecological community. This includes considerations such as vegetation condition and structure, the diversity of habitat species present, and the number of relevant habitat features.

Site context: This is the relative importance of a site in terms of its position in the landscape, taking into account the connectivity needs of a threatened species or ecological community. This includes considerations such as movement patterns of the species, the proximity of the site in relation to other areas of suitable habitat, and the role of the site in relation to the overall population or extent of a species or community.

Species stocking rate: This is the usage and/or density of a species at a particular site. The principle acknowledges that a particular site may have a high value for a particular threatened species, despite appearing to have poor condition and/or context. It includes considerations such as survey data for a site in regard to a particular species population. It also includes consideration of the role of the site population in regard to the overall species population viability or community extent.

For Koala, Site Condition and Site Context were given a weighted score out of three (3), while Species Stocking Rate given a weighted score out of four (4). Species Stocking Rate was assigned the highest weighting as it is considered the greatest determinant of site suitability for the Koala. Species Stocking Rate is an important component when assessing the overall habitat quality of a site as it indicates species usage. Site Condition and Site Context were assigned the equal weighting (scored out of 3). The Koala is known to occupy a variety of habitats, ranging from non-remnant regrowth eucalypt forest/woodland through to old growth remnant forest/woodland, however, the site condition of the habitat is considered to directly influence the long-term Koala carrying capacity. Site Context is considered an important component when assessing the Koala as it directly relates to the long-term survival rate of the species. The proximity of the site to other areas of suitable habitat, the movement pattern through the landscape of the Loala (and/or barriers inhibiting movement) and threats to the species are important attributes to assess when considering the overall functionality of the site.

For Grey-headed Flying-fox, the habitat quality of the offset area was assessed using a Grey-headed Flying-fox Foraging Habitat Assessment (Grey-headed Flying-fox FHA) tool developed by the Saunders Havill Group which adopts characteristics of the Queensland State Government's *Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy*, while also integrating published scientific literature on Grey-headed Flying-fox foraging habitat. The Grey-headed Flying-fox FHA tool combines the aspects of the three (3) core indicators and published scientific literature into two (site condition and site context) with site condition being weighted with 40 % and site context weighted at 30 % of the final score. The balance of the weighting (30 %) has been attributed to the third indicator which is independent of the traditional habitat quality assessment, being species stocking rate. The species stocking rate assessment incorporated in the Grey-headed Flying-fox FHA tool is focussed on 'foraging habitat' for Grey-headed Flying-fox rather than Grey-headed Flying-fox stocking rates (presence/absence of the species). This assessment of 'foraging habitat' for species stocking rate has been incorporated in the Grey-headed Flying-fox FHA tool as Grey-headed Flying-fox roosting camp or species presence was not observed on-site, however, suitable foraging habitat for the species was evident. Therefore, the density of foraging habitat available on-site is considered an appropriate assessment benchmark for species stocking rate.

For Swift Parrot and Regent Honeyeater, a feature-based foraging habitat assessment was utilised which involves calculating the number of individual habitat features currently located within the offset area and the number that will be reinstated as part of the offset.

5.2 Habitat Quality Scoring Methodology for Koala

5.2.1 Site Condition

Site condition factors are derived from data collected at each Biocondition site. From this data, two habitat index characteristics also contribute to the overall site condition score. These being:

- the quality and availability of food/foraging habitat; and
- the quality and availability of shelter.

Site Condition scoring for Koala was undertaken using the methodology outlined in the *Guide to Determining Terrestrial Habitat Quality – Version 1.3* (State of Queensland 2020), which is based on *Bio Condition: A Condition Assessment Framework for Terrestrial Biodiversity in Queensland* (Eyre et al., 2015) and the *Method for the establishment and survey of reference sites for Bio Condition, Version 2.0* (Eyre, et al. 2011), and incorporates the most recent bio condition Benchmarks (Queensland Herbarium 2024). The assessment units (AUs) and associated sampling sites established in each AU are summarized and shown in **Table 5.1** and on **Figure 3.8**. Results of the transects are provided in **Appendix C.**

Table 5.1 Ground-truthed vegetation types and condition at offset property site with determined Assessment Units and completed transects

Description	Area (ha) within the proposed offset area*	Sampling sites completed	Average BC Site Score (out of 10)
AU1 Patchy Regrowth RE 12.9-10.2	150.1	T1, T4, T9, T10, BC1, BC2, BC4, BC7, BC9, BC13, BC14	5.7
AU2 Non Remnant RE 12.9-10.2 (preclear)	44.8	T5, T6, BC6, BC11, BC17	5.3
AU3 Remnant RE 12.9-10.2	75.9	T2, T11, BC3, BC5, BC10, BC15	6.6
AU4 RE Remnant Riverine 12.3.7	9.4	T7, T14, BC16	6.4

Quality and availability of Koala food/foraging habitat and shelter

In developing the MHQA to better incorporate MNES, two (2) species habitat index characteristics, being (1) 'quality and availability of food and foraging habitat', and (2) 'quality and availability of shelter', have been added to the site condition indicator.

The two Koala habitat index attributes are based on relevant site condition attributes that are considered to contribute to quality and availability of food and foraging habitat and quality and availability and shelter. The following six site condition attributes are utilised:

- (1) Recruitment of woody perennial species in ecologically dominant layer in EDL
- (2) Native plant species richness – trees
- (6) Tree canopy height
- (7) Tree canopy cover
- (8) Shrub canopy cover
- (11) Large trees

For vegetation communities considered as Koala habitat (i.e., those containing *Eucalyptus, Corymbia, Angophora, Melaleuca*, or *Lophostemon* as part of the EDL), these attributes are all considered relevant to this scoring metric as each attribute contributes directly to the availability of foraging and shelter habitat.

Under the Habitat Quality Guideline from which these attributes are derived, each attribute is weighted equally, out of a score of 5, with the exception of 'large trees' which contributes a maximum score of 15. For the purpose of scoring the quality and availability of food and foraging habitat and quality and availability of shelter, the above attributes are proposed to be weighted equally based on relative value to the Koala. The widely used minimum threshold for a Koala foraging tree is a 'non-juvenile' tree (i.e., ≥100mm DBH). As non-juvenile Koala foraging trees are considered a foraging resource, large trees relative to the benchmark are not necessarily considered to provide greater habitat value than attributes such as 'canopy height' and 'native plant species richness – trees.' Therefore, an equal weighting has been applied to all six attributes as there is considered lack of evidence to suggest a higher weighting of any attribute relative to the value it provides for Koala specifically.

A total weighted score out of 100 is achieved utilising an equally weighted score of the above attributes. Based on the overall weighted score, a score for 'quality and availability of food and foraging habitat' and 'quality and availability and shelter' is then scored as follows:

- <33 = 1
- 33 – 66 = 5
- >66 = 10

5.2.2 Site Context

The site context assessment deals with the site and its adjacent surroundings. Site context is measured using a suite of attributes to describe the location of the habitat within the surrounding landscape and the influence of its associated threats. This assessment also considers the influence of adjacent vegetated areas and ecological corridors. Under the MHQA, site context is measured using the following seven characteristics:

- size of patch - measured as the area of vegetation in which the assessment unit(s) is contained, and add on all other directly connecting areas of Koala habitat (refer **Appendix D**);
- connectedness - measured as the length Koala habitat along the boundary of the site, calculated as a percentage (refer **Appendix D**);
- context - measured as the percentage of Koala habitat within a 1 km radius of the site (refer **Appendix D**);
- ecological corridors - scored on the basis of the proximity of the site to state, bioregional, regional or sub-regional corridors (terrestrial or riparian). An 'ecological corridor' is represented as any 'Riparian' or 'Terrestrial' feature within the 'CORR_TYPE' attribute table of the 'Queensland biodiversity and vegetation offsets special features' map (refer **Figure 3.7**);

- role of site location to species overall population in the state – scored as the observed role of the site in relation to the overall population of the species considering the effect that damage to or removal of the site would have to the likelihood of overall population survival;
- threats to the species - scored based on the number and severity of threatening processes observed at or adjacent to the site, including clearing associated with development, creation of a barrier to movement, introduction or spread of disease or pathogens, risk of high-intensity fires, degradation of habitat from hydrological change and introducing or increasing mortality attributed to vehicle strike or dog attacks; and
- species mobility capacity - scored based on the presence and severity of factors that would contribute to a reduction in the mobility of the species such as barriers that would result in a long-term reduction in genetic fitness or access to important resources.

Unlike the traditional habitat quality assessment methodology where site connectedness is assessed against the surrounding remnant vegetation only, the MHQA size of patch, site connectedness and site context is assessed against identified Koala habitat. Koala habitat within the landscape is based on the mapping of Category B (remnant) and Category C (high value regrowth) vegetation containing suitable REs to support Koala identified by the Queensland Herbarium. While remnant eucalypt forest vegetation is critical habitat for Koala, Koalas are capable of utilising areas containing non-remnant vegetation or high value regrowth vegetation that does not yet achieve remnant status. Areas of Category X (non-remnant) areas identified as dispersal habitat are also included in the Koala habitat mapping using GIS. Therefore, site context under the MHQA accounts for broad Koala habitat values rather only remnant vegetation as traditionally applied under the Guide to determining terrestrial habitat quality. Scoring attributes extracted from the Habitat Quality Guideline are provided in **Table 5.2**.

Table 5.2 Koala site context scoring attributes

Site context attribute	Scoring and benchmark percentage				
Size of patch	0	2	5	7	10
	<5 ha	5-25 ha	26-100 ha	101-200 ha	>200 ha
Connectedness	0	2	4		5
	0-10%	>10-<50%	50-75%		>75% or >500 ha
Context	0	2	4		5
	<10% habitat	>10-30% habitat	>30-75% habitat		>75% habitat
Ecological corridors	0	4	6		
	Not within	Sharing a common boundary	Within (whole or part)		
Role of the site location to species overall population in the state	1	4	5		
	Not or unlikely to be critical to survival of the Koala	Likely to be critical to survival of the Koala	Critical to the survival of the Koala		
Threats to the species	1	7	15		
	High threat level	Moderate threat level	Low threat level		
Species mobility capacity	1	4	7	10	
	Severely restricted (76-100% reduction)	High restricted (51-75% reduction)	Moderately restricted (26-50% reduction)	Minor restriction (0-25% reduction)	

5.2.3 Stocking Rate

The MHQA incorporates species stocking rate as an attribute not discussed under the traditional terrestrial habitat assessment methodology. Species stocking rates are estimates of the Koala carrying capacity of the site at the time of undertaking the survey. Given the discreet nature of the Koala and limited to no published literature on habitat carrying capacity of the species, the species stocking rate scoring methodology has been derived through the collation of site-specific surveys and surrounding contextual habitat analysis.

Species stocking rate is calculated using the following parameters:

- Species presence on or adjacent to the site – whether or not evidence of Koala has been recorded within or adjoining the site. Evidence may be direct in the form of observation of Koalas, or indirect via the presence of scats.
- Species usage of the site – the type of habitat includes vegetation structure such as whether it contains remnant, regrowth or non-remnant vegetation values, and evidenced usage is the confirmed presence or use of the species within the habitat. Both factors are used to inform the species usage of the site. Depending on the level of variability in vegetation and usage patterns across the site, this characteristic may be scored differently for assessment units.
- Approximate density of the species on the site – measured through the use of Spot Assessment Technique (SAT) (Phillips et al. 2011) and targeted searches. The combination of methods produces a higher reliability of data when extrapolating Koala density. The SAT method is an industry recognised technique for identifying presence/absence of Koala and measuring activity. SAT survey results are interpreted using the broad population categories provided in the Australian Koala Foundation Koala activity level classification table to infer an activity level or approximate density. These categories being 'East Coast (low)', 'East Coast (med-high)' and 'Western (med-high)' are shown in **Table 5.3**. Depending on the population category applied, Koala activity is described as 'low', 'moderate', or 'high'. A total of seven (7) SATs were completed across the offset area, in conjunction with those completed with the MHQA transects (refer **Figure 3.8**).
- Role/importance of species population on site – the extent to which the site is considered a key source population for breeding, dispersal, is necessary for maintaining genetic diversity or near the limit of the species range.

Table 5.3 Koala Activity Level Classification (Phillips and Callaghan 2011)

Activity	East Coast (low)	East Coast (med-high)	Western (med-high)
Low	<3.33%	<22.5%	<35.8
Moderate	3.33-12.6%	22.5-32.8%	35.8-46.7
High	>12.6%	>32.8	>46.7

For subjective criteria where it is unclear whether a particular attribute score is achieved, the precautionary approach is applied to favour the higher score. **Table 5.4** outlines the attributes utilised to assess species stocking rate.

Table 5.4: Koala Species Stocking Rate Scoring

Attribute	Scoring and criteria				
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score (/10)	0	5	10	
		No	Yes – adjacent to site	Yes – on-site	
Species usage of the site (habitat type and evidenced usage)	Score (/15)	0	5	10	15
		Not habitat	Dispersal habitat	Foraging habitat	Breeding habitat
Approximate density (per ha)	Score (/30)	0	10	20	30
		0%	Low	Medium	High
Role/importance of species population on site*	Score (/15)	0	5	10	15
		0	5-15	20-35	40-45
Total SSR	**/70**				
SSR Score	***/4***				

***Species Stocking Rate supplementary table – Total supplementary score 0 = 0, 5-15 = 5, 20-35 = 10, 40-45 = 15**			
Key source population for breeding	Score (/10)	0	10
		No	*Yes/Possibly*
		0	5

Key source population for dispersal	Score (/5)	*No*	*Yes/Possibly*
Necessary for maintaining genetic diversity	Score (/15)	0	15
		No	*Yes/Possibly*
Near the limit of the species range	Score (/15)	0	15
		No	*Yes*

5.3 Habitat Quality Scoring Methodology for Grey-headed Flying-fox

5.3.1 Site Condition

To support Grey-headed Flying-fox assessments, tree density and diversity data were collected concurrently with Koala data at each BioCondition site (**Appendix E**).

The Grey-headed Flying-fox Site Condition scoring methodology was based on a Grey-headed Flying-fox Foraging Habitat Assessment (Grey-headed Flying-fox FHA) tool, created by Saunders Havill Group. This tool leverages the framework outlined in the Queensland State Government's "*Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy,"* and incorporates findings from published scientific research on Grey-headed Flying-fox foraging habitat

From this combined data, six habitat index characteristics contribute to the overall site condition score:

- Vegetation condition;
- Species richness;
- Flower scores;
- Timing of biological shortages;
- Quality of foraging habitat; and
- Non-native plant cover.

The following is a description of the methods used to score each index characteristic. Results of the analysis are provided in **Appendix F.**

<u>Vegetation condition</u>

The vegetation condition status is determined through Queensland *Vegetation Management Act 1999* mapping and validated during on-ground site assessments. Scorings for each community status category, i.e. Category B (remnant), Category C (high-value regrowth) and Category X (non-remnant), are shown in **Table 5.5** below

Table 5.5 Scoring quality for Vegetation condition for Grey-headed Flying-fox

Score	Vegetation Description
5	Category X (non-remnant)
10	Category C (high value regrowth)
20	Category B (remnant)

Species richness

Species richness (**Table 5.6**) measures the diversity of canopy tree species (using a 100 m X 20 m plot) which directly relates to potential foraging resources. High species richness generally indicates a more diverse and potentially valuable habitat.

Table 5.6 Score quality for species richness scoring

Score	Canopy Species Richness Description
0	0 Grey-headed Flying-fox Foraging Species
5	1 - 3 Grey-headed Flying-fox Foraging Species
10	4 - 6 Grey-headed Flying-fox Foraging Species
20	> 6 Grey-headed Flying-fox Foraging Species

Flower scores (food quality and availability)

Average flower scores (**Table 5.7**) are determined by analysing and cross-referencing canopy tree species identified during species richness surveys with published literature, by Eby and Law (2008) and DAWE (2021), to assign flower scores to each species. The individual flower scores of Grey-headed Flying-fox foraging trees are then averaged across all recorded tree species (Grey-headed Flying-fox and non-Grey-headed Flying-fox foraging trees). Benchmark values are derived from Eby and Law (2008*) (Ranking the feeding habitat of Grey-headed Flying-fox es for conservation management)*.

Table 5.7 Grey-headed Flying-fox Foraging Habitat Assessment Average flower scores

Score	Flowers Score Average description
2	0.01-0.25
5	0.26-0.50
8	0.51-0.75
10	0.76-1.00

Timing of biological shortages

Timing of biological shortages (**Table 5.8**) is assessed by analysing species richness data from canopy trees, and cross-referencing with Eby and Law (2008) and DAWE (2021) to determine the ability of canopy species to provide foraging habitat during critical periods (food shortages, pregnancy, lactation, mating, migration, and fruit industry demands). Food shortages are given a higher weighting, due to their significant impact.

Table 5.8 timing of biological shortages for Grey-headed Flying-fox

Score	Score Description
2.5	Food shortages
1.5	Pregnancy and birthing
1.5	Lactation
1.5	Mating and conception
1.5	Migration paths
1.5	Fruit industries
Total (/10)	**Combine total of above**

Quality of foraging habitat

The quality of foraging habitat (**Table 5.9**) is evaluated by analysing canopy tree species richness data, cross-referencing with Eby and Law (2008) and DAWE (2021) to identify species with flower scores exceeding 0.65 wt p*r and those recognized as significant food plants by Eby and Law (2008). Species not assigned values by Eby and Law (2008), but known to be Grey-headed Flying-fox foraging trees, are assigned an average weighted value of related species. *Eucalyptus crebra* (Narrow-leaved Ironbark), present on the offset property, is recognized as a significant winter-flowering food plant, as acknowledged in DAWE (2021).

Table 5.9 Grey-headed Flying-fox FHA Quality of Foraging Habitat (trees >0.65 wt p*r) Scoring

Score	Description
0	0 significant Grey-headed Flying-fox foraging tree species
5	1 – 3 significant Grey-headed Flying-fox foraging tree species
10	4 – 6 significant Grey-headed Flying-fox foraging tree species
20	> 6 significant Grey-headed Flying-fox foraging tree species

Non-native plants

Standard Bio condition scoring identifies non-native plant cover (scoring identified in **Table 5.10**). (It should be noted that biocondition plot data utilised for the Grey-headed Flying-fox FHA overlaps with condition characteristics of the Koala MHQ).

Table 5.10 Non-native plant cover

Score	Description
1	> 50 % non-native plant cover
5	25 – 50 % non-native plant cover
10	5 – 25 % non-native plant cover
20	< 5 % non-native plant cover

5.3.2 Site Context

The site context assessment deals with the site and its adjacent surroundings. Site context is measured using a suite of attributes to describe the location of the habitat within the surrounding landscape and the influence of its associated threats. This assessment also considers the influence of adjacent vegetated areas and ecological corridors. Under the Grey-headed Flying-fox FHA, site context is measured using the following six characteristics:

- Size of patch;
- Connectedness (active Grey-headed Flying-fox roost camps in a 20 km radius);
- Context (percentage of Grey-headed Flying-fox foraging habitat in a 20 km radius) (**Appendix D**);
- Ecological corridors;
- Role of site location to species overall population in the state (active Grey-headed Flying-fox national flying-fox monitoring viewer 'level 3' roost camps in a 20 km radius); and
- Threats to the species.

Size of patch

This context characteristic is assessed using a modified version of the traditional habitat quality assessment with the directly connected patch of Grey-headed Flying-fox foraging habitat to site measured. This context characteristic is measured using GIS. Refer to **Table 5.11** for the benchmark scoring values for this context characteristic.

Table 5.11. Scoring of Patch Size for Grey-headed Flying-fox

Description	Score
> 200 hectares	10
101 – 200 hectares	7
26 – 100 hectares	5
5 – 25 hectares	2
< 5 hectares	0

Connectedness

This context characteristic is assessed by analysing the number of active Grey-headed Flying-fox roost camps (over the most recent monitoring period (8/22 – 8/23)) within a 20 km radius of the site. For consistency purposes this assessment is to utilise the data provided on the national flying-fox monitoring viewer (Australian Government). Refer to **Table 5.12** for the benchmark scoring values for this context characteristic.

Table 5.12 Scoring of Connectivity (Connectedness) for Grey-headed Flying-fox

Description	Score
>6 active Grey-headed Flying-fox habitat camps within a 20km radius	10
4 – 6 active Grey-headed Flying-fox habitat camps within a 20km radius	6
1 – 3 active Grey-headed Flying-fox habitat camps within a 20km radius	3
No active Grey-headed Flying-fox habitat camps within a 20km radius	0

Context

This context characteristic is assessed using a modified version of the traditional habitat quality assessment with the percentage of Grey-headed Flying-fox foraging habitat within a 20 km buffer of the site measured. This context characteristic is measured using GIS. Refer to **Table 5.13** for the benchmark scoring values for this context characteristic.

Table 5.13. Scoring of Context for Grey-headed Flying-fox

Description	Score
Land within a 20km radius of the site comprises:	
>75% Grey-headed Flying-fox habitat	10
31-75% Grey-headed Flying-fox habitat	6
10-30% Grey-headed Flying-fox habitat	3
<10% Grey-headed Flying-fox habitat	0

Ecological Corridors

This context characteristic is assessed using the traditional habitat quality assessment methodology which involves determining the proximity of the site to state, bioregional, regional or sub-regional corridors. Refer to **Table 5.14** for the benchmark scoring values for this context characteristic.

Table 5.14. Ecological Corridors scoring

Score	Description
0	Not within an ecological corridor
6	Sharing a common boundary with an ecological corridor
10	Within an ecological corridor

Threats

This context characteristic is assessed by analysing the published scientific literature regarding threats to Grey-headed Flying-fox and determining the number and severity of the threatening processes observed at or adjacent to the site. Refer to **Table 5.15** for the benchmark scoring values for this context characteristic.

Table 5.15 Threat scoring values to Grey-headed Flying-fox

Score	Description
1	High Level threat to the species
5	Moderate Level threat to the species
10	Low Level threat to the species

Role of Site Location to Species Overall Population in the State

This context characteristic is assessed by determining the number of active Grey-headed Flying-fox roost camps level 3 or greater (over the past year of monitoring (2023-2024)) within a 20 km radius of the site. For consistency purposes this assessment is to utilise the data provided on the national flying-fox monitoring viewer (Australian Government). Refer to **Table 5.16** for the benchmark scoring values for this context characteristic.

Table 5.16. Role of site location scoring for Grey-headed Flying-foxes

Score	Description
0	<1 active level 3 Grey-headed flying-fox camps within a 20 km radius
1	1 – 2 active level 3 Grey-headed flying-fox camps within a 20 km radius
6	2 – 4 active level 3 Grey-headed flying-fox camps within a 20 km radius
10	≥ 5 active level 3 Grey-headed flying-fox camps within a 20 km radius

5.3.3 Stocking Rate

The Grey-headed Flying-fox FHA incorporates species stocking rate as an attribute not discussed under the traditional terrestrial habitat assessment methodology. As discussed above, species stocking rate for Grey-headed Flying-fox associated with this proposed action is related to the density of Grey-headed Flying-fox foraging habitat at the site at the time of undertaking the survey.

Baseline Grey-headed Flying-fox foraging tree surveys were undertaken by utilising the stem count methodology provided in the M*ethodology for surveying and mapping regional ecosystems and vegetation communities in Queensland (version 6.0)* (Neldner et al. 2022). This methodology involves assigning the strata for canopy (T1) and subcanopy (T2) and then counting the number of individual tree specimens within a 100 m X 20 m (0.2 ha) or 100 m X 50 m (0.5 ha) plot that are classed as foraging species for Grey-headed Flying-fox. A tree that branches into two or more stems above 30 cm above the ground is counted as one individual. The stem density of canopy species recorded within the plot is extrapolated to produce a stem density per ha. This number is then compared to the benchmark stem density per ha based on the sum of the T1 and T2 stem density taken from the relevant regional ecosystem technical description as per the Technical Descriptions of Regional Ecosystems of Southeast Queensland (Queensland Herbarium 2018). Refer to **Table 5.17** for benchmark scoring values for species stocking rate.

Table 5.17 Grey-headed Flying-fox species stocking rate scoring

Score	RE12.9-10.2 stem density per hectare	RE12.3.7 stem density per hectare
2	0-30	0-51
4	31-130	52-220
6	131-220	221-372
8	221-235	373-398
10	236-245	399-414
8	246-260	415-440
6	261-350	441-592
4	351-450	593-761
2	>451	>761

5.4 Foraging Habitat Assessment Methodology for Swift Parrot

To quantify baseline habitat and future value for the Swift Parrot, a feature-based assessment method was utilised. The method involves calculating the number of individual habitat features located within the offset area and the number that will be reinstated as part of the offset.

A habitat feature for the Swift Parrot is defined as a non-juvenile tree (i.e., ≥100 mm DBH) which is a preferred foraging tree species identified under the National Recovery Plan for the Swift Parrot (DCCEEW, 2024). Listed preferred foraging tree species include:

- *Eucalyptus leucoxylon* (yellow gum)
- *Eucalyptus tricarpa* (red ironbark)
- *Eucalyptus sideroxylon* (mugga ironbark)
- *Eucalyptus macrocarpa* (grey box)
- *Eucalyptus albens* (white box)
- *Eucalyptus melliodora* (yellow box)
- *Eucalyptus robusta* (swamp mahogany)
- *Eucalyptus tereticornis* (forest red gum)
- *Eucalyptus pilularis* (blackbutt)
- *Corymbia maculata* (spotted gum). It is noted that in Queensland *Corymbia citriodora* is recognised synonymously with *Corymbia maculata*.

The methodology, comprising four (4) steps is described below with details as to how the calculations have been used to inform the OAG and rehabilitation program.

5.4.1 Baseline tree density

In order to understand the existing foraging habitat value for the Swift Parrot and the planting capacity of the offset area, the existing density of trees is required to be calculated and extrapolated.

The density of all trees including preferred foraging trees was extrapolated from stem density data collected at fifteen (15) MHQA transects (refer **Figure 3.8**). The four (4) AUs and associated transect site numbers are as follows:

- AU1 represents paddock to sparse regrowth RE12.9-10.2 habitat (BC Transects 1, 2, 4, 7, 9, 13 and 14).
- AU2 represents non-remnant paddock RE12.9-10.2 habitat (BC Transects 6, 11 and 17).
- AU3 represents dense regrowth RE12.9-10.2 habitat (BC Transects 3, 5, 10 and 15).
- AU4 represents remnant RE12.3.7 habitat (BC Transect 16).

Stem density data at each MHQA transect was collected in accordance with the stem count methodology provided in the *Methodology for surveying and mapping regional ecosystems and vegetation communities in Queensland (version 6.0)* (Neldner et al. 2022). The methodology detailed in Neldner et al. (2022) uses a plot area of 50 X 10 m. For the purposes of this assessment, the area was modified to 100 X 20 m to align with the MHQA plot; however, the actual count assessment method remains the same.

This methodology involves counting the number of individual non-juvenile tree specimens within each 100 m X 20 m plot (0.2 ha) including those that are listed as preferred foraging species for the Swift Parrot. A tree that branches into two or more stems 30 cm above the ground is counted as one individual.

For each AU, the number of non-juvenile trees and separately, of non-juvenile preferred foraging trees, was averaged across all habitat quality transects within the corresponding AU to produce the mean number of trees and preferred foraging trees within a 100 X 20 m plot area (0.2 ha). The average stem density of non-juvenile trees and non-juvenile preferred foraging trees recorded within the 0.2 ha plot was multiplied by five (5) to produce an estimate of the number of trees and preferred foraging trees per ha. This was then multiplied by the area of the AU to determine an estimate of non-juvenile trees and non-juvenile preferred foraging trees within each AU.

5.4.2 Planting capacity

Each AU is assigned a planting palette of tree species developed based on the pre-clear regional ecosystem mapping and local availability of seed stock. Each planting palette comprises a mix of habitat foraging species (i.e., eucalypt trees) and pioneer species such as *Acacia* sp. Preferred foraging tree species comprise a percentage of the total planting palette where it is suitable for the pre-clear RE and/or consistent with the local seed stock.

The planting capacity or number of trees (all species) that can be supported within each AU was determined based on the following planting densities proposed in accordance with the South East Queensland Ecological Restoration Framework (SEQERF) (Chenoweth EPLA, 2012):

- 1 tree per 10 m^2 or 1000 trees per hectare for non-remnant paddock
- 1 per 25 m^2 or 400 trees per hectare for non-remnant paddock to sparse regrowth
- 1 per 50 m^2 or 200 tree per hectare for sparse regrowth
- 1 per 100 m^2 or 100 trees per hectare for dense regrowth
- 1 per 1000 m^2 or 10 trees per hectare for remnant

The proposed density rate was multiplied by the size of the AU (excluding waterbodies) to determine the overall planting capacity.

Each AU is assigned a planting palette of tree species developed based on the pre-clear regional ecosystem mapping and local availability of seed stock. Each planting palette comprises a mix of preferred foraging species for the Swift Parrot, other eucalypt trees and pioneer species such as Acacia sp. Preferred foraging tree species comprise a percentage of the total planting palette where it is suitable for the pre-clear RE and/or consistent with the local seed stock.

5.4.3 Preferred foraging species planting

The number of preferred foraging trees that will be planted per AU is calculated as the planting capacity multiplied by the percentage of preferred foraging trees. Where there are multiple species of preferred foraging tree species, these are added together to produce a total number of preferred foraging tree species to be planted.

An 80% survival rate is applied to both the on-ground planting value and the adjusted value to receive the total number of preferred foraging species proposed to be successfully delivered as a result of the offset. A Rehabilitation Management Plan (**Appendix G**) has been prepared which includes details on the proposed planting methodology and planting palette.

5.4.4 Net total of preferred foraging trees

The final step is to determine the net total of preferred foraging trees that will be located within each AU combining the proposed offset and baseline data. This is calculated as the total count of preferred foraging trees to be planted inclusive of an 80% survival rate, plus the baseline count of non-juvenile preferred foraging trees.

For the purposes of the OAG calculator, the net total of preferred foraging trees inclusive of an 80% survival rate of planted trees is inputted as the 'Future value with offset.'

5.5 Foraging Habitat Assessment Methodology for Regent Honeyeater

To quantify baseline and future habitat value for the Regent Honeyeater, a feature-based assessment method was utilised. The method involves calculating the number of individual habitat features located within the offset area and the number that will be reinstated as part of the offset.

A habitat feature for the Regent Honeyeater is defined as a non-juvenile tree (i.e., ≥100 mm DBH) which is a preferred foraging tree species identified under the National Recovery Plan for the Regent Honeyeater (DoE, 2016). Listed preferred foraging tree species include:

- *Eucalyptus leucoxylon* (yellow gum)
- *Eucalyptus sideroxylon* (mugga ironbark)
- *Eucalyptus albens* (white box)
- *Eucalyptus melliodora* (yellow box)

- *Eucalyptus robusta* (swamp mahogany)
- *Corymbia maculata* (spotted gum). It is noted that in Queensland *Corymbia citriodora* is recognised synonymously with *Corymbia maculata*.

The methodology, comprising four (4) steps is described below with details as to how the calculations have been used to inform the OAG and rehabilitation program.

5.5.1 Baseline tree density

In order to understand the existing foraging habitat value for the Regent Honeyeater and the planting capacity of the offset area, the existing density of trees is required to be calculated and extrapolated.

The density of all trees including preferred foraging trees was extrapolated from stem density data collected at fifteen (15) MHQA transects (refer **Figure 3.8**). The four (4) AUs and associated transect site numbers are as follows:

- AU1 represents paddock to sparse regrowth RE12.9-10.2 habitat (BC Transects 1, 2, 4, 7, 9, 13 and 14).
- AU2 represents non-remnant paddock RE12.9-10.2 habitat (BC Transects 6, 11and 17).
- AU3 represents dense regrowth RE12.9-10.2 habitat (BC Transects 3, 5, 10 and 15).
- AU4 represents remnant RE12.3.7 habitat (BC Transect 16).

Stem density data at each MHQA transect was collected in accordance with the stem count methodology provided in the *Methodology for surveying and mapping regional ecosystems and vegetation communities in Queensland (version 6.0)* (Neldner et al. 2022). The methodology detailed in Neldner et al. (2022) uses a plot area of 50 X 10 m. For the purposes of this assessment, the area was modified to 100 X 20 m to align with the MHQA plot, however, the actual count assessment method remains the same.

This methodology involves counting the number of individual non-juvenile tree specimens within each 100 m X 20 m plot (0.2 ha) including those that are listed as preferred foraging species for the regent honeyeater. A tree that branches into two or more stems 30 cm above the ground is counted as one individual.

For each AU, the number of non-juvenile trees and separately, of non-juvenile preferred foraging trees, was averaged across all habitat quality transects within the corresponding AU to produce the mean number of trees and preferred foraging trees within a 100 X 20 m plot area (0.2 ha). The average stem density of non-juvenile trees and non-juvenile preferred foraging trees recorded within the 0.2 ha plot was multiplied by five (5) to produce an estimate of the number of trees and preferred foraging trees per ha. This was then multiplied by the area of the AU to determine an estimate of non-juvenile trees and non-juvenile preferred foraging trees within each AU.

5.5.2 Planting capacity

The planting capacity or number of trees (all species) that can be supported within each AU was determined based on the following planting densities proposed in accordance with the South East Queensland Ecological Restoration Framework (SEQERF) (Chenoweth EPLA, 2012):

- 1 tree per 10 m^2 or 1000 trees per hectare for non-remnant paddock
- 1 per 25 m^2 or 400 trees per hectare for non-remnant paddock to sparse regrowth
- 1 per 50 m^2 or 200 tree per hectare for sparse regrowth
- 1 per 100 m^2 or 100 trees per hectare for dense regrowth
- 1 per 1000 m^2 or 10 trees per hectare for remnant

The proposed density rate was multiplied by the size of the AU (excluding waterbodies) to determine the overall planting capacity.

Each AU is assigned a planting palette of tree species developed based on the pre-clear regional ecosystem mapping and local availability of seed stock. Each planting palette comprises a mix of preferred foraging species for the Regent Honeyeater, other eucalypt trees and pioneer species such as Acacia sp. Preferred foraging tree species comprise a percentage of the total planting palette where it is suitable for the pre-clear RE and/or consistent with the local seed stock.

5.5.3 Preferred foraging species planting

The number of preferred foraging trees that will be planted per AU is calculated as the planting capacity multiplied by the percentage of preferred foraging trees. Where there are multiple species of preferred foraging tree species, these are added together to produce a total number of preferred foraging tree species to be planted.

An 80% survival rate is applied to both the on-ground planting value and the adjusted value to receive the total number of preferred foraging species proposed to be successfully delivered as a result of the offset. A Rehabilitation Management Plan (**Appendix G**) has been prepared which includes details on the proposed planting methodology and planting palette.

5.5.4 Net total of preferred foraging trees

The final step is to determine the net total of preferred foraging trees that will be located within each AU combining the proposed offset and baseline data. This is calculated as the total count of preferred foraging trees to be planted inclusive of an 80% survival rate, plus the baseline count of non-juvenile preferred foraging trees.

For the purposes of the OAG calculator, the net total of preferred foraging trees inclusive of an 80% survival rate of planted trees is inputted as the 'Future value with offset.'

5.6 Total Current Habitat Quality Scores and Foraging Habitat Assessment Results for the Proposed Offset Property

5.6.1 Habitat Quality for Koala and Grey-headed Flying-fox

The results for each habitat quality attribute for Koala and Grey-headed Flying-fox are based on the habitat quality scoring method outlined above. A summary of the total, weighted habitat quality scores for Koala and Grey-headed Flying-fox are provided in **Tables 5.18 and 5.19**, respectively. Detailed scoring tables are provided in **Appendix H**.

Table 5.18 Koala final weighted scores

MHQA Final Weighting	AU 1	AU 2	AU 3	AU 4
Site Condition (/3)	1.67	1.56	2.19	2.15
Site Context (/3)	1.98	1.98	1.98	1.98
Species Stocking Rate (/4)	2.29	1.71	2.29	2.29
Score	**5.93**	**5.26**	**6.46**	**6.41**

Table 5.19 Grey-headed Flying-fox final weighted scores

MHQA Final Weighting	AU 1	AU 2	AU 3	AU 4
Site Condition (/4)	1.60	1.59	2.08	2.51
Site Context (/3)	1.55	1.55	1.55	1.55
Species Stocking Rate (/3)	1.80	1.20	2.40	1.20
Score	**4.95**	**4.34**	**6.03**	**5.26**

5.6.2 Foraging Habitat for Swift Parrot

Two (2) preferred foraging species for the Swift Parrot were recorded within the offset area, being *Corymbia citriodora* (spotted gum) and *Eucalyptus tereticornis* (forest red gum). It is estimated a total of 18,952 non-juvenile preferred

foraging trees are present within the offset area (refer **Table 5.20**). A total of 32,721 non-juvenile trees comprising eucalypts, *Acacia* sp., *Allocasuarina* sp. and *Casuarina* sp. are estimated within the offset area (refer **Table 5.21**).

Table 5.20 Swift Parrot baseline stem density (preferred foraging species)

AU	AU Area (ha)	BC Plot #	Count of non-juvenile preferred foraging trees (100 X 20 m plot)			Mean number per AU (100 X 20 m plot)	Estimate per hectare	Estimate per AU
			Corymbia citriodora	*Eucalyptus tereticornis*	Total			
1	150.1	1	0	23	23	11.86	59	8899
1		2	0	12	12			
1		4	0	20	20			
1		7	0	8	8			
1		9	1	3	4			
1		13	1	0	1			
1		14	0	15	15			
2	44.8	6	0	4	4	2.33	12	522.67
2		11	2	0	2			
2		17	0	1	1			
3	75.9	3	37	0	37	24	120	9,108
3		5	26	0	26			
3		10	9	0	9			
3		15	22	2	24			
4	9.4	16	2	7	9	9	45	423
							Total site (280.2 ha)	**18,952**

Table 5.21 Baseline stem density (all trees)

AU	AU Area (ha)	BC Plot #	Count of all non-juvenile trees (100 X 20 m plot)	Mean number per AU (100 X 20 m plot)	Estimate per hectare	Estimate per AU
1	150.1	1	37	23	114	17,154
1		2	22			
1		4	22			
1		7	18			
1		9	23			
1		13	18			
1		14	20			
2	44.8	6	10	6	30	1,344
2		11	5			
2		17	3			
3	75.9	3	42	35	175	13,283
3		5	30			
3		10	33			
3		15	35			
4	9.4	16	20	20	100	940
					Total site (280.2 ha)	**32,721**

5.6.3 Foraging Habitat for Regent Honeyeater

Presently the offset area contains one (1) preferred foraging species for the Regent Honeyeater, being *Corymbia citriodora* (spotted gum). It is estimated a total of 9,376 non-juvenile preferred foraging trees are present within the offset area (refer **Table 5.22**). A total of 32,721 non-juvenile trees comprising eucalypts, *Acacia* sp., *Allocasuarina* sp. and *Casuarina* sp. are estimated within the offset area (refer **Table 5.21**).

Table 5.22 Regent Honeyeater baseline stem density (preferred foraging species)

AU	AU Area (ha)	BC Plot #	Count of non-juvenile preferred foraging trees (100 X 20 m plot) - *Corymbia citriodora*	Mean number per AU (100 X 20 m plot)	Estimate per hectare	Estimate per AU
1	150.1	1	0	0.3	1	214
1		2	0			
1		4	0			
1		7	0			
1		9	1			
1		13	1			
1		14	0			
2	44.8	6	0	0.7	3	149.33
2		11	2			
2		17	0			
3	75.9	3	37	23.5	118	8,918
3		5	26			
3		10	9			
3		15	22			
4	9.4	16	2	2	10	94
					Total site (280.2 ha)	**9,376**

6.0 Offset Management Measures

The identified management actions for the proposed offset area have been determined to achieve the following key objectives:

- Protect against the loss or degradation of Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat;
- Increase extent and quality of habitat available to Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater; and
- Mitigate identified threats to Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater and their habitat.

Based on the proposed land uses, current condition and offset goals, as well as the risks identified in **Section 8.0**, the following offset management measures are considered most appropriate for the proposed offset area:

- Restoration of habitat resources for Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater; through assisted natural regeneration and revegetation;
- Limiting vegetation clearing to only those areas required for maintaining fences, fire breaks, road/track access (including those accessing BLEs) and/or thinning of invasive native species that are impacting Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat targets;
- Monitoring and controlling feral animals that are likely to be detrimental to threatened fauna or the restoration of threatened fauna habitat (e.g. dogs, pigs, deer);
- Monitoring and controlling weeds, particularly those that inhibit fauna usage, dispersal or habitat restoration;
- Monitoring and controlling erosion likely to be detrimental to restoration of threatened fauna habitat;
- Prohibiting alternate land use and activities (e.g. timber harvesting, cropping, etc.);
- Monitoring and manage livestock movement to ensure no degradation to present, naturally recruiting or revegetated threatened fauna habitat; and
- Monitoring and managing fuel loads and fire risk.

The following sections detail the management, monitoring and reporting that will be undertaken for the proposed offset area.

6.1 Protection of Existing Habitat Values

Remnant AUs within the proposed offset area currently represent the most intact habitat for Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater. Protection of these AUs is necessary to ensure persistence of the existing habitat values supporting these species and provide a source for natural regeneration in adjacent areas of limited habitat value.

Protections against deliberate, broadscale vegetation clearing in areas State-mapped as containing remnant vegetation currently exist under the Queensland *Vegetation Management Act 1999*. AUs ground-truthed as containing remnant or high-value regrowth vegetation but which are not currently identified under State Government mapping as Category B (remnant) or C (high-value regrowth) vegetation (and all other AUs within the proposed offset area) will receive legal protection against direct clearing through the offset securement process.

Permissible clearing activities throughout the proposed offset area will be limited to the minimum required to maintain fire breaks, vehicle tracks (including those accessing the BLEs) and fence lines. Selective thinning of invasive native species impacting on the restoration of Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat values may also be implemented, if identified as necessary during monitoring.

Weed management in the remnant AUs will be targeted to reduce overall non-native plant cover, with prioritisation given to the control of weed species that would threaten mature vegetation, increase fire risk and/or present barriers to movement for Koala (e.g. dense Lantana and weeds of national significance [WONS]).

Evidence of prior fire disturbance within some portions of the proposed offset area leading to reduced canopy cover and tree death highlights the importance of protecting existing habitat from the impacts of bushfire. A Bushfire Management Plan for the proposed offset area will be developed that incorporates recommended fire management guidelines/regimes for each target vegetation community, including management of fuel loads and identification of water sources that can be utilised for fire-fighting, if required. Vehicle tracks including the indicative access track shown on **Figures 3.6 and 3.8**) will be maintained as firebreaks by removing weeds and woody regrowth and, if required, additional access tracks will be installed in the proposed offset area that are wide enough to allow the passage of a fire fighting vehicle. On-going monitoring will assess fuel loads within remnant protection areas and requirement for adaptive management, including amended weed control and ecological burn regimes to limit risk of loss to uncontrolled fire.

6.2 Habitat Restoration Approach

Much of the proposed offset area will require active rehabilitation to increase the extent of habitat available to Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater. Two broad approaches informed by the *South East Queensland Ecological Restoration Framework* (Chenoweth EPLA and Bushland Restoration Services, 2012) will be utilised, depending on the level and type of rehabilitation required to achieve the habitat quality targets. Management zones reflect the established AUs and will be restored using the approaches discussed as follows.

6.2.1 Assisted Natural Regeneration

Assisted natural regeneration is a suitable approach to rehabilitate native vegetation communities that are largely healthy and functional, and displaying intact topsoil and a viable native seedbank, but are impacted by weeds and grazing. Minor intervention in the form of weed control and removal of livestock will allow the community to recover.

Within the proposed offset area, the assisted natural regeneration approach will be applied to AU 3 where the canopy is relatively intact but weed infestation (principally Lantana and non-native pasture grasses) and grazing often leads to a reduction in native plant species richness, and native plant cover. This approach will also be applied in the riparian areas along the drainage lines (AU 4) and in areas within AUs 1 and 2 exhibiting strong natural recruitment of native woody species or where broadscale revegetation is not feasible due to poor accessibility (i.e. on steep slopes). It is expected the removal of livestock, Lantana and other understorey weeds will facilitate the regeneration of native species and (with maintenance) allow restoration of each original community.

Supplementary/in-fill planting and/or seeding will occur in areas that display a more open canopy or limited species diversity and in which natural recruitment would take longer to restore the original community, as determined through on-going monitoring. This also presents an opportunity to increase the proportion/quantity of preferred food tree species for Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater that occur naturally within each pre-clear community.

6.2.2 Reconstruction

The reconstruction approach is best applied to areas where native vegetation has been largely removed and is not naturally recruiting, but site topography remains unchanged. A high degree of exotic weed control is typically required in these areas.

Within the proposed offset area, the reconstruction approach will be applied to AUs 1 and 2 where native vegetation has been cleared to such an extent that it is preferable to re-plant native species representative of the pre-clearing vegetation community, with a focus on preferred food tree species for Koala, Grey-headed Flying-fox , Swift Parrot

and Regent Honeyeater, rather than rely on natural regeneration. Weed removal will also be carried out in these areas prior to and following planting to assist in the successful establishment of the planted community.

Targeted revegetation of tree and groundcover species in eroded creek banks (AU 4) where natural recruitment alone is insufficient to provide adequate bank stabilisation following the exclusion of cattle and removal of Lantana. Where this is necessary, the banks will be densely planted with native bank retention species endemic to the RE (e.g. *Lomandra, Cyperus, Juncus* spp., etc).

6.3 Rehabilitation Methodology

6.3.1 Timing of offset delivery

It is intended that rehabilitation works commence as soon as practical upon commencement of the proposed action (i.e. allowing for suitable conditions) to reduce lag time between impact occurrence and achievement of habitat quality targets at the offset site.

A Rehabilitation Management Plan (**Appendix G**) has been developed which details proposed rehabilitation methodology, planting timeline and planting palettes and tube stock quantities. The plan will be implemented to achieve proposed rehabilitation quality targets to be met over the 20 year offset period. The proponent will be responsible for ensuring the plan is adopted and implemented as proposed.

6.3.2 Timing of Rehabilitation Activities

The exact timing of specific rehabilitation tasks will depend on the prevailing climatic conditions; chemical weed control and revegetation works is best undertaken during conditions favouring active plant growth and, for the proposed offset area, warm conditions and the majority of rainfall is experienced in the December to March period, making it ideal for the successful uptake of herbicides and initial establishment of planted seeds/seedlings. Ground preparation work for planting such as slashing and soil ripping/tilling should be carried out prior to the onset of the wet season where machinery access is less likely to be hindered by slippery tracks and boggy ground.

6.3.3 Access

Prior to the commencement of rehabilitation works, access tracks and entry locations into each management zone will need to be determined. Retention of the current vehicle track network throughout the site is to be retained as much as possible as access points, with additional tracks created, as necessary (including those accessing the BLEs). These access points and tracks must be wide enough to allow the passage of a water truck. Where access tracks may also serve as fire management tracks, the track must be wide enough to allow the passage of a fire fighting vehicle. The creek crossing will require improvement to allow safe vehicle access; due to the substantial gully erosion that has occurred here, it is likely that engineering solutions may need to be implemented to control future erosion whilst maintaining safe vehicular thoroughfare. Where the improvement of such tracks is not considered practical, additional tracks should be established and aligned strategically to limit disturbance to existing native vegetation whilst actively rehabilitating disused tracks.

Access into the proposed offset area will be restricted to only that necessary for rehabilitation activities and associated maintenance and monitoring, fire control, pest animal management, fence replacement/repair, and general land care practices.

6.3.4 Fencing

Prior to the commencement of rehabilitation works, cattle/horses will be removed and additional stock exclusion fencing will be erected where necessary to promote natural regeneration of native species and prevent impacts of grazing on planted seedlings. All new fencing installations will be designed to facilitate the movement of native fauna between the proposed offset area and adjacent areas using rural, plain wire, with no barbed wire fencing installed on top or bottom rungs to prevent entanglement and injury. Existing barbed wire fencing (refer **Figure 3.8**) will be removed from the proposed offset area where no longer required for stock or vehicle exclusion. Where existing fencing aligns with the proposed offset area boundaries or is otherwise considered necessary, these fences will be amended to allow safe movement of native fauna and removal of threat to Grey-headed Flying-foxes through replacement of at least the top barbed wire strings with plain wire, or having the top strand covered with poly pipe, and with a bottom strand either or plain wire, or barbed wire set at a minimum 300 mm above ground. Any future fencing undertaken at the BLE sites will observe the requirements allowing facilitation of native faunal movement across the offset property.

The Land Manager or their representative will ensure the integrity of the exclusion fencing is routinely checked on a quarterly basis, with any breaks in the fence line or opportunities for cattle/horse entry to be rectified.

6.3.5 Burns and Soil Cultivation

In preparation for planting, grass height throughout the revegetation areas should generally be kept as low as practical to allow easy visibility and vehicle accessibility. If weather allows, controlled cool burns will be undertaken prior to cultivation or planting to remove grass and broadleaved plants. Qualified and experienced burning contractors are used in all instances, and in accordance with rural fire legislation, permit conditions and stakeholder/near neighbour notification requirements.

Cultivation of soil through ripping assists root penetration, increases moisture infiltration and retention around the planted tree's root zone and increases planting efficiency. In all instances, lines are ripped along contours. At no stage will downhill ripping be undertaken due to the high risk of channelling water in the rip lines and associated risk of serious erosion. The upper limit for contour ripping is 30 degrees; below this, limits for contour ripping are to be set by the contractor, with operator safety being the primary consideration. Ripping must always take place during dry soil conditions, to enable effective soil fracture, and be completed several months before planting, to allow for settling of soil within the rip. Cultivation should not take place when soil moisture content is sufficient to allow the ripping implement to 'slice' through the soil without de compacting it. Further details on soil ripping are provided in **Appendix G**.

6.3.6 Weed Management

All weed control works are to be undertaken by an experienced rehabilitation contractor familiar with all weed and native plant species occurring within the proposed offset area. The contractor must also have a thorough understanding of the restoration principles and techniques set out in the *South East Queensland Ecological Restoration Framework* (Chenoweth EPLA and Bushland Restoration Services 2012) and be appropriately licenced to undertake herbicide application. Use of herbicides will be in strict compliance with Queensland Department of Agriculture and Fisheries' (DAF) guidelines, and advice is to be sought from DAF as necessary to confirm the suitability of herbicides and ensure weed management practices are consistent with those advised by DAF. Only amphibian-friendly herbicides will be used in areas adjacent to waterways and drainage lines (AU 4 in particular).

Weed management within the proposed offset area will aim to contain and reduce the occurrence of restricted invasive plants and prevent the introduction and establishment of other restricted invasive species. Prior to entering and upon leaving the proposed offset area, all equipment, including vehicles is to be cleaned to remove seeds and sediment to prevent the introduction of new weed species into the proposed offset area and spread of weeds outside the proposed offset area.

A particular focus of weed management will be the removal of *Lantana* species , which can be controlled through hand-removal, cut-stump, splatter-gun and foliar spray. Where large, dense infestations are present, cutting access tracks and splatter-gun treatment is most efficient. Remaining dead frames should be smashed down to ground-level as soon as practical following plant death to remove fire fuel load. Alternatively, Lantana bushes can be cut down with heavy-duty hedge trimmers, brush-cutters or chainsaws, and allowed to reshoot (for 2-5 months depending on season and rate of growth) before applying an appropriate foliar spray treatment to the fresh, actively growing foliage. This method is preferred in areas where splatter-gun treatment is likely to result in off-target herbicide damage to naturally regenerating vegetation. Sparse infestations may be managed through manual removal, cut-stump treatment or foliar spray. Up-to-date control methods specific to this region can be sourced from SRC and local Natural Resource Management group Southern Qld Landscapes.

Much of the ground layer within the cleared portions of the proposed offset area is dominated by exotic grasses that will continue to proliferate following cattle exclusion. Dependent on the level of impacts (e.g. cover, density and height of exotic grasses has reached a stage that it precludes natural regeneration), adaptive management measures are to be initiated; this could include slashing of grasses, controlled burns and/or herbicide treatment. In areas where assisted natural regeneration is applied as the primary restoration approach, control of grasses will be limited to controlled burns and foliar spray treatment. Patches of native groundcover are to be protected and encouraged to gradually spread out through targeted treatment of non-native grasses within and surrounding the native patches. Foliar spray treatment should be prioritised during periods of active growth (i.e. following burn or during wet season - December to March) to maximise herbicide uptake. Brush-cutting or whipper-snipping non-native grass to ground level followed by a foliar spray treatment of active regrowth is recommended as a primary treatment method. Hand-removal may be required in some areas to avoid off-target damage.

Giant Rat's Tail, whilst not a WoNS, is nevertheless regarded as a weed of potential significance and has been identified in all AUs. In areas of smaller infestation, isolated plants can be pressure wicked. For Giant Rat's Tail, an intensive spray regime is required; three treatments should be applied over an 18-month period. The first treatment should be applied in mid-summer, when the Giant Rat's Tail is actively growing, followed up by a second treatment in late summer or early autumn to prevent seeding, and a follow-up treatment the following summer. Whilst more intensive, preferred management practices in moderate to heavily infested areas may involve replacing the existing ground cover stratum by cultivating the soil and planting appropriate grass and forb seeds (endemic to the RE).

Tube stock revegetation will be prioritised in areas with dominant non-native pasture and grasses. Early establishment of canopy species through revegetation will eventually reduce light infiltration to the ground layer and limit the growth of exotic pastures, allowing replacement with native grasses and forbs. To ensure effective resource distribution, non-native grasses in these areas will initially be managed specifically to reduce immediate competition with planted trees and maximise rate of canopy establishment through regular foliar spray treatment within the planted rows and slashing between rows. Once the planted tree stock has established, attention can be given to the control of pasture grasses between the tree rows and outwards beyond the revegetated areas through regular foliar spray treatments until planted and/or naturally regenerating native groundcovers are established.

6.3.7 Revegetation

Proposed revegetation methodologies are detailed in **Appendix G**. In summary:

- Revegetation works shall be either undertaken or directly supervised by an experienced and qualified contractor.
- An external nursery will be used with option to establish an on-site nursery at the planting site if suitable, for the storage and watering of seedlings prior to planting and in a location that provides shade if hot temperatures are expected, a source of water for irrigation, and proximity for regular dispatch to the planting areas.
- Planting of foraging tree species suitable for Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater will be completed in accordance with the planting palettes and densities in **Appendix G**. Stock

will be planted at a minimum planting density of 1 plant per 10 m^2. The final species palette will comprise the maximum diversity of species from schedules depending on the availability of planting stock. Preferred foraging species for Swift Parrot and Regent Honeyeater will be delivered at the specified densities to achieve the required offset outcome for these species.

- Techniques are determined based on individual site conditions and will vary from bare seed, seed pods, drone seeding, seedling planting by ground machine, or spades/mattocks, or a combination of several techniques across the site.
- Seedling types must be a variety of local provenance genetics to ensure future resilience and ecological benefits.

Broadscale revegetation will be required in AU 2 and portions of AU1 where extensive grazing and coverage of non-native pasture grasses has resulted in poor natural recruitment of native vegetation. To achieve the habitat quality targets for this AU within the timeframe of the offset management period, early planting of canopy species should be prioritised using a systematic and replicable approach for optimised efficiency. Broadscale planting of pre-grown seedlings in rows is considered the most suitable approach to ensure the desired species composition and spacing is achieved and allow efficient maintenance to be undertaken across the revegetation areas. Revegetation of canopy species will occur in lineal rows with about 5m left between rows to allow access for slashing during maintenance. In preparation for planting, the planting rows (1-1.5m wide) will be marked (e.g. with spray paint) and strip-sprayed to kill all groundcover vegetation prior to tilling (if required) and mulching.

Following planting, emerging non-native grasses and forbs within the planted strips will be foliar sprayed during regular maintenance visits, with care taken to avoid naturally recruiting native species. The grass height between the planted rows will be managed through regular slashing to be kept below the height of the planted trees until these are established and self-sustaining. Once the trees have established, the inter-row spaces between trees can be revegetated with native groundcovers and shrubs as per the methodology for trees. If this area is maintained free of pasture grasses, regeneration of native grasses from self-seeding is likely to be highly effective.

Maintenance will consist of ongoing weed control around plantings and watering when required, and replacement of dead or damaged plants and depleted mulch.

6.4 Feral Animal Control

Feral deer are known to occur across the SRC region. The grazing and bark stripping behaviour of deer is a particular risk to the establishment of revegetation and natural regeneration required for successful habitat restoration. To limit the potential risks to habitat values, targeted control of deer within the proposed offset area will be undertaken. Ground-shooting by suitably qualified and experienced operators is the preferred control method and should be undertaken in coordination with SRC and neighbouring private landholders.

Other feral animals common in the Esk region and known or likely to occur within the proposed offset area include wild dogs, foxes, and feral pigs. Wild dogs and foxes pose a direct threat to Koalas through predation when Koalas come to the ground to move between trees. Feral pigs pose a threat to the restoration of habitat through digging activity and wallowing behaviour uprooting planted and naturally regenerating vegetation and ground disturbance favouring the proliferation of weeds. Pigs are particularly problematic along dams, creeks, and riverine areas, and truffling and wallowing activities can both create and exacerbate gully erosion in these areas.

Given the high likelihood of occurrence and associated threats to habitats, if unmanaged, the control of these species is planned for under this strategy. Various methods exist for the management of these species, including trapping, shooting, and baiting.

For successful monitoring of feral animal abundance, camera trapping is frequently utilised and remains the industry standard. Camera traps have the advantage of obtaining a wide range of significant information based on the set up. Automatic camera systems are triggered by an animal passing in front of a sensor that detects movement, changes in ambient light, or a thermal differential (Moen and Lindquist 2004). Cameras allow for the detection of species that

are difficult to study due to their elusive or nocturnal habits (Mace et al. 1994). Camera deployment is less time consuming, less costly, and less invasive than long-term direct observation of animals. They also enable the collection of valuable information about multiple species within any given community (Rosellini et al. 2008) and provide data that is more permanent and less disputable than data gathered by direct observation. Furthermore, camera trapping allows consistent and repeatable surveys to be completed by placing the same cameras in the same locations using the same settings for the same length of time and set with the same bait. The repeatability of motion sensor camera trapping means it is an appropriate method to monitor changes of the abundance of feral animals over time.

Offset site-specific baseline baited camera trapping was conducted during May 2021, at the four (4) locations described in **Table 6.2** and shown on **Figure 3.8**, to allow for general feral animal abundance and trends to be ascertained at the broader landscape scale and allow for management actions to be targeted over the broader property. This involved setting up a fixed digital camera to capture images or video of animals that pass in front of a camera with an infrared trigger. Cameras were attached 30-100 cm from the ground on a tree or post and directed towards a bait station placed approximately 1.5 to 2 m from the mounted camera. Heavy, loose vegetation was avoided as this can cause false triggering, and the camera was aimed to avoid sun shining directly onto the lens.

Table 6.2. Baseline camera trap locations

Camera	Latitude	Longitude	Survey Dates	Bait	General Location Description
1	-27.29003	152.44515	4-19/5/2021	Chicken Necks	Adjacent to constructed dam in Lot 125 on CA31385
2	-27.2968	152.44996	4-19/5/2021	Chicken Necks	Adjacent to old creek crossing at top of bank in Lot 60 on CA31149
3	-27.3037	152.4569	4-19/5/2021	Chicken Necks	In area mapped as high value regrowth containing RE 12.9-10.2
4	-27.2941	152.44472	4-19/5/2021	Chicken Necks	Edge of area mapped as high value regrowth containing RE 12.9-10.2 in Lot 60 on CA31149

The results of the baited camera trap survey (recorded species and number of occurrences over days of camera deployment) are utilised to provide relative abundance of non-native vertebrate pest species over the offset area, reducing bias and increasing repeatability. A relative abundance index (RAI) is then calculated for feral animal abundance, using the formula **RAI= D/TN x 100**, where D is number of individual detections and TN is the total number of camera-trap nights (all cameras combined). For the purposes of this study, any feral animal was recorded as a new individual if >1 hour had elapsed between sightings. This methodology ensures that the surveys are representative of the entire area and are repeatable for future monitoring requirements. A higher RAI indicates a higher pest presence.

The results of predator and herbivore RAI are provided in **Table 6.3** and **Table 6.4**, respectively. The RAI for predator species is **18.67** (including wild dogs and foxes) and for herbivore species is **2.67** (currently restricted to European Hare). Examples of pest animals captured within the offset area during camera monitoring are shown in **Photos 6.1 to 6.3**.

A pest animal control program will be developed outlining control methods to be applied across the property, schedule of control actions, monitoring protocols to assess effectiveness of actions and triggers for additional management. Annual motion detection camera deployment will occur annually for minimum of 15 nights, over a minimum of five years, to assist ongoing pest management strategies.

Further details regarding proposed pest animal management, monitoring and reporting are provided in **Tables 6.5-6.7**. It is noted that, while the control of pest animals is included as part of the overall management strategy for the offset area in the interests of minimising associated threats to Koalas and vegetation condition, no uplift to the "threat" score as part of the overall habitat quality score for Koala is proposed and, hence, no specific, measurable success criteria are proposed beyond the monitoring of impacts to Koalas and vegetation condition.

Table 6.3. Baseline non-native predator survey detections and RAI

Camera	Survey Duration (nights)	Species	Detection	RAI
1	15	*Vulpes vulpes* (European red fox) *Canis lupis familiaris* (Wild dog)	1 4	**18.67**
2	15	*Canis lupis familiaris* (Wild dog)	8	
3	15	Nil	0	
4	15	*Canis lupis familiaris* (Wild dog)	1	
Total	**75**	**2**	**14**	

Table 6.4. Baseline non-native herbivore survey detections and RAI

Camera	Survey Duration (nights)	Species	Detection	RAI
1	15	*Lepus europaeus* (European hare)	2	**2.67**
2	15	Nil	0	
3	15	Nil	0	
4	15	Nil	0	
Total	**75**	**1**	**2**	

Photo 6.1. Wild Dogs

Photo 6.2. Fox

Photo 6.3. European Hare

6.5 BLE and Trespass Management

A range of management measures are proposed to restrict access to the offset area and protect the offset area from incompatible land uses, including those that have potential to arise from the presence of a BLE and associated rural residential land use.

6.5.1 General Trespass Management

For general trespass and livestock exclusion management, the offset area is to be suitably fenced and marked with signage to discourage trespass, indicate biosecurity restrictions, and keep out cattle. Gates leading to the offset area will have signage installed that clearly states that the area is an approved offset for conservation purposes.

In addition, cattle will be removed and prevented from accessing the offset area as specified in this OAMP through the use of perimeter fencing. **Figure 3.9** shows existing barbed-wire fencing proposed to be removed or retrofitted with fauna friendly fencing.

6.5.2 BLE Land Use and Access Management

The non-offset area land use areas comprise BLEs and designated asset protection zones / bushfire management zones. The BLEs and asset protection zones / bushfire management zones will be limited to use as a rural residential property for rural living, not for commercial purposes. This includes provision for a dwelling and ancillary structures consistent with a large rural residential property, such as a granny flat, carport, shed, septic tank, water tank and gazebo. All uses within the BLE and APZ / BMZ are not to be in contravention with this OAMP and will be subject to a legally binding mechanism to control and limit activities.

A management framework is provided within this OAMP (refer **Section 6.6**) that provides specific management measures to limit or prevent the potential for incompatible or degrading activities within the offset area arising from the location of the BLEs and associated vehicle access tracks. Long-term protection of offset values will be further secured through a legal mechanism imposing enduring restrictions on planting, access and weed introduction pathways. The responsible parties include the BLE Landholder and Land Manager.

Requirements detailed under this framework will be further refined to provide a mechanism for enduring legal protection. Where the terms of the legal mechanism are inconsistent with this OAMP, a revision to the OAMP may be required.

6.6 Offset Management Actions

Table 6.5 summarises the discussed management objectives and actions, responsible parties for implementing the management actions, monitoring and reporting requirements, triggers for adaptive management, and corrective actions and timing related to each identified management measure to be undertaken within the proposed offset area.

6.7 Monitoring and Reporting

Table 6.6 details the monitoring program to be implemented upon acceptance of the offset, including recommended timing, methodologies and responsible parties undertaking each monitoring activity.

Table 6.7 specifies the reporting requirements and schedule associated with the offset monitoring described in **Table 6.6**, as well as reporting to be provided to the administrating authority overseeing compliance with the Project and Offset approval conditions (currently DCCEEW).

Table 6.5. Summary of offset management actions, monitoring, triggers and corrective actions

Key objective	Management activity	Success criteria	Management actions	Responsible parties	Monitoring and reporting	Trigger for corrective action/s	Corrective action/s and timing
Protect against the loss or degradation of Koala, Grey-headed Flying-fox , Swift Parrot and Regent Honeyeater habitat	Protection against habitat clearing	The proposed offset area is legally protected against broadscale clearing	Prior to the commencement of the action, the offset area will be legally secured via a Voluntary Declaration administered under the Queensland *Vegetation Management Act 1999*. The offset site will then be permanently secured via a legal mechanism that is approved by the Land Holder and the Department. Draft terms of the permanent legal mechanism will be submitted for approval within 18 months of commencement of the action. Within 12 months of approval of the draft terms, the offset site must be permanently secured.	CEPL and associated contractors	CEPL will maintain records of the approved declaration of the proposed offset area. CEPL will notify DCCEEW within 5 business days when the declared areas has been registered. Reporting to the Commonwealth will be in accordance with all requirements given in the EPBC Act approval.	Any activities in contravention of the declared area management plan or subsequent, permanent protection mechanism.	Step 1: Identify cause of the trigger (e.g. unauthorised access) and appropriate corrective actions immediately upon detection of the trigger or at most within one month of the trigger being detected. Step 2: Implement corrective action/s as soon as practicable, or at most within two months of detection of the trigger. These may include (but are not limited to) reinforcing access gates and fencing, replacing locks, installing signage and security cameras, and engaging local law enforcement.
Protect against the loss or degradation of Koala Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat	Vegetation management for accessibility	No unauthorised or intentional clearing is undertaken in the proposed offset area except that necessary for construction and maintenance of tracks, fences, fire breaks and ecological thinning.	Public access will be prevented through maintenance of boundary fencing, installation of signage identifying the area as an environmental offset and securing of all vehicle access gates with padlocks with keys distributed only by authorisation of the Offset Manager to contractors performing offset area monitoring and/or management tasks. All necessary boundary fencing, locks and signage will be installed within 12 months of the date of approval.	Land Manager	The Land Manager or their representative will routinely check boundary fencing and gates on a quarterly basis for any breaks or opportunities for public access.	The integrity of the boundary fencing/gates/locks has been compromised, allowing public vehicle access.	
			Construction and maintenance of access tracks, firebreaks and fencing will be undertaken as described in **Sections 6.3.3 and 6.3.4.** Vegetation clearing will be kept to the minimum extent required to maintain fences, fire breaks, road/track access and/or thinning of invasive native species that are impacting habitat targets. Vegetation clearing will be undertaken using minimal impact methods (e.g. tree cutting/felling with chainsaw) as necessary for the construction and maintenance of fencing, vehicle access and fire breaks. Any clearing and/or ecological thinning will be conducted in accordance with the advice of suitably qualified ecologist and in accordance with any applicable legislation.	Land Manager and associated contractors	Quarterly inspections of the proposed offset area will be undertaken by the Land Manager or their representative with all vegetation clearing documented including approved clearing (i.e. for track/fire break, fence maintenance etc.) and unapproved clearing.	Unauthorised clearing within the offset area has occurred.	
Protect against the loss or degradation of Koala Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat	Fire management	Uncontrolled fire does not occur within the proposed offset area. Planned burns are conducted in accordance with the relevant RE fire management guidelines.	A Bushfire Management Plan will be developed by an appropriately qualified and experienced consultant within 12 months of approval that incorporates recommended fire management guidelines/regimes for each target vegetation community, including management of fuel loads and identification of water sources that can be utilised for fire-fighting. The Bushfire Management Plan will be implemented during the offset management timeframe. Vehicle tracks will be maintained as firebreaks by removing weeds and woody regrowth and, if required, additional access tracks installed in the proposed offset area will be wide enough to allow the passage of a fire fighting vehicle.	CEPL, Land Manager and associated contractors	Quarterly inspections will document any evidence of wildfire and will assess fuel loads across the proposed offset area and identify any areas of concern. Quarterly inspections will document if prescribed ecological burning has occurred in accordance with the Fire Management Plan, and all burns will be recorded in the Annual report along with written advice pertaining to the burns from an ecologist or other suitably qualified person (e.g. Fire Warden).	The occurrence of uncontrolled wildfire. Habitat quality condition attributes are reduced due to a lack of appropriate fire management.	Emergency services (i.e. rural fire brigade) to be mobilised immediately upon discovery of an un-planned fire to extinguish the fire if possible. Where habitat quality has degraded as a result of inappropriate fire management, a review of the adherence to the Fire Management Plan will be undertaken to determine if there has been a lapse in the implementation of the Plan or if amendment to the plan is necessary. If amendment is necessary, this will be undertaken by an appropriately qualified and experienced fire consultant within 6 months following the habitat quality assessment. Following the event of any uncontrolled fire within the Offset and within one month of the event, the Land Manager or other suitably qualified person will assess all firebreaks and widen if necessary and implement fuel load reduction practices as advised by a fire consultant or suitably qualified ecologist.
Protect against the loss or degradation of Koala, Grey-headed	Weed management	Extent and density of weed cover does not	Weed treatment will be undertaken by a suitably qualified and experienced rehabilitation contractor and performed in accordance with techniques discussed in	CEPL, Land Manager, Rehabilitation	Rehabilitation contractors will supply to the Land Manager daily records of weed control works undertaken including details of the area and weed	Non-native plant cover has increased or has failed to meet	Increased weed control action will be applied to areas where weed mapping indicates an increase in extent and/or density or where habitat quality monitoring has identified an AU as

Key objective	Management activity	Success criteria	Management actions	Responsible parties	Monitoring and reporting	Trigger for corrective action/s	Corrective action/s and timing
Flying-fox, Swift Parrot and Regent Honeyeater habitat		increase in the proposed offset area. Habitat quality targets for non-native plant cover in each AU are achieved. Declared restricted invasive species listed under the Queensland *Biosecurity Act 2014* are contained and reduced within the proposed offset area and no new restricted invasive plants are introduced or established.	**Section 6.3.6** and listed in **Appendix G.** as well as those set out in the *South East Queensland Ecological Restoration Framework* and weed management practices and herbicide guidelines advised by DAF. Prior to entering and upon leaving the proposed offset area, Biocontrol actions are to be implemented and all equipment (including vehicles) is to be cleaned to remove seeds and sediment to prevent the introduction of new restricted invasive species into the proposed offset area and spread of weeds outside the proposed offset area. A suitably qualified ecologist or rehabilitation contractor will be engaged to re-map weed occurrences and densities throughout the proposed offset area and delineate specific areas requiring targeted treatment as part of ongoing habitat quality monitoring.	Contractor, and all personnel entering the proposed offset area.	species treated, methods used, herbicides applied and photos of the treatment area. Quarterly inspections will document any occurrence of new weed species and weed control undertaken since the previous quarterly inspection including before and after photos of the weed treatment area where possible. Weed mapping for the proposed offset area will be repeated in conjunction with ongoing habitat quality monitoring. Weed mapping will be included in the Offset Habitat Quality reporting.	the interim performance targets, as determined through habitat quality monitoring. A new restricted invasive plant species is detected in the proposed offset area.	having failed to meet the respective non-native plant cover interim performance target for the monitoring period. Weed control actions will be initiated within 6 months of the monitoring period and receive follow-up maintenance as required to ensure the non-native plant cover target is achieved and all AUs are on track to achieve the final non-native plant cover scores. If a new restricted invasive species is detected, immediate (or at most within one month of detection) weed control action will be applied to contain and eradicate the weed from the proposed offset area using appropriate methods for the species as advised by DAF. Additional follow-up maintenance will be undertaken until eradication is achieved.
Protect against the loss or degradation of Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat	Grazing management	Degradation of habitat arising from livestock (i.e. soil compaction, riparian erosion, over grazing) is prevented throughout the proposed offset area. Livestock are excluded from the proposed offset area.	Livestock are removed and excluded from the proposed offset area through stock exclusion fencing. Installation of additional stock exclusion fencing (if required) is achieved by year 2 of the offset management period	CEPL, Land Manager	Evidence of livestock presence will be monitored and documented during quarterly inspections.	Livestock are detected in the proposed offset area.	Immediately upon notification that prohibited livestock activity has been detected in the proposed offset area (or at most within one week of detection) cattle will be removed and all exclusion fencing and gates will be inspected to determine point/s of entry. The Land Manager will rectify any fence/gate failures within two weeks.
Protect against the loss or degradation of Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat Koala and Grey-headed Flying-fox habitat	Feral animal control	Degradation of habitat arising from feral deer, pigs and/or other pest animals (i.e. grazing, trampling, bark stripping, digging, etc) is minimised and prevented throughout the proposed offset area. Abundance of feral deer and pigs (if present) is supressed during the Offset management period.	A pest animal control program will be developed outlining control methods to be applied across the property, schedule of control actions, monitoring protocols to assess effectiveness of actions and triggers for additional management. Implementation of the pest animal control program will commence in year 2 and continue as necessary during the Offset management period.	CEPL, pest animal subcontractors, Land Manager	Quarterly inspections undertaken by the Land Manager (or representative) will monitor and document evidence of feral deer and feral pig activity. GPS location and photos of key activity areas will be recorded for utilisation in pest animal control actions and follow-up monitoring. Annual motion detection camera deployment will occur for a minimum of five years to assist ongoing pest management strategies.	Feral pig and/or feral deer abundance/activity (triggers to be determined in the pest animal control program) has increased from the previous quarterly inspection. Increase and loss of habitat as a result of increased erosion activity resultant from feral activities	Within two months of monitoring recording an increase in feral pig or feral deer abundance/activity since the previous inspection, the Land Manager is to implement appropriate control measures to bring numbers/activity indicators down to previous levels (or below trigger levels determined in the pest animal control program). The Land Manager may engage with neighbouring land holders and SRC to conduct coordinated control actions if appropriate.

Key objective	Management activity	Success criteria	Management actions	Responsible parties	Monitoring and reporting	Trigger for corrective action/s	Corrective action/s and timing
Increase extent and quality of habitat available to Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat	Habitat restoration though natural regeneration techniques	Natural regeneration of the native vegetation community, including species known to support Koala and important food trees for Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater, is occurring in the remnant AUs and in areas of the regrowth and non-remnant AUs not targeted for reconstruction. Supplementary/in-fill planting proposed in accordance with the Rehabilitation Management Plan increases the proportion/quantity of preferred food tree species for Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater that occur naturally within each pre-clear community, where necessary, to achieve the specified habitat quality and key foraging tree densities.	Natural regeneration of the native vegetation community will be assisted through removal of livestock and weed management, and supplementary/in-fill planting where necessary as per the Rehabilitation Management Plan (**Appendix G**). Weed treatment, focussing on the removal of Lantana and other understorey weeds to encourage establishment of naturally recruiting vegetation, will commence as soon practical upon legal securement of the offset and will continue until habitat quality targets are achieved.	CEPL Rehabilitation Contractor, Ecologist	Rehabilitation contractors will supply to the Land Manager daily records of weed control works undertaken, including details of the area and weed species treated, methods used, herbicides applied and photos of the treatment area. Rehabilitation monitoring will be conducted by an ecologist annually in all AUs targeted for restoration through assisted natural regeneration bi-annually for the first 5 years then in line with MHQA surveys at Years 10, 15 and 20 to assess progress towards interim performance targets specific to plant species richness, EDL recruitment, non-native plant cover and key foraging tree densities, to enable early intervention. This will include photo monitoring and visual assessment (**Appendix G**). Establish photo monitoring locations across offset area in first year of offset management period. Achieve at least 4 photo monitoring points per AU. Habitat quality and key foraging tree monitoring will be undertaken in year 5, 10, 15 and 20 of the offset management period by a suitably qualified and experienced ecologist to determine site condition and progress towards habitat quality targets and key foraging tree densities. This will be undertaken at a sub-set of the baseline transect locations (refer **Figure 3.8**).	Interim performance targets for EDL recruitment, species richness and/or key foraging tree densities have not been achieved and/or natural regeneration of species known to support Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater is not occurring.	Within two months of the monitoring indicating failure to achieve targets for EDL recruitment, species richness and/or key foraging tree densities, and/or natural regeneration of species known to support Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater is not occurring, an investigation will be undertaken to determine cause of failure including an assessment of weed control and fire management practices undertaken to date. Where necessary, and as advised through consultation with an ecologist and other relevant specialists (i.e. fire specialist, rehabilitation contractor), amendment to existing practices will be implemented, including increased frequency and intensity of weed control and/or modification of fire management practices. Supplementary/in-fill planting will be planned and commence within 12 months of habitat quality monitoring to replicate EDL recruitment and/or increase species richness and key foraging tree densities for Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater in areas where these targets have not been achieved. Supplementary/in-fill planting will be planned through consultation with an ecologist and revegetation works will be executed by an appropriately qualified and experienced rehabilitation contractor. Plantings will be maintained and monitored as recommended by the ecologist to ensure plants are established and self-sustaining by the following monitoring period.
Increase extent and quality of habitat available to Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat	Habitat restoration through reconstruction (revegetation)	Restoration of the pre-clear regional ecosystems in AUs 1 and 2 is achieved by year 20 of the offset management period, with species known to support Koala and important food trees for Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater occurring as dominant canopy species. All plantings achieve at least 80% survival rate. All seeding is to achieve benchmark RE stem densities at completion of offset management period.	Active restoration will occur through planting of foraging tree species per the Rehabilitation Management Plan (**Appendix G**). Revegetation works, including ground preparation, planting and follow-up maintenance, will be undertaken by a suitably qualified rehabilitation contractor in accordance with the prepared revegetation plan. Initial planting and/or seeding works will commence no later than year 2 of the offset management period Plantings will be maintained by a suitably qualified rehabilitation contractor as per the requirements given in the revegetation plan until plants are established and self-sufficient.	CEPL, Ecologist, Rehabilitation Contractor, Land Manager	Plantings and seeding will be monitored by the rehabilitation contractor in conjunction with follow-up maintenance, which is to involve pest control and weed management for two years following planting, and routine photo monitoring at least quarterly for the first five years post-planting and biannually from Years 5 to 10 to track planting progress. Revegetation monitoring will be undertaken by the rehabilitation contractor in accordance with **Appendix G**. The rehabilitation contractor will provide daily reports including results of revegetation monitoring and details pertaining to follow-up maintenance works to the Land Manager within one week of the works taking place. Establish photo monitoring locations across offset area in first year of offset management period. Achieve at least 4 photo monitoring points per AU. Rehabilitation monitoring will be completed bi-annually for the first 5 years through photo monitoring then in line with MHQA surveys at Years 10, 15 and 20. This will include photo monitoring and visual assessment (**Appendix G**). Habitat quality and key foraging tree monitoring will be undertaken in year 5, 10, 15 and 20 of the offset management period by a suitably qualified and experienced ecologist to determine site condition and progress towards habitat quality targets and key	A minimum 80% planting survival rate is not achieved. Interim habitat quality and/or key foraging tree density performance indicators are not achieved.	Within two months of monitoring recording failure to achieve 80% planting survival rate or failure to meet interim habitat quality performance indicators, an investigation will be undertaken to determine cause of failure including an assessment of watering, weed control and other maintenance tasks undertaken to date. Where necessary, and as advised through consultation with an ecologist or rehabilitation contractor, corrective actions will be implemented as soon as practical following the failed assessment. Corrective actions may include (but are not limited to) one or more of the following depending on the identified cause of failure: • Infill planting to replace dead plants • Additional watering • Increased frequency of weed control • Addition of tree guards to prevent grazing of plant stock • Additional mulching to supress weed growth and increase soil moisture retention • Fertilization Scheduling of works will be dependent on the corrective action/s required and advised by the ecologist or rehabilitation contractor (e.g. infill planting to replace dead plants should be timed during optimal growing season

Key objective	Management activity	Success criteria	Management actions	Responsible parties	Monitoring and reporting	Trigger for corrective action/s	Corrective action/s and timing
					foraging tree densities. This will be undertaken at a sub-set of the baseline transect locations (refer **Figure 3.8**).		whereas additional watering may need to be undertaken immediately to prevent further losses).
Mitigate other identified threats to Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater and their habitat	Fencing	All fencing within the proposed offset area facilitates safe native fauna movement.	All new fencing installations will consist of rural, plain wire fencing with no barbed wire installed on top or bottom runs to prevent entanglement and injury. Sections of current fencing have reflective bird and animal scare adornments (aluminium cans) attached to the wire. These will be removed. Existing barbed wire fencing will be removed from the proposed offset area where no longer required for stock or vehicle exclusion. Where existing fencing aligns with proposed offset area boundaries and BLEs or is otherwise considered necessary, these fences will be amended to allow safe movement of native fauna through replacement of at least the top barbed wire strings with plain wire. All new fencing installations and amendment of existing fences to be fauna-friendly within the proposed offset area will be achieved by year 2 of the offset management period	CEPL, Land Manager	The Land Manager or their representative will ensure the integrity of the exclusion fencing is routinely checked on a quarterly basis, with any breaks in the fence line or opportunities for cattle/horse entry to be rectified.	When fencing is repaired, or new fences are installed.	All new fencing installations will consist of rural, plain wire fencing with no barbed wire installed on top or bottom runs. Any existing fencing will have at least the top string replaced with plain wire.
Mitigate other identified threats to Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater and their habitat	Feral animal control	Predation of Koala by wild dogs and foxes is minimised and prevented throughout the proposed offset area. Abundance of wild dogs and foxes is supressed during the Offset management period.	A pest animal control program will be developed outlining control methods to be applied across the property, schedule of control actions, monitoring protocols to assess effectiveness of actions and triggers for additional management. Implementation of the pest animal control program will commence in year 2 and continue as necessary during the Offset management period.	CEPL, pest animal subcontractors, Land Manager	Quarterly inspections undertaken by the Land Manager (or representative) will monitor and document evidence of wild dog and fox activity. GPS location and photos of key areas (e.g. dens, tracks, scats, remains of predated animals) will be recorded for utilisation in pest animal control actions and follow-up monitoring. Annual motion detection camera deployment will occur for a minimum of five years to assist ongoing pest management strategies, to be completed by the pest management contractor. Formal camera monitoring surveys are to be completed at Years 5, 10, 15 and 20 by an ecologist per baseline survey methodology.	Wild dog and fox abundance/activity has increased from the previous quarterly inspection (triggers to be determined in the pest animal control program).	Within two months of monitoring recording an increase in wild dog and/or fox abundance/activity since the previous inspection, the Land Manager is to implement appropriate control measures to bring numbers/activity indicators down to previous levels (or below trigger levels determined in the pest animal control program). The Land Manager may engage with neighbouring land holders and SRC to conduct coordinated control actions if appropriate.
Mitigate other identified threats to Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater and their habitat	BLE Use Management	No unauthorised or intentional clearing is undertaken in the proposed offset area except that necessary for construction and maintenance of tracks, fences, fire breaks and ecological thinning. Uncontrolled fire does not occur within the proposed offset area. Extent and density of weed cover does not increase in the proposed offset area. Declared restricted invasive species listed under the Queensland *Biosecurity Act 2014* are contained and reduced	A single vehicle access point with locked gate access and a dedicated vehicle access track is proposed to define and control access to the BLEs. No realignment or widening to the vehicle access track is permitted unless for offset area conservation purposes, and no secondary access tracks for BLE access are permitted to be created. Physical barriers such as intermittently placed coarse woody debris along sensitive edges of the track may be installed to discourage offtrack vehicle movement. The proposed BLEs will be buffered by Asset Protection Zones / Bushfire Management Zones to protect any infrastructure within the BLE from bushfire hazard. The Asset Protection Zones / Bushfire Management Zones will be maintained as a primarily turfed area with any vegetation to be sparse and comprised of low flammable species. The Asset Protection Zones / Bushfire Management Zones will be integrated into the Bushfire Management Plan for the offset area to ensure a cohesive approach.	Land Manager, BLE Landholders	Quarterly inspections of all fence lines by the Land Manager (or representative) will monitor and document areas of disrepair requiring maintenance, and evidence of trespass and unauthorised activities. Quarterly inspections will document any evidence of wildfire and will assess fuel loads across the proposed offset area and identify any areas of concern. Quarterly inspections will document any occurrence of new weed species since the previous quarterly inspection. Weed mapping for the proposed offset area will be repeated in conjunction with ongoing habitat quality monitoring. Weed mapping will be included in the Offset Habitat Quality reporting. Quarterly inspections undertaken by the Land Manager (or representative) will monitor and document evidence of dog activity. GPS location and	Evidence of repeated unauthorised vehicle track use or evidence of multiple breaches. The occurrence of uncontrolled wildfire. Non-native plant cover has increased or has failed to meet the interim performance targets, as determined through habitat quality monitoring. A new restricted invasive plant species is detected in the proposed offset area. Domestic dog presence detected	Reinforce access gates and fencing, replacing locks, relocating/installing additional signage and security cameras, installation of soft physical barriers such as logs or rocks at track heads where there is evidence of unauthorised access, and engaging local law enforcement. Emergency services (i.e. rural fire brigade) to be mobilised immediately upon discovery of an un-planned fire to extinguish the fire if possible. Where habitat quality has degraded as a result of inappropriate fire management, a review of the adherence to the Fire Management Plan will be undertaken to determine if there has been a lapse in the implementation of the Plan or if amendment to the plan is necessary. If amendment is necessary, this will be undertaken by an appropriately qualified and experienced fire consultant within 6 months following the habitat quality assessment. Following the event of any uncontrolled fire within the Offset and within one month of the event, the Land Manager or other suitably qualified person will assess all firebreaks and widen if necessary and implement fuel load reduction practices as advised by a fire consultant or suitably qualified ecologist.

Key objective	Management activity	Success criteria	Management actions	Responsible parties	Monitoring and reporting	Trigger for corrective action/s	Corrective action/s and timing
		within the proposed offset area and no new restricted invasive plants are introduced or established. Predation of Koala by domestic dogs is minimised and prevented throughout the proposed offset area.	The width of the APZ / BMZ is 40 m calculated in accordance with the Queensland Government's bushfire clearing exemption buffers for a firebreak included in the Accepted development vegetation clearing code: Clearing for Infrastructure (November 2023): *"On coastal lots and non-coastal lots, clearing for a necessary firebreak to protect infrastructure, other than a fence, road or vehicular track, is exempt clearing work if the maximum width of the firebreak is 1.5 times the height of the tallest vegetation next to the infrastructure, or 20 metres, whichever is wider.* Biosecurity risks associated with the introduction of weeds resulting from private land use within the BLEs will be managed through spatial separation of land uses. Planting of non-endemic species, non-invasive species will be limited to the BLE area and the Asset Protection Zone / Bushfire Management Zone buffer is required to be maintained as sparse native vegetation to limit potential for garden escapees. In addition is the general biosecurity obligation of landholders to manage WONS, Biosecurity Act weeds and locally significant weeds. Domestic dogs that reside within the BLE are not permitted within the offset area. Fauna friendly fencing is proposed around the perimeter of the Asset Protection Zones / Bushfire Management Zones to deter domestic animals, namely domestic dogs, from entering the offset area from the BLE area and further deter casual access.		photos of key areas (e.g. tracks, scats, remains of predated animals) will be recorded. Annual motion detection camera deployment will occur for a minimum of five years to assist detection of domestic dog presence. Formal camera monitoring surveys are to be completed at Years 5, 10, 15 and 20 by an ecologist per baseline survey methodology.	within the offset area.	Increased weed control action will be applied to areas where weed mapping indicates an increase in extent and/or density or where habitat quality monitoring has identified an AU as having failed to meet the respective non-native plant cover interim performance target for the monitoring period. If a new restricted invasive species is detected, immediate (or at most within one month of detection) weed control action will be applied to contain and eradicate the weed from the proposed offset area using appropriate methods for the species as advised by DAF. Additional follow-up maintenance will be undertaken until eradication is achieved. Within one month of monitoring recording domestic dog presence, the Land Manager is to consult with the BLE Land Owner to implement appropriate control measures to prevent future access.

Table 6.6 Offset monitoring program and methodology

Monitoring	Attributes measured	Frequency	Method	Location/s	Responsible party
Habitat Quality Monitoring					
Bio Condition Assessment	• Recruitment of woody perennial species in EDL • Native plant species richness for each of the four lifeforms: - Trees - Shrubs - Grasses - Forbs • Tree canopy height • Tree subcanopy height • Tree canopy cover • Tree subcanopy cover • Shrub canopy cover • Native perennial grass cover • Organic litter • Large trees - Large eucalypts - Large non-eucalypts • Coarse woody debris • Non-native plant cover	In the same month (ideally between March and May) of year 5, 10, 15 and 20 of the offset management period	Site-based assessment and scoring as per *Bio Condition: A Condition Assessment Framework for Terrestrial Biodiversity in Queensland Assessment Manual* v.2.2 (Eyre et al., 2015) using Queensland Herbarium benchmarks version 3.4 (Queensland Herbarium 2024).	At the baseline transects established to inform this OAMP (refer **Figure 3.8**).	Suitably qualified Ecologist as appointed by the Proponent
Koala Site Condition	• Quality and availability of Koala food and foraging habitat • Quality and availability of Koala shelter	In the same month (ideally between March and May) of year 5, 10, 15 and 20 of the offset management period	Measured in conjunction with Bio condition Assessment (i.e. using same plots) and scored according to **Section 5.**	At a sub-set of the baseline transects established to inform this OAMP (refer **Figure 3.8**).	Suitably qualified Ecologist as appointed by the Proponent
Grey-headed Flying-fox Site Condition	• Quality and availability of Grey-headed Flying-fox food and foraging habitat • Quality and availability of Grey-headed Flying-fox shelter	In the same month (ideally between March and May) of year 5, 10, 15 and 20 of the offset management period	Measured in conjunction with Bio condition Assessment (i.e. using same plots) and scored according to **Section 5.**	At the baseline transects established to inform this OAMP (refer **Figure 3.8**).	Suitably qualified Ecologist as appointed by the Proponent
Koala Site Context	• Patch Size for Koala • Connectivity for Koala • Context for Koala • Ecological Corridors • Role of site location to species overall population in the State • Absence of threats • Species mobility capacity	In the same month (ideally between March and May) of year 5, 10, 15 and 20 of the offset management period.	Combination of GIS analysis and site assessment as described in **Section 5.**	Measured across each AU	Suitably qualified Ecologist as appointed by the Proponent
Grey-headed Flying-fox Site Context	• Patch Size for Grey-headed Flying-fox • Connectivity for Grey-headed Flying-fox • Context for Grey-headed Flying-fox • Ecological Corridors • Role of site location to species overall population in the State • Absence of threats	In the same month (ideally between March and May) of year 5, 10, 15 and 20 of the offset management period.	Combination of GIS analysis and site assessment as described in **Section 5.**	Measured across each AU	Suitably qualified Ecologist as appointed by the Proponent
Koala Species Stocking Rate	• Koala presence • Koala usage • Approximate Koala density • Role/importance of Koala population on site	In the same month (ideally between March and May) of year 5, 10, 15 and 20 of the offset management period.	Site assessment as described in **Section 5.**	Measured across each AU	Suitably qualified Ecologist as appointed by the Proponent
Grey-headed Flying-fox Species Stocking Rate	• Grey-headed Flying-fox habitat stem densities	In the same month (ideally between March and May) of year 5, 10, 15 and 20 of the offset management period.	Site assessment as described in **Section 5.**	Measured across each AU	Suitably qualified Ecologist as appointed by the Proponent
Swift Parrot and Regent Honeyeater Habitat Quality	• Key foraging tree densities	In the same month (ideally between March and May) of year 5, 10, 15 and 20 of the offset management period.	Site assessment as described in **Section 5.**	Measured across each AU	Suitably qualified Ecologist as appointed by the Proponent
Koala and Grey-headed Flying-fox Population Assessment					

Monitoring	Attributes measured	Frequency	Method	Location/s	Responsible party
Targeted Koala and Grey-headed Flying-fox surveys	Presence and abundance of Koala and Grey-headed Flying-fox in the proposed offset area, including estimated numbers and location of sightings.	In the same month (ideally between March and May) of year 5, 10, 15 and 20 of the offset management period	For Koala: A combination of direct (e.g. strip transects, thermal drone survey) and indirect observation techniques (e.g. faecal pellet surveys) as described in Youngentob et al. (2021). For Grey-headed Flying-fox: Methodology in accordance with DEWHA (2010).	Across proposed offset area	Suitably qualified Ecologist as appointed by the Proponent
Detailed Weed Mapping					
Weeds	Presence, density and areas of weed cover across the proposed offset area.	In the same month (ideally between March and May) of year 5, 10, 15 and 20 of the offset management period	Weed species, densities and locations of infestations will be recorded based on visual assessment and photos with areas delineated with GPS. Results compiled into a comprehensive map indicating key areas of each dominant weed species for targeted management.	Across proposed offset area	Suitably qualified Ecologist as appointed by the Proponent
Quarterly Inspections					
Suitability of access, security and fencing	• Exclusion of livestock • Security of gates and fencing to prevent unauthorised access • Condition of tracks • Accessibility to fencing, water, and rehabilitation areas • Presence or evidence of unauthorised access (e.g. debris, un-authorised vehicle tracks, camps) • Monitor erosion	Quarterly	All fence lines will be walked to assess for breaks and accessibility. All gates checked and secured with appropriate locks. All vehicle access tracks, driven and checked for encroachment of vegetation, fallen timber, erosion. General visual assessment and incidental observations. Gullys and watercourses to be checked after large wet weather events	Throughout proposed offset area	Land Manager
Unauthorised clearing	Evidence of logging or other unauthorised vegetation removal	Quarterly	General visual assessment across proposed offset area and incidental observations.	Throughout proposed offset area	Land Manager
Grazing	Livestock presence and stocking rates	Quarterly	General visual assessment for presence of livestock and headcounts where appropriate.	Throughout proposed offset area	Land Manager
Fire	• Evidence of wildfire • Assessment of fire fuel loads • Assessment of prescribed ecological burns	Quarterly	General visual assessment across proposed offset area and incidental observations. Assessment of fire fuel loads and prescribed ecological burns as per Bushfire Management Plan.	Throughout proposed offset area	Land Manager
Weeds	• Occurrence of new weed species • Weed control undertaken since the previous quarterly inspection	Quarterly	Visual assessment and photos taken at treatment areas showing before and after treatment. Incidental observations.	Throughout proposed offset area	Land Manager
Domestic/Feral animals	Evidence of domestic/feral animal presence and/or activity	Quarterly	Visual assessment and recording GPS location and photos of key activity areas. Incidental observations.	Throughout proposed offset area	Land Manager
Revegetation Monitoring					
Natural regeneration	• Plant species richness • EDL recruitment, • Non-native plant cover	Bi-annually for the first 5 years through photo monitoring and visual assessment (**Appendix G**)	Site assessment as described in **Section 5.**	Measured across each AU	Suitably qualified Ecologist as appointed by the Proponent
Revegetation	• Plant survival rate • General plant health • Evidence of grazing • Soil moisture • Weed cover • Pest animal damage	In conjunction with initial follow-up maintenance, and at least quarterly for the first five years post-planting and biannually from Years 5 to 10 to track planting progress.	Visual assessment and photo monitoring of entire planting area and total counts or plot-based counts for plant survival rates.	Revegetation areas	Rehabilitation Contractor

Table 6.7. Reporting Requirements

Report	Report details	Prepared by	Submitted to	Reporting period	Due date
Contractor work reports	A daily record of works undertaken by contractors at the Offset property, including rehabilitation works and maintenance (i.e. planting, weed control), pest animal management, and prescribed burning activities. A brief summary of works undertaken including locations and photos where relevant, identification of any issues observed relevant to offset management and recommendations for further works.	Contractors conducting site works at the proposed offset area	Land Manager	Daily during period of works	Within 5 business days of work activity completion.
Quarterly Offset Area Management Report	Documents results of quarterly inspections undertaken by the Land Manager including details pertaining to general offset area maintenance and management and identification of issues to be addressed in the coming monitoring period.	Land Manager	CEPL	Every 3 months from date of legal securement of the offset until end of offset management period.	Within 20 business days of the inspection.
Domestic/Feral Management and control works	Details on detected pest animals (from annual detection camera survey), control efforts employed, total no of baited, trapped, shot individuals over the current 12 month management period. Including identifying population trends based on past reports.	Contractors conducting works	Land manager	Every 12-month period from legal securement of offset until end of offset management period.	Within 20 business days of the survey.
Annual Offset Area Management Report	Details offset area management actions undertaken for the year, including triggers for adaptive management and corrective actions implemented.	CEPL with input from Land Manager and relevant contractors	DCCEEW	Every 12-month period from legal securement of offset until end of offset management period.	Within 20 business days of the anniversary of the commencement of offset.
Compliance Report	Addresses all project approval conditions given in the EPBC Act approval, including relevant details to demonstrate compliance with the offset conditions.	CEPL	DCCEEW	Every 12-month period from approval until end of offset management period.	As conditioned by the EPBC Act approval.
Photo Monitoring Report	Function is to provide regular assessment of the offset area and feedback to engaged rehabilitation contractors to guide on-ground works.	Suitably qualified Ecologist as appointed by the Proponent	DCCEEW	Bi-annually from legal securement of offset for Years 1-5 then five-yearly at Years 10, 15 and 20.	Within 20 business days of completion of survey.
Offset Habitat Quality Report	Details results of Habitat Quality and Key Foraging Tree Monitoring undertaken by a suitably qualified ecologist, including scoring of habitat attributes, key foraging tree calculations and assessment of progress or achievement of habitat quality /key foraging tree targets. The report will identify failure to achieve targets and requirement for corrective actions including specific recommendations to achieve the relevant targets. Detailed weed mapping will also be included in the report along with recommendations for targeted weed treatment in the following monitoring period. The results of the Koala and Grey-headed Flying-fox Population Assessment will also be presented in the report including methodology utilised and discussion around habitat utilisation within the Offset in comparison to baseline surveys and available data from the wider landscape.	Suitably qualified Ecologist as appointed by the Proponent	DCCEEW	In year 5, 10, 15 and 20 of the offset management period.	Within 40 business days from completion of the assessment.

6.8 Expected Improvement

6.8.1 Koala and Grey-headed Flying-fox

Expected improvements in site condition attributes for Koala and Grey-headed Flying-fox resulting from these management actions over 20 years are summarised in **Tables 6.8 and 6.9**, respectively. Expected improvements in site context attributes over 20 years are summarised in **Table 6.10**, while expected improvements in species stocking rate attributes over 20 years are summarised in **Table 6.11**.

Table 6.8. Expected improvements in site condition attributes for Koala after 20 years

Site Attribute(s)	Predicted Improvement
Increased recruitment, plant species richness, tree canopy height, tree cover, shrub cover, native grass cover and organic litter, coarse woody debris and minimal non-native plant cover	By removing cattle access, managing weeds, undertaking supplementary plantings using species and densities appropriate for pre-clear REs, and introducing maintenance and fire regimes appropriate for the pre-clear REs, it is expected these attributes will achieve the maximum scores for all AUs.
Large trees	The number of large trees is expected to be maintained at between 0 and 50% of the benchmark in AUs 1 and 2, and increase to 50-100% of the benchmark after a 20 year timeframe in AUs 3 and 4.
Quality and availability of food and foraging habitat and shelter habitat	It is expected all AUs will achieve remnant status after 20 years, so that these attributes will achieve the maximum scores for all AUs.

Table 6.9. Expected improvements in site condition attributes for Grey-headed Flying-fox after 20 years

Site Attribute(s)	Predicted Improvement
Vegetation condition	It is expected all AUs will achieve remnant status after 20 years, so that this attribute will achieve the maximum score for all AUs.
Species richness and timing of biological shortages	By removing cattle access, managing weeds, undertaking supplementary plantings using species and densities appropriate for pre-clear REs, and introducing maintenance and fire regimes appropriate for the pre-clear REs, it is expected these attributes will achieve the maximum scores for all AUs.
Flower score	By removing cattle access, managing weeds, undertaking supplementary plantings using species and densities appropriate for pre-clear REs, and introducing maintenance and fire regimes appropriate for the pre-clear REs, the average flower is expected to be maintained at the current score in AUs 3 and 4, and increase in AUs 1 and 2 to the same score as AUs 3 and 4 as the vegetation matures.
Quality of foraging habitat	By removing cattle access, managing weeds, undertaking supplementary plantings using species and densities appropriate for pre-clear REs, and introducing maintenance and fire regimes appropriate for the pre-clear REs, the number of significant foraging species is expected to increase from 1-3 species to 4-6 species for all AUs.
Non-native plant cover	By actively managing weeds, it is expected this attribute will achieve the maximum score for all AUs.

Table 6.10. Expected improvement in site context attributes for Koala and Grey-headed Flying-fox after 20 years

Site Attribute	Predicted Improvement
Absence of threats	The maximum score (reflecting a low level of all threats) is expected to be maintained for Grey-headed Flying-fox in all AUs following the removal/replacement of barbed wire fencing, as well as the rehabilitation, management and formal protection of habitats currently impacted by clearing or under threat of clearing. Threats to Koala will be addressed through the rehabilitation, management and formal protection of habitats currently impacted by clearing or under threat of clearing, as well as the ongoing control of pest animal species. However, while this will result in an overall benefit to the local Koala population, a conservative approach has been taken which assumes no change to the baseline threat score for this species.
Species mobility capacity	Koala mobility restrictions will be significantly reduced through the ongoing control of weeds and pest animals and increases in the density and maturity of native vegetation, thereby achieving a high rating.

Table 6.11. Expected improvement in species stocking rate for Grey-headed Flying-fox after 20 years

Site Attribute	Predicted Improvement
Foraging tree density	Over a 20 year period, the expected changes outlined in **Table 6.9** are expected to result in an increase in the cover of regrowth and remnant vegetation across the offset area, and an associated increase in foraging tree density for Grey-headed Flying-fox.

Appendix H provide the results for each habitat quality attribute for Koala and Grey-headed Flying-fox based on the expected score improvements over the life of the offset. A summary of the total predicted habitat quality scores for Koala and Grey-headed Flying-fox are provided in **Tables 6.12** and **6.13**, respectively.

It is noted that, while management actions within AU4 will result in some improvement in habitat quality for Koala, the rounded scores for current Koala habitat quality and final Koala habitat quality in this AU are both 7; hence, this AU will not contribute to the overall offset acquittal for Koala.

Table 6.12. Koala Habitat Quality Targets for the proposed offset area.

Component	AU1	AU2	AU3	AU4
Current Habitat Quality score (out of 10)	5.93	5.26	6.46	6.41
5 year Target Habitat Quality score (out of 10)	6.08	5.41	6.61	6.56
10 year Target Habitat Quality score (out of 10)	6.53	5.51	6.99	6.81
15 year Target Habitat Quality score (out of 10)	6.74	6.67	7.13	7.13
20 year (final) Target Habitat Quality score (out of 10)	**7.13**	**7.13**	**7.28**	**7.28**

Table 6.13. Grey-headed Flying-fox Habitat Quality Targets for the proposed offset area.

Component	AU1	AU2	AU3	AU4
Current Habitat Quality score (out of 10)	4.95	4.34	6.03	5.26
5 year Target Habitat Quality score (out of 10)	5.35	4.75	6.47	5.87
10 year Target Habitat Quality score (out of 10)	6.12	6.12	7.12	6.72
15 year Target Habitat Quality score (out of 10)	7.32	7.32	7.72	7.72
20 year (final) Target Habitat Quality score (out of 10)	**7.72**	**7.72**	**8.32**	**7.72**

6.8.2 Swift Parrot

Key foraging species for Swift Parrot to be reinstated within the offset area include *Corymbia citriodora* (spotted gum) within AUs 1, 2 and 3 and *Eucalyptus tereticornis* (forest red gum) within AU4.

The results of the planting capacity and density analysis for Swift Parrot are provided in **Table 6.14**. Out of the total planting capacity of 112,408 trees, a total of 33,718 are proposed to consist of preferred foraging trees for the Swift Parrot, resulting in a net total of 46,855 preferred foraging trees, to be protected and reinstated as a result of the offset, inclusive of an 80% survival rate of planted preferred foraging trees. This value was inputted as 'future value of the offset' for the OAG.

A Rehabilitation Plan is provided with this analysis to guide on-site planting works (**Appendix G**). The analysis and planting percentages of preferred foraging species is consistent with the Rehabilitation Management Plan to ensure offset actions are completed as proposed in this analysis.

6.8.3 Regent Honeyeater

Key foraging species for Regent Honeyeater to be reinstated within the offset area include *Corymbia citriodora* (spotted gum) within AUs 1, 2 and 3, which will be revegetated in accordance with RE12.9-10.2.

The results of the planting capacity and density analysis for Regent Honeyeater are provided in **Table 6.15**. Out of the total planting capacity of 112,408 trees, a total of 33,694 are proposed to consist of preferred foraging trees for the Regent Honeyeater, resulting in a net total of 37,838 preferred foraging trees, to be protected and reinstated as a result of the offset, inclusive of an 80% survival rate of planted preferred foraging trees. This value was inputted as 'future value of the offset' for the OAG.

A Rehabilitation Plan is provided with this analysis to guide on-site planting works (**Appendix G**). The analysis and planting percentages of preferred foraging species is consistent with the Rehabilitation Management Plan to ensure offset actions are completed as proposed in this analysis.

Table 6.14. Swift Parrot planting capacity analysis

AU	Planting Area	On-ground Status	Planting Rate	Total Tree Plantings	Foraging Species Proportion Planted			Foraging Species Count - Planted	80% Survival Rate	Future Value With Offset
					C. citriodora	*E. tereticornis*	Combined			
AU1	150.01	Paddock to Sparse Regrowth	1/25 m^2	60004	0.30	0	0.30	18001	14401	23407
AU2	44.72	Paddock	1/10 m^2	44720	0.30	0	0.30	13416	10733	12077
AU3	75.9	Dense Regrowth	1/100 m^2	7590	0.30	0	0.30	2277	1822	10930
AU4	9.4	Remnant	1/1000 m^2	94	0	0.25	0.25	24	19	442
TOTAL				**112408**				**33718**	**26974**	**46855**

Table 6.15. Regent Honeyeater planting capacity analysis

AU	Planting Area	On-ground Status	Planting Rate	Total Tree Plantings	Foraging Species Proportion Planted	Foraging Species Count - Planted	80% Survival Rate	Future Value With Offset
					C. citriodora			
AU1	150.01	Paddock to Sparse Regrowth	1/25 m^2	60004	0.30	18001	14401	15151
AU2	44.72	Paddock	1/10 m^2	44720	0.30	13416	10733	11853
AU3	75.9	Dense Regrowth	1/100 m^2	7590	0.30	2277	1822	10740
AU4	9.4	Remnant	1/1000 m^2	94	0	0	0	94
TOTAL				**112408**		**33694**	**26995**	**37838**

7.0 OFFSET ASSESSMENT

7.1 Offset Assessment Guide Results

The habitat scores and habitat features totals derived for the impact site and proposed offset property have been used to assess whether the proposed offset property could be viewed as suitable in respect to meeting the offset obligation for the proposed action, using the Commonwealth's Offset Assessment Guide calculator. Values for the other parameters used in the calculator are summarised in **Tables 7.1 and 7.2**.

Using these values, protection and management of the entire property for offsetting purposes accounts for **27.06%** of the offset requirement for Koala, **63.44%** of the offset requirement for Grey-headed Flying-fox, **54.58%** of the offset requirements for Swift Parrot and **54.96%** of the offset requirements for Regent Honeyeater, in accordance with the Offset Assessment Guide, as presented in **Appendix I** and summarised in **Table 7.3**.

Table 7.1. Values for Offset Assessment Guide Parameters (Koala and Grey-headed Flying-fox)

Parameter	Scoring Rationale
Quantum of Impact (Area)	89.6 ha for Koala, 89.6 ha for Grey-headed Flying-fox
Quantum of Impact (Quality)	7 for Koala, 7 for Grey-headed Flying-fox (as per **Table 2.1**)
Risk Related Time Horizon	The proposed offset area will be legally secured in perpetuity; hence, the maximum score of 20 years.
Time Until Ecological Benefit	Measures prescribed in this Offset Area Management Plan are expected to achieve the predicted increase in habitat quality over a period of 20 years.
Start Area	280.2 ha
Start Quality	Refer **Table 7.3**
Risk of Loss without Offset	It is understood risk of loss is to be set at 0% without any comprehensive evidence to the contrary.
Risk of Loss with Offset	It is understood risk of loss is to be set at 0% without any comprehensive evidence to the contrary.
Confidence in Result (Risk of Loss)	As risk of loss is set at 0%, a high score of 90% is used for confidence in result.
Future Quality without Offset	Existing habitat quality is expected to be maintained if the current land use / management regime is continued, Under management for grazing over 20 years and without the offset, current habitat quality for Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater is unlikely to improve, and some attributes may deteriorate where regrowth is subject to periodic clearing for cattle grazing and/or maintenance/fire regimes that are not compatible with ecosystem improvement are employed.
Future Quality with Offset	Refer **Table 7.3**
Confidence in Result (Future Quality)	75% for non-remnant AUs and 85% for remnant and regrowth AUs

Table 7.2. Values for Offset Assessment Guide Parameters (Swift Parrot and Regent Honeyeater)

Parameter	Scoring Rationale
Quantum of Impact	9,983 habitat features for Swift Parrot and 9,868 habitat features for Regent Honeyeater
Risk Related Time Horizon	The proposed offset area will be legally secured in perpetuity; hence, the maximum score of 20 years.
Start Value	Refer **Table 7.3**

Parameter	Scoring Rationale
Future Value without Offset	The number of habitat features is expected to be maintained at current levels if the current land use / management regime is continued. Under management for grazing over 20 years and without the offset, the number of habitat features for Swift Parrot and Regent Honeyeater is unlikely to improve, as regrowth is subject to periodic clearing for cattle grazing and/or maintenance/fire regimes that are not compatible with ecosystem improvement are employed.
Future Value with Offset	Refer **Table 7.3**
Confidence in Result (Future Quality)	75% for regrowth and cleared AUs (AUs 1 and 2); 85% for remnant AUs (AUs3 and 4)

Table 7.3. Summary of Offset Obligation Percentages

Koala				
Quantum of impact = 89.6 ha	**AU 1 (150.1 ha)**	**AU 2 (44.8 ha)**	**AU 3 (75.9 ha)**	**AU 4 (9.4 ha)**
Current Habitat Quality score (rounded - out of 10)	6	5	6	6
20 year (final) Target Habitat Quality score (rounded - out of 10)	7	7	7	7
AU % of Offset Obligation	**12.07**	**7.21**	**6.92**	**0.86**
Total % of Offset Obligation	**27.06**			
Grey-headed Flying-fox				
Quantum of impact = 89.6 ha	**AU 1 (150.1 ha)**	**AU 2 (44.8 ha)**	**AU 3 (75.9 ha)**	**AU 4 (9.4 ha)**
Current Habitat Quality score (rounded - out of 10)	5	5	6	5
20 year (final) Target Habitat Quality score (rounded - out of 10)	8	8	8	8
AU % of Offset Obligation	**36.22**	**10.81**	**13.84**	**2.57**
Total % of Offset Obligation	**63.44**			
Swift Parrot				
Quantum of impact = 9,983 habitat features	**AU 1 (150.1 ha)**	**AU 2 (44.8 ha)**	**AU 3 (75.9 ha)**	**AU 4 (9.4 ha)**
Start value / Future Value without Offset*	8,899	523	9,108	423
Future Value with Offset**	23,407	11,255	10,930	442
AU % of Offset Obligation	**29.24**	**21.63**	**3.67**	**0.04**
Total % of Offset Obligation	**54.58**			
Regent Honeyeater				
Quantum of impact = 9,868 habitat features	**AU 1 (150.1 ha)**	**AU 2 (44.8 ha)**	**AU 3 (75.9 ha)**	**AU 4 (9.4 ha)**
Start value / Future Value without Offset*	214	149	8,918	94
Future Value with Offset**	14,615	10,882	10,740	94
AU % of Offset Obligation	**29.36**	**21.88**	**3.71**	**0**
Total % of Offset Obligation	**54.96**			

Note:

**Start value / Future value without offset* inputted as the existing number of non-juvenile preferred foraging trees.

***Future value with offset* inputted as net total of preferred foraging trees (*i.e.,* number to be planted + number of existing) inclusive of an 80% survival rate of preferred foraging trees planted.

7.2 Offset Suitability

7.2.1 Commonwealth Environmental Offsets Policy

The implementation of this OAMP will enhance Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat through improvements to habitat, reduction in key threats and provision of shelter. Management objectives were developed to reflect the requirements of the Commonwealth's Environmental Offsets Policy (Commonwealth of Australia [2012]), as outlined in **Table 7.4**.

Sections 7.2.2-7.2.6 discuss the relevant Conservation Advices, Recovery Plans and Threat Abatement Plans for the protected matters (as at March 2025) and describe how the proposed offset addresses each.

Table 7.4. Assessment Against the Commonwealth's Environmental Offsets Policy

Offset Principle	Offset Strategy Compliance
Deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law	The offset area will deliver a conservation gain for the Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater through: a) Committing to a total offset area of 280.2 ha as part compensation for impacts to 128 ha of vegetation. This offset will: 1. Transition 45 ha of open paddocks to remnant Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat with foraging and breeding resources. 2. Prevent the clearing of 150.1 ha of immature regrowth and expand this large area with intensive revegetation and assisted natural regeneration. 3. Retain, de-weed and expand the flora species occurring along the alluvial soils of the creeks and drainage lines. 4. Protect and improve species diversity and ecosystem integrity through existing remnant vegetation areas. b) Lock in a large area of remnant vegetation which adjoins mapped areas to the south and east, forming a large-scale patch in an area known to support Koala populations. c) Prepare and fund an Offset Area Management Plan with actions to reduce and manage threats to Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater in protected and created habitat areas. d) Averting the direct and indirect losses of large areas of unprotected habitat via declaring the land a Voluntary Declaration area for High Value Conservation under the *Vegetation Management Act 1999*. This removes future wholesale and selective clearing rights.
Be built around direct offsets but can include other compensatory measures	The Offset area includes legally securing the land area and undertaking necessary improvements as part compensation for impacts of the Cherish Enterprises Springfield Residential Development Project on Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat. The offset area is wholly achieved through direct delivery to land and, importantly, is owned and controlled by the proponent, who will also be the approval holder. This provides a direct link between the Department and the offset land rather than through a third-party commercial agreement.
Be in proportion to the level of statutory protection that applies to the protected matter	At the time of referral, Koala and Grey-headed Flying-fox were scheduled within the EPBC Act as 'Vulnerable', and the Swift Parrot and Regent Honeyeater were scheduled as 'Critically Endangered'. Under the International Union for Conservation of Nature data the probability of annual extinction is 0.2% and 6.8%, respectively. This factor applies through the meta data of the Offset Guide assessment calculation sheets for which each species has been assessed as achieving a portion of the required offset through the proposed offset area.
Be of a size and scale proportionate to the residual impacts on the protected matter	Direct and indirect impacts for the protected matters have been calculated at the impact site using the Modified Habitat Quality Assessment (MHQA) for the Koala and the Foraging Habitat Assessment methods for Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater. Within the Assessment Guide calculator, the Quantum Impact for the Springfield Residential Development Project's Villages 2 and 3 area of each species is listed as: • Koala (89.6 ha) • Grey-headed Flying-fox (89.6 ha)

Offset Principle	Offset Strategy Compliance
	• Swift Parrot (9,983 habitat features) • Regent Honeyeater (9,868 habitat features) To achieve an offset for these impacts, the offset area provides a direct land-based outcome of 280.2 ha, combing both the reinstatement of new habitat with the strong regrowth and remnant values already supporting existing and emerging levels of habitat. Management actions outlined within this OAMP aim to protect and enhance Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat, compensating for and exceeding the habitat quality of the impact area. The offset and management actions will provide: • Legally secured and long-term protection of 280.2 ha of Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat. • Improvement of habitat through revegetation and natural regeneration of food and foraging trees, supporting large tree growth, and removal of weeds. • Contribution to a large contiguous protected habitat with reduced threats. • Long-term reduction in threats, through the removal of incompatible land uses, such as ongoing high density grazing, inappropriate fencing, unregulated fire regimes and landscape wide targeted pest suppression. • Reduced risk of fauna mortality or injury through control of non-native predators. • Reduced risk to fauna through retro-fitted fencing. • Reduced risk of high intensity fire through management of fuel loads. • Reduced risk of the spread of diseases and/or pathogens. The proposed offset achieves part compensation for impacts of the Cherish Enterprises Springfield Residential Development Project on Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat, as determined by the Commonwealth's offset assessment guide.
Effectively account for and manage the risks of the offset not succeeding	Confidence in the success of the offset is high (≥75%) given the detail and intensity of the management actions outlined within this OAMP. The confidence is supported by the offset area selection, design of management actions, and recommended monitoring and reporting procedures. Non-remnant vegetation areas across the offset areas are considered to have a lower confidence level than remnant and high value regrowth areas, reflecting the potential risks relating to higher levels of disturbance, revegetation processes and plant stock success/failure rates, and natural events. Risks associated with the offset delivery will be mitigated and managed through the detailed management actions outlined in **Section 6**. Management actions have been drawn from offset targets which aim to protect and conserve large, connected areas of Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat to support viable populations. Potential risks are assessed in **Section 8.0.** Importantly, the Cherish Esk offset area is owned by Cherish Enterprises Pty Ltd: the proponent for EPBC 2019/8575 and the ultimate Approval holder. The conditions of approval relating to the Esk Offset area will directly link the Department to the land via the mutually complimentary offset and development landowner. This removes risks associated with third party commercial agreements and or disagreements with commercial terms.
Be additional to what is already required, determined by law or planning regulations, or agreed to under other schemes or programs	The Cherish Enterprises Springfield Residential Development Project is located within the Greater Springfield Master Planned Area. There are few environmental controls at the impact site, with the Queensland Government's *Environmental Offset Act 2014* not being applicable. The offset land is owned in freehold by Cherish Enterprises in a high productive rural land area. Approximately 65% of the landholding contains no Local or State Government controls for the ongoing clearing of vegetation. The land is currently under agistment for horse paddocks by the adjoining land holder. Cherish Enterprises has received offers to purchase the land by adjoining rural land holders who maintain their land in a cleared state. Legally securing the offset areas for the duration of the impact will ensure existing and future owners are prohibited from conflicting land uses, including clearing and high-density grazing. Management beyond minimum legislative requirements is proposed across the whole area to ensure loss of habitat values does not occur through intensification of weeds causing loss of

Offset Principle	Offset Strategy Compliance
	connectivity, destruction of habitat via hot intensive fires, increased risk of mortality or injury by predators and inappropriate fencing. Without the triggering of the EPBC Act and the Controlled Action Assessment, no offsets would be required for the Springfield Residential Development Project and, importantly, no VDEC or offset works would occur at the Esk offset area.

Be efficient, effective, timely, transparent, scientifically robust and reasonable	Efficient and Effective:
	• The offset area is large and located within a contiguous landscape of connected Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat. Management actions will ensure efficient delivery of outcomes over the offset area and proactive management, monitoring and reporting will ensure response/corrective actions are timely and focused.
	• Prior to the EPBC Act process, the offset area was not protected or managed for conservation outcomes. Protection and management of the offset area in accordance with this OAMP aims to deliver an overall improved conservation outcome and net gain in Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat.
	Timely:
	• The Cherish Esk offset area will be legally secured prior to the commencement of any works at the Springfield Residential Development Project. Offset works will be programmed to commence upon legally securing the offset land. As the Springfield Residential Development Project is large and multi-staged, offset actions will be occurring well in advance of the majority of the impact.
	• The mix of remnant, regrowth and non-remnant vegetation provided within the offset areas allows for the achievement of immediate and long-term conservation outcomes. The offset areas are to be legally secured prior to the commencement of the action, and this will remove the risk of conflicting land uses occurring on the sites. Following the approval of this OAMP and approval of the action, management actions outlined within **Section 6** will commence. Adaptive management processes will ensure management actions respond to technology improvements, natural events and potential risks identified in the risk assessment.
	Transparent:
	• The baseline surveys established the survey methodology to be used for the monitoring and reporting required for the lifetime of the approval. A clear monitoring and reporting framework is established within this OAMP (refer to **Section 6.6**). Monitoring and reporting of the offset areas will be summarised within the Annual Compliance Reports for the impact action.
	Scientifically robust:
	• The proposed offset area was assessed by qualified and experienced Ecologists. Ongoing management and monitoring actions will be conducted in collaboration with other qualified Ecologists and regeneration specialists to achieve the outcomes specified within the EPBC Act approval and this OAMP.
	• The baseline surveys conducted for the offset areas are scientifically robust, reliable and repeatable, ensuring the monitoring and compliance reporting are consistent and relate back to the overall outcomes specified within the EPBC Act approval.
	Reasonable:
	• The offset is considered reasonable as the offset areas are greater than the significant residual impact on Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat and compensate for:
	  ○ 27.06% of the quantum impact for the Koala,
	  ○ 63.44% of the quantum impact for Grey-headed Flying-fox,
	  ○ 54.58% of the impact for the Swift Parrot, and
	  ○ 54.96% of the impact for the Regent Honeyeater.
	• This OAMP outlines appropriate management actions to achieve the offset outcomes specified within the EPBC Act approval and an overall improved conservation outcome

Offset Principle	Offset Strategy Compliance
	and net gain in Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat, ensuring the long-term viability of the protected matters.
Have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced	This OAMP provides a detailed monitoring and reporting framework (refer to **Section 6.6**), performance criteria and corrective actions. These provide minimum requirements for success/failure of management actions and triggers for corrective actions. The Proponent will engage qualified and experienced consultants and specialists throughout the offset delivery to ensure the offset outcomes are achieved. Section 491 of the EPBC Act makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. As such, engaged consultants and specialists are required to complete a declaration of accuracy in reports provided to the Department, acknowledging their responsibility and accountability for information provided to the Department. The approved Offset Area Management Plan will be retained on the Springfield Residential Development or Cherish Website, available for public access. Achievement of the OAMP will be measured through the Annual Compliance Reports which must be published on the Proponent's website in accordance with an EPBC Act approval and may be subject to audit by the Department by an independent auditor in accordance with section 458 of the EPBC Act, and/or used to verify compliance with the conditions. Summaries of the result of an audit may be published on the Department's website or through the general media.

7.2.2 Koala Conservation Advice

The Conservation Advice for *Phascolarctos cinereus* (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory came into effect on 12 February 2022 (DAWE 2022a). It lists six conservation and recovery actions that are categorised into 'supporting strategies', which provide for governance to coordinate actions, led by the Australian Government in partnership with the States and Territories, and 'on-ground (direct) strategies' that relate to improving habitat quality and restoration, implemented at the site level.

The proposed offset is considered to be consistent with Strategy 5 in the Conservation Advice: Strategic habitat restoration.

Restoration increases the habitat available for Koalas and can increase the connectivity between areas of habitat to contribute to ensuring the long-term survival of Koala populations. It involves restoring lost and degraded habitat to improve environmental functions. Notably, 280.2 ha of offset land will be secured and rehabilitated providing significant uplift in restored Koala habitat.

7.2.3 Koala National Recovery Plan

The National Recovery Plan for the Koala *Phascolarctos cinereus* (combined populations of Queensland, New South Wales and the Australian Capital Territory) also came into effect in 2022 (DAWE 2022b). The goal of the Recovery Plan is to stop the trend of decline in population size of the listed Koala, by having resilient, connected and genetically healthy metapopulations across its range, and to increase the extent, quality and connectivity of habitat occupied.

In particular, Objective 1 states the area of occupancy and estimated size of populations that are either:

a) suspected to be declining, or predicted to decline are instead stabilised then increased, or
b) suspected and predicted to be stable are maintained or increased.

The proposed offset address the objective of the National Recovery Plan for the Koala stated above by protecting and restoring Koala vegetation in a landscape that is at threat of further clearing, degradation and

fragmentation by pastoral land-use. The majority of the proposed offset area has been cleared for cattle grazing purposes. Restoration and management of cleared areas, regrowth and remnant vegetation on the property as a Koala offset, including the introduction of burning practices to improve ecological condition, control of invasive Lantana and removal of wild dogs, will provide opportunity for natural levels of canopy tree recruitment. The subsequent reconnection of currently vegetated hillslopes to valuable riparian habitat within the property will provide increased habitat values and safer movement opportunities for Koalas.

7.2.4 Grey-headed flying-fox National Recovery Plan

The purpose of the National Recovery Plan for the Grey-headed Flying-fox *Pteropus poliocephalus* (DAWE 2021) is to set out the management and research actions necessary to stop the decline of, and support the recovery of, the Grey-headed Flying-fox over the next 10 years. The overall objectives of this recovery plan include improving the Grey-headed Flying-fox's national population trend by reducing the impact of the threats outlined in this plan on Grey-headed Flying-foxes through habitat identification, protection, restoration and monitoring.

A key recovery objective is to identify, protect and increase native foraging habitat that is critical to the survival of the Grey-headed Flying-fox. The proposed offset will increase the available foraging habitat for the species, particularly during winter and spring, thereby addressing Priority Action 1.4: Increase the extent and viability of foraging habitat for the Grey-headed Flying-fox that is productive during winter and spring.

7.2.5 Swift Parrot National Recovery Plan

The overall objective of the National Recovery Plan for Swift Parrot *Lathamus discolor* (DCEEW 2024) is to prevent further population decline of the Swift Parrot and to achieve a demonstrable sustained improvement in the quality and quantity of Swift Parrot habitat to increase carrying capacity. These objectives will be achieved by implementing recovery actions for each of the recovery objectives, including:

- Objective 2: To implement management strategies to protect and improve habitats and sites on all land tenures.
- Action 2 - Manage and protect Swift Parrot habitat at the landscape scale.

Approximately 280.2 ha of remnant, regrowth and grassland areas will be legally secured and rehabilitated to protect and enhance the quality of foraging habitat available for the Swift Parrot. Notably, at least two (2) preferred foraging tree species on which the Swift Parrot feeds, (*Corymbia citriodora* and *Eucalyptus tereticornis*), are endemic to and currently growing within the offset property.

7.2.6 Regent Honeyeater National Recovery Plan

The objectives of the National recovery Plan for Regent Honeyeater *Anthochaera phrygia* (DotE 2016) are to:

- Reverse the long-term population trend of decline and increase the numbers of Regent Honeyeaters to a level where there is a viable, wild breeding population, even in poor breeding years; and to
- Enhance the condition of habitat across the Regent Honeyeater range to maximise survival and reproductive success, and provide refugia during periods of extreme environmental fluctuation.

The strategies to achieve the plans' objectives include improving the extent and quality of Regent Honeyeater habitat.

Rehabilitation of degraded areas within the offset area where foraging habitat was once present =, as indicated by surrounding habitat and pre-clear vegetation, will improve Regent Honeyeater foraging values within the offset area. Notably, at one (1) preferring foraging tree species on which the Regent Honeyeater feeds (*Corymbia citriodora*) is endemic to, and currently growing within, the offset property. The offset property also

supports a variety of mistletoe species on remnant eucalypt vegetation, of which Regent Honeyeater feed on both nectar and fruit.

8.0 RISK ANALYSIS

This section considers the risks that may inhibit achieving the management objectives and completion criteria for the proposed offset area, including risks that may be wholly outside the proponent's control. The risks have been assessed against the Risk Matrix in **Table 8.1**, supplied by DCCEEW. The risk analysis provided in **Table 8.2**:

- Identifies events and threats that will, may, or are likely to impact the attainment of the completion criteria.
- Assesses the likelihood and consequences of those events and threats eventuating, both before and after risk controls are applied, and assesses residual risk levels.
- Identifies levels of uncertainty in mitigating the risks, with appropriate trigger criteria for corrective actions should risks and threats eventuate.

Table 8.1. Risk Matrix

Qualitative measure of likelihood (how likely is it that this event/circumstances will occur after management activities are implemented)	
Highly Likely	Is expected to occur in most circumstances
Likely	Will probably occur during the life of the project
Possible	Might occur during the life of the project
Unlikely	Could occur but considered unlikely or doubtful
Rare	May occur in exceptional circumstances
Qualitative measure of consequences (what will be the consequence/result if the issue does occur)	
Critical	Severe, widespread loss of environmental amenity and irrecoverable environmental damage (e.g. plan objectives are unable to be achieved, with no evidenced mitigation strategies)
Major	Major loss of environmental amenity and real danger of continuing (e.g. plan objectives are unlikely to be achieved, with significant legislative, technical, ecological and/or administrative barriers to attainment that have no evidenced mitigation strategies)
High	Substantial instances of environmental damage that could be reversed with intensive efforts (e.g. medium-long term delays to achieving objectives, implementing uncertain, high cost/effort corrective actions)
Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts (e.g. short-term delays to achieving plan objectives, implementing well-characterised, high-cost/effort corrective actions)
Minor	Minor incident of environmental damage that can be reversed (e.g. short-term delays to achieving plan objectives, implementing low-cost, well characterised corrective actions)

		Consequence				
		Minor	Moderate	High	Major	Critical
Likelihood	Highly Likely	Medium	High	High	Severe	Severe
	Likely	Low	Medium	High	High	Severe
	Possible	Low	Medium	Medium	High	Severe
	Unlikely	Low	Low	Medium	High	High
	Rare	Low	Low	Low	Medium	High

Table 8.2. Risk Analysis

Risk Event	Risk Description	Initial Risk Rating*			Management Measures / Actions	Residual Risk Rating*			Performance Criteria	Management Triggers	Corrective Actions	Monitoring Mechanism
		L	C	R		L	C	R				
***Force Majeure* Events**												
Drought	Extreme weather event, in the form of drought, causes habitat degradation and restoration challenges	Likely	High	High	Commence any necessary rehabilitation/ restoration actions in locations where there is greatest spring-fed water availability (e.g. creek flood zones and lower slopes), building outwards from these areas to take advantage of improved microclimatic conditions (reduced solar radiation and wind, increased humidity) from increased tree cover. Alternately as some of the open grassland areas are not in proximity to water points revegetation focus (both assisted and unassisted) is to expand outwards from existing patches of vegetation (not planted in an island isolation style).	Likely	Moderate	Medium	Tree and/or sapling mortality in rehabilitation/ restoration areas is <10%	Rainfall is ≤25% of monthly averages over three months. Tree and/or sapling mortality in rehabilitation/ restoration areas is >10%.	Undertake supplemental watering of rehabilitation/ restoration areas Mulch any planted tube stock to assist in soil water retention	On a quarterly basis, examine monthly rainfall records and long-term forecasts. Monitor tree and sapling mortality in rehabilitation areas monthly during periods of drought. Monitor onsite dam, spring and bore levels monthly during periods of drought to inform available quantities for supplemental watering if required.
Cyclones/ Severe tropical lows / Flooding	Extreme weather event, in the form of severe storms and/or flooding, causes habitat degradation	Likely	Moderate	Medium	Restrict all stock access from riparian areas. Control feral animals(that contribute to soil destabilisation (pigs, etc) Mitigate ongoing erosion Understand on-site flood areas and select species for revegetation accordingly. Improve all-weather access if flooding could potentially restrict management access. Provide drainage (culverts) on access tracks where they are intersected by flows from spring water.	Likely	Minor	Low	All rehabilitation/ restoration areas are accessible following flooding or storms. Vegetation remains intact and healthy.	Increased instance of gully erosion in watercourses and channel depressions Tracks are not trafficable. Vegetation is impacted at minor to moderate levels. Weed establishment due to flooding is present.	Repair erosion through measures available including engineering and revegetation options (creating interceptor banks, revegetation of perennials across directional flows etc) Repair management tracks as soon as possible. Assess and replace rehabilitation/ restoration area vegetation damaged by storms and/or flood. Increase weed management if required.	Map and monitor erosion points incurring into rehabilitation/restoration sites - Establish an erosion management plan Establish and maintain flooding maps for the property by using available data and map flood levels following high rainfall events. Monitor tree and sapling mortality in any rehabilitation/ restoration areas post event. Monitor weed cover as per schedule to identify new infestations that require control measures.
Severe Fire Event	Catastrophic bushfire causes habitat loss/degradation	Likely	Critical	Severe	Fire breaks reformed every 2 years and slashed every 2 months in winter and every month in summer. Develop a wildfire response procedure. Undertake planned burns in accordance with the Fire Management Plan and consultation with neighbours, Council and the Rural Fire Brigade. Undertake cool burns only in young rehabilitated areas	Possible	Major	High	Dry Matter Yield is below recommended levels (as per Bushfire Management Plan) at the beginning and end of the Dry Season (January/May)	Fire breaks not sufficiently clear. Dry Matter Yield is above recommended levels (as per Bushfire Management Plan) at the beginning and end of the Dry Season (January/May)	Increased fire break inspection and maintenance. Undertake further fuel reduction burns if required and safe to do so considering habitat recovery and fauna targets. Implement other measures in accordance with the Fire Management Plan	Monitor local fire recommendations and regional plans, particularly in comparison to the Fire Management Plan. Quarterly inspection of fire breaks/fire control lines. Dry Matter Yield estimates undertaken within each AU at the beginning of the Dry Season. Undertake other monitoring as specified in the Bushfire Management Plan.
Standard Risks												
The offset failing (regardless of cause)	Failure to achieve completion criteria	Possible	High	Medium	Implement the management actions of the Final Offset Area Management Plan	Rare	High	Low	Interim completion criteria achieved	Failure to achieve the 5-yearly interim completion criteria	In the event of failure of the offset to achieve an interim or completion criteria, the proponent will undertake an independent audit of the offset area to establish the reason. The proponent will then work with DCCEEW to either extend the management period until the completion criteria are	Monitor and report regularly on attainment of interim environmental performance targets

Risk Event	Risk Description	Initial Risk Rating*			Management Measures / Actions	Residual Risk Rating*			Performance Criteria	Management Triggers	Corrective Actions	Monitoring Mechanism
		L	C	R		L	C	R				
											achieved or provide a replacement offset. Any replacement offset must be agreed with DCCEEW within 24 months of the complete failure of the offset becoming apparent.	
Unplanned clearing and illegal access causing habitat degradation (i.e. Illegal timber harvesting/ collection, Illegal access by the public causes habitat degradation and increases fire risk)	Unplanned clearing / illegal access causes loss of trees and reduced habitat quality	Possible	Moderate	Medium	Clearing of native vegetation in the offset area is only permitted where it would result in a benefit for Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater. Suitable fencing and signage of property to prevent access from unauthorised personnel.	Rare	Minor	Low	No unplanned clearing is carried out	Evidence of unplanned clearing / illegal timber harvesting. Damage to fencing allowing access.	Investigate cause of unplanned clearing and advise DCCEEW of impacts to interim and completion criteria. Identify the chain of events that led to unplanned clearing and implement procedures to prevent future incidents. Report illegal access to the proponent, DCCEEW and police. Fence repair and increased prevention of access.	Quarterly inspections of the property, including fence lines and management tracks.
Unplanned / uncontrolled fire in offset area or inappropriate fire regimes	Uncontrolled fire and inappropriate fire regimes causes loss of biodiversity and habitat quality	Likely	Critical	Severe	Fire breaks reformed every 2 years and slashed every 2 months in winter and every month in summer. Develop a wildfire response procedure. Undertake planned burns in accordance with the Fire Management Plan and consultation with neighbours, Council and the Rural Fire Brigade. Undertake cool burns only in young, rehabilitated areas	Rare	Moderate	Low	Dry Matter Yield is below recommended levels (as per Bushfire Management Plan) at the beginning and end of the Dry Season (January/May)	Fire breaks not sufficiently clear. Dry Matter Yield is above recommended levels (as per Bushfire Management Plan) at the beginning and end of the Dry Season (January/May)	Increased fire break inspection and maintenance. Undertake further fuel reduction burns if required and safe to do so considering habitat recovery and fauna targets. Implement other measures in accordance with the Fire Management Plan	Monitor local fire recommendations and regional plans, particularly in comparison to the Fire Management Plan. Quarterly inspection of fire breaks/fire control lines. Dry Matter Yield estimates undertaken within each AU at the beginning of the Dry Season. Undertake other monitoring as specified in the Bushfire Management Plan.
New infestations of invasive weed species in the offset area.	New weed incursion causes loss of habitat quality	Likely	High	High	Control the spread of new infestation/s. Control feral animal vectors (deer, etc) Treat new infestation/s promptly to reduce the extent and spread of the infestation.	Possible	Moderate	Medium	No new infestations identified	New presence or increased spread of weeds	Consult with local NRM Catchment Group, Healthy Land and Water, Council and DAF to determine the invasiveness of the weed and tested/ recommended control measures. Perform appropriate weed control.	Quarterly inspections of the property, including fence lines and management tracks by a person suitably experienced to distinguish the presence of weed species. GPS the location and record the characteristics of the new weed infestation, photograph and collect a specimen for identification (if required). Map the extent of the infestation prior to and post control. Continue to monitor quarterly. Quarterly inspections and annual offset implementation reports, and 5 yearly ecology surveys and reports.
Expansion of existing infestations of invasive weed species in the offset area	Weeds reduce habitat quality and provide challenges for new recruitment of canopy tree species	Highly likely	High	High	Undertake weed mapping for the property and reporting on the potential for individual weed species to isolate Koala resources and/or prevent or supress recruitment of canopy tree species. Target those species in management actions. Investigate biocontrol and other methods for Lantana management in consultation with DAF.	Likely	Moderate	Medium	Reduction in the extent of target weeds Control or reduction of spread of non-target weeds.	Increase in the extent of target weeds	Increase management actions to control target weeds.	Update weed mapping annually to track target and other weed distribution/ extent.

Risk Event	Risk Description	Initial Risk Rating*			Management Measures / Actions	Residual Risk Rating*			Performance Criteria	Management Triggers	Corrective Actions	Monitoring Mechanism
		L	C	R		L	C	R				
Increased population of feral dogs in the offset area	Feral dogs are a major threat to Koala individuals and populations	Highly likely	High	High	Implementation pest animal control program	Possible	Minor	Low	Number of individuals supressed.	Dog predation on Koalas detected.	Increased monitoring and management of feral animals	Quarterly inspections of the property. Undertake other monitoring as specified in the pest animal control program
Increased population of feral animals in the offset area	Increased feral animals (e.g. pig, deer, etc.) can cause habitat degradation and reduction in target vegetation recruitment	Possible	Moderate	Medium	Implementation pest animal control program	Possible	Minor	Low	Number of individuals supressed.	Increased feral animal numbers Damage from feral animals on vegetation apparent.	Increased monitoring and management of feral animals	Quarterly inspections of the property. Undertake other monitoring as specified in the pest animal control program
Fencing inappropriate for the safety of Grey-headed Flying-fox	Continued use of barbed-wire fencing presents a threat of entanglement to Grey-headed Flying-fox	Possible	Minor	Low	Replace barbed wire fencing with standard wire fencing as fencing needs replacing	Possible	Minor	Low	Meters of fencing replaced	Recorded incidents of Grey-headed Flying-fox entanglement	Replace sections of barbed wire fencing where entanglement is recorded and risk is considered high for future incidents	Quarterly inspections of the fence lines.
Grazing in offset area	Grazing causes biodiversity loss, a reduction in habitat quality and reduction in target vegetation recruitment	Possible	High	Medium	Exclude livestock from the offset area.	Unlikely	Minor	Low	There is no cattle grazing in the offset area.	Cattle present in offset area.	Remove cattle and fix fencing as required.	Quarterly inspections of exclusion fencing and cattle presence.

9.0 Security Mechanism

Prior to the commencement of the action, the offset area will be legally secured via a Voluntary Declaration administered under the Queensland *Vegetation Management Act 1999*.

The offset site will then be permanently secured via a legal mechanism that is approved by the Land Holder and the Department. Draft terms of the permanent legal mechanism will be submitted for approval within 18 months of commencement of the action. Within 12 months of approval of the draft terms, the offset site must be permanently secured.

10.0 References

BoM (2025). Climate Data Online. Bureau of Meteorology, Canberra: Commonwealth of Australia.

Chenoweth EPLA and Bushland Restoration Services (2012). South East Queensland Ecological Restoration Framework: Guideline. Prepared on behalf of SEQ Catchments and South East Queensland Local Governments, Brisbane.

Commonwealth of Australia (2012). Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy, October 2012.

DAWE (2021). National Recovery Plan for the Grey-headed Flying-fox *'Pteropus poliocephalus'*. Department of Agriculture, Water and the Environment, Canberra: Commonwealth of Australia.

DAWE (2022a). Conservation Advice for *Phascolarctos cinereus* (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory. Canberra: Department of Agriculture, Water and the Environment.

DAWE (2022b). National Recovery Plan for the Koala *Phascolarctos cinereus* (combined populations of Queensland, New South Wales and the Australian Capital Territory. Department of Agriculture, Water and the Environment, Canberra: Commonwealth of Australia.

DCCEEW (2024). National Recovery Plan for the Swift Parrot (*Lathamus discolor*), Department of Climate Change, Energy, the Environment and Water, Canberra.

DEWHA (2010). Survey Guidelines for Australia's Threatened Bats: Guidelines for Detecting Bats Listed as Threatened under the *Environment Protection and Biodiversity Conservation Act 1999*. Commonwealth of Australia, Canberra.

DotE (2016). National Recovery Plan for the Regent Honeyeater (*Anthochaera phrygia*), Commonwealth of Australia .

DSEWPC (2012). How to use the offsets assessment guide. Australian Government, Canberra, Australia.

EHP (2014). 'Guide to determining terrestrial habitat quality - A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy.

Eby, P. and Law, B. (2008). Ranking the feeding habitats of Grey-headed Flying-foxes for conservation management. A report for the Department of Environment and Climate Change and Water (NSW) & the Australian Department of Environment, Water, Heritage and the Arts.

Eby, P., Sims, R. and Bracks, J. (2019). Flying-fox Foraging Habitat Mapping NSW: a seamless map for assessing temporal and spatial patterns of habitat quality for flying Fox es. Report to Local Government Association New South Wales.

Eyre, T.J., Kelly, A.L. and Neldner, V.J. (2011). Method for the Establishment and Survey of Reference Sites for BioCondition. Version 2.0. Department of Environment and Resource Management (DERM), Biodiversity and Ecological Sciences Unit, Brisbane.

Eyre, T.J., Kelly, A.L., Neldner, V.J., Wilson, B.A., Ferguson, D.J., Laidlaw, M.J. and Franks, A.J. (2015). BioCondition: A Condition Assessment Framework for Terrestrial Biodiversity in Queensland. Assessment Manual. Version 2.2. Queensland Herbarium, Department of Science, Information Technology, Innovation and Arts, Brisbane. Available at: https://www.qld.gov.au/__data/assets/pdf_file/0029/68726/biocondition-assessment-manual.pdf

Franklin DC, Menkhorst PW & Robinson JL (1989). Ecology of the Regent Honeyeater Xanthomyza phrygia. Emu 89: 140-54.

Kennedy S and Overs A (2001). Foraging ecology and habitat use of the Swift Parrot on the south-western slopes of New South Wales. Corella 25, 68-74.

Kennedy S and Tzaros C (2005). Foraging ecology of the Swift Parrot Lathamus discolor in the Box-Ironbark forests and woodlands of Victoria. Pacific Conservation Biology 11, 158-173.

Mace, R.D., Minta, S.C., Manley T.L. & Aune. K.E. (1994). Estimating grizzly bear population size using camera sightings. Wildlife Society Bulletin 22: 74-83.

Mackey B, Watson J & Worboys GL (2010). Connectivity conservation and the Great Eastern Ranges corridor, an independent report by ANU Enterprises Pty Ltd to the Interstate Agency Working Group (Alps to Atherton Connectivity Conservation Working Group) convened under the Environment Heritage and Protection Council/Natural Resource Management Ministerial Council, NSW Department of Environment, Climate Change and Water, Sydney.

Menkhorst P, Schedvin N & Geering, D (1999). Regent Honeyeater Recovery Plan 1999-2003. Department of Natural Resources and Environment, Melbourne.

Moen, R. & Lindquist, E.L. (2004). Testing a remote camera protocol to detect animals in the Superior National Park. Technical Report No. NRRI/TR-2006-28 prepared by the Center for Water and Environment Natural Resources Research Institute, University of Minnesota, Duluth.

Neldner, V.J., Wilson, B.A., Dillewaard, H.A., Ryan, T.S., Butler, D.W., McDonald, W.J.F, Richter, D., Addicott, E.P. and Appelman, C.N. (2022). *Methodology for survey and mapping of regional ecosystems and vegetation communities in Queensland***.** Version 6.0. Updated April 2022. Queensland Herbarium, Queensland Department of Environment and Science, Brisbane.

Oliver, D.L. (2000). Foraging behaviour and resource selection of the Regent Honeyeater, Xanthomyza phrygia in Northern New South Wales. Emu 100: 12-30.

Phillips, S. and Callaghan, J. (2011). The Spot Assessment Technique: a tool for determining localised levels of habitat use by Koalas Phascolarctos cinereus. *Australian Zoologist 35(3), 774-780.*

Queensland Herbarium (2018). Technical Descriptions of Regional Ecosystems, (Queensland Department of Environment, Science and Innovation: Brisbane).

Queensland Herbarium (2024). BioCondition Benchmark Database. Version 3.4 (December 2021). Queensland Department of Environment and Science, Brisbane.

Rhodes, J.R., Beyer, H., Preece, H., and McAlpine, C. (2015). South East Queensland Koala population modelling study. UniQuest, Brisbane Australia.

Roberts, B. J., Catterall, C. P., Eby, P. and Kanowski J. 2012. Latitudinal range shifts in Australian flying-foxes: A re-evaluation. Austral Ecology 37: 12-22.

Rosellini, S., Osorio, E., Ruiz-Gonzalez, A., Pineiro, A. & Barja, I. (2008). Monitoring the small-scale distribution of sympatric European pine martens (Martes martes) and stone martens (Martes foina): a multievidence approach using faecal DNA analysis and camera-traps. Wildlife Research 35: 434-440.

State of Queensland (2017). Guide to Determining Terrestrial Habitat Quality: Methods for assessing habitat quality under the Queensland Environmental Offsets Policy, Version 1.3. Queensland Department of Infrastructure, Local Government and Planning, Brisbane.

State of Queensland (2020). Shaping SEQ - South East Queensland Regional Plan 2017. Queensland Department of Environment and Science, Brisbane.

State of Queensland (2023). Spatial modelling for Koalas in South East Queensland: Report version 2.0. Koala Habitat Areas (KHA) v4.0, Locally Refined Koala Habitat Areas (LRKHA) v4.0, Koala Priority Areas (KPA) v1.0, Koala Habitat Restoration Areas (KHRA) v1.0. Brisbane: Department of Environment and Science, Queensland Government.

Webster R & Menkhorst P (1992). The Regent Honeyeater (Xanthomyza phrygia): population status and ecology in Victoria and New South Wales. Arthur Rylah Institute for Environmental Research Technical Report Series No. 126. Department of Conservation and Environment, Victoria.

Youngentob, KN, Marsh, KF, Skewes, J (2021). A review of Koala habitat assessment criteria and methods, report prepared for the Department of Agriculture, Water and the Environment, Canberra**.**

APPENDIX A

Weed Transect Data

Weed Transect Data

Site	Assess Unit	Latitude	Longitude	Species Name (*WONS)	Common Name	% Cover	Representative Photo
W01	AU1	-27.2993	152.4454	*Melinis repens*	Red natal grass	92	
				Praxelis clematidea	Praxelis	9	
				Sporobolus natalisms	Giant rats tail grass	1	

Site	Assess Unit	Latitude	Longitude	Species Name (*WONS)	Common Name	% Cover	Representative Photo
WC	AU1	-27.3035	152.45135	*Lantana montevidensis*	Creeping lantana	100	
				Praxelis clematidea	Praxelis	96	
				Melinis repens	Red natal grass	87	
				Lantana camara *	Lantana	2	

Site	Assess Unit	Latitude	Longitude	Species Name (*WONS)	Common Name	% Cover	Representative Photo
W13	AU1	-27.3072	152.4500	*Lantana montevidensis*	Creeping lantana	86	
				Melinis repens	Red natal grass	82	
				Praxelis clematidea	Praxelis	77	

Site	Assess Unit	Latitude	Longitude	Species Name (*WONS)	Common Name	% Cover	Representative Photo
W04	AU1	-27.2908	152.4470	*Melinis repens*	Red natal grass	97	
				Lantana montevidensis	Creeping lantana	53	
				Praxelis clematidea	Praxelis	4	
				Lantana camara *	Lantana	3	
				Sida cordifolia	Flannel weed	0.5	

Site	Assess Unit	Latitude	Longitude	Species Name (*WONS)	Common Name	% Cover	Representative Photo
WB	AU2	-27.3094	152.4533	*Melinis repens*	Red natal grass	89	
				Praxelis clematidea	Praxelis	54	
				Lantana montevidensis	Creeping lantana	49	
				Sida cordifolia	Flannel weed	30	
				Sida rhombifolia	Arrowleaf sida	2	
				Lantana camara *	Lantana	1	

Site	Assess Unit	Latitude	Longitude	Species Name (*WONS)	Common Name	% Cover	Representative Photo
Wa	AU 2	-27.3007	152.4535	*Praxelis clematidea*	Praxelis	61	
				Lantana montevidensis	Creeping lantana	33.5	
				Sida cordifolia	Flannel weed	9	
				Gomphocarpus physocarpus	Balloon cotton bush	3	
				Malva parviflora	Small flowered mallow	3	
				Melinis repens	Red natal grass	1	
				Sporobolus natalensis	Giant rats tail grass	1	

Site	Assess Unit	Latitude	Longitude	Species Name (*WONS)	Common Name	% Cover	Representative Photo
W17	AU 2	-27.2998	152.4530	*Lantana montevidensis*	Creeping lantana	99	
				Melinis repens	Red natal grass	64	
				Praxelis clematidea	Praxelis	32.5	
				Lantana camara *	Lantana	3	

Site	Assess Unit	Latitude	Longitude	Species Name (*WONS)	Common Name	% Cover	Representative Photo
W06	AU2	-27.2897	152.4417	*Melinis repens*	Red natal grass	100	
				Praxelis clematidea	Praxelis	8	
				Lantana montevidensis	Creeping lantana	5	
				Sporobolus natalensis	Giant rats tail grass	1	
				Senecio madagascariensis	Fireweed	0.5	

Site	Assess Unit	Latitude	Longitude	Species Name (*WONS)	Common Name	% Cover	Representative Photo
WD	AU3	-27.2940	152.4423	*Melinis repens*	Red natal grass	61	
				Lantana montevidensis	Creeping lantana	18	
				Praxelis clematidea	Praxelis	15	
				Lantana camara *	Lantana	4	

Site	Assess Unit	Latitude	Longitude	Species Name (*WONS)	Common Name	% Cover	Representative Photo
W03	AU3	-27.2940	152.4406	*Melinis repens*	Red natal grass	74	
				Lantana montevidensis	Creeping lantana	59	
				Praxelis clematidea	Praxelis	4	

Site	Assess Unit	Latitude	Longitude	Species Name (*WONS)	Common Name	% Cover	Representative Photo
W05	AU3	-27.2952	152.4402	*Melinis repens*	Red natal grass	100	
				Lantana montevidensis	Creeping lantana	64	
				Praxelis clematidea	Praxelis	26	
				Gomphocarpus physocarpus	Balloon cotton bush	1	

Site	Assess Unit	Latitude	Longitude	Species Name (*WONS)	Common Name	% Cover	Representative Photo
W10	AU3 (open section near fenceline)	-27.3051	152.4586	*Melinis repens*	Red natal grass	67	
				Praxelis clematidea	Praxelis	29	
				Lantana montevidensis	Creeping lantana	23	
				Sporobolus natalensis	Giant rats tail grass	1	

Site	Assess Unit	Latitude	Longitude	Species Name (*WONS)	Common Name	% Cover	Representative Photo
W11	AU3	-27.3043	152.4574	*Lantana montevidensis*	Creeping lantana	24	
				Praxelis clematidea	Praxelis	18	
				Melinis repens	Red natal grass	6	

Site	Assess Unit	Latitude	Longitude	Species Name (*WONS)	Common Name	% Cover	Representative Photo
W12	AU3	-27.3031	152.4564	*Lantana montevidensis*	Creeping lantana	49	
				Praxelis clematidea	Praxelis	14	
				Melinis repens	Red natal grass	9.5	
				Lantana camara *	Lantana	3	
				Sporobolus natalensis	Giant rats tail grass	0.5	

Site	Assess Unit	Latitude	Longitude	Species Name (*WONS)	Common Name	% Cover	Representative Photo
WF	AU4	-27.2943	152.4494	*Lantana camara* *	Lantana	29	
				Baccharis halimifolia *	Groundsel bush	12	
				Sporobolus natalensis	Giant rats tail grass	3	
				Ageratum houstonianum	Blue billy goat weed	1	
				Bidens pilosa	Cobblers pegs	1	

Site	Assess Unit	Latitude	Longitude	Species Name (*WONS)	Common Name	% Cover	Representative Photo
W16	AU4	-27.2939	152.4489	*Lantana camara**	Lantana	73	
				*Baccharis halimifolia**	Groundsel bush	5	

Site	Assess Unit	Latitude	Longitude	Species Name (*WONS)	Common Name	% Cover	Representative Photo
WE	AU4	-27.2972	152.4503	*Baccharis halimifolia**	Groundsel bush	85	
				Cynodon dactylon	Couch	39	
				Ageratum houstonianum	Blue billy goat weed	9	
				Sporobolus natalensis	Giant rats tail grass	8	
				Lantana montevidensis	Creeping lantana	5	
				*Lantana camara**	Lantana	3	
				Onopordum acanthium	Scotch thistle	0.5	

APPENDIX B

Database Search Results for Proposed Offset Property: Wildlife Online

Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: Animals
Type: Native
Queensland status: All
Records: All
Date: Since 1980
Latitude: -27.2997
Longitude: 152.4551
Distance: 5
Email: jedd@baamecology.com
Date submitted: Wednesday 05 Mar 2025 12:41:37
Date extracted: Wednesday 05 Mar 2025 12:50:02

The number of records retrieved = 210

Disclaimer
Information presented on this product is distributed by the Queensland Government as an information source only. While every care is taken to ensure the accuracy of this data, the State of Queensland makes no statements, representations or warranties about the accuracy, reliability, completeness or suitability of any information contained in this product.
The State of Queensland disclaims all responsibility for information contained in this product and all liability (including liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.
Information about your Species lists request is logged for quality assurance, user support and product enhancement purposes only.
The information provided should be appropriately acknowledged as being derived from WildNet database when it is used. As the WildNet Program is still in a process of collating and vetting data, it is possible the information given is not complete. Go to the WildNet database webpage (https://www.qld.gov.au/environment/plants-animals/species-information/wildnet) to find out more about WildNet and where to access other WildNet information products approved for publication. Feedback about WildNet species lists should be emailed to wildlife.online@des.qld.gov.au.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Hylidae	*Litoria balatus*	slender bleating treefrog		C		1
animals	amphibians	Hylidae	*Litoria caerulea*	common green treefrog		C		1
animals	amphibians	Hylidae	*Litoria fallax*	eastern sedgefrog		C		1
animals	amphibians	Hylidae	*Litoria latopalmata*	broad palmed rocketfrog		C		1
animals	amphibians	Hylidae	*Litoria rubella*	ruddy treefrog		C		1
animals	amphibians	Limnodynastidae	*Limnodynastes terraereginae*	scarlet sided pobblebonk		C		1
animals	amphibians	Limnodynastidae	*Platyplectrum ornatum*	ornate burrowing frog		C		1
animals	amphibians	Myobatrachidae	*Crinia parinsignifera*	beeping froglet		C		1
animals	amphibians	Myobatrachidae	*Pseudophryne coriacea*	red backed broodfrog		C		1
animals	amphibians	Myobatrachidae	*Uperoleia fusca*	dusky gungan		C		1
animals	amphibians	Myobatrachidae	*Uperoleia laevigata*	eastern gungan		C		1
animals	birds	Acanthizidae	*Acanthiza chrysorrhoa*	yellow-rumped thornbill		C		1
animals	birds	Acanthizidae	*Acanthiza lineata*	striated thornbill		C		1
animals	birds	Acanthizidae	*Acanthiza pusilla*	brown thornbill		C		3
animals	birds	Acanthizidae	*Acanthiza reguloides*	buff-rumped thornbill		C		2
animals	birds	Acanthizidae	*Gerygone olivacea*	white-throated gerygone		C		2
animals	birds	Acanthizidae	*Smicrornis brevirostris*	weebill		C		6
animals	birds	Accipitridae	*Accipiter cirrocephalus*	collared sparrowhawk		C		1
animals	birds	Accipitridae	*Accipiter fasciatus*	brown goshawk		C		3
animals	birds	Accipitridae	*Aquila audax*	wedge-tailed eagle		C		9
animals	birds	Accipitridae	*Aviceda subcristata*	Pacific baza		C		10
animals	birds	Accipitridae	*Circus assimilis*	spotted harrier		C		1
animals	birds	Accipitridae	*Elanus axillaris*	black-shouldered kite		C		1
animals	birds	Accipitridae	*Elanus scriptus*	letter-winged kite		C		1
animals	birds	Accipitridae	*Haliastur sphenurus*	whistling kite		C		7
animals	birds	Accipitridae	*Hieraaetus morphnoides*	little eagle		C		2
animals	birds	Acrocephalidae	*Acrocephalus australis*	Australian reed-warbler		C		1
animals	birds	Aegothelidae	*Aegotheles cristatus*	Australian owlet-nightjar		C		1
animals	birds	Alcedinidae	*Dacelo novaeguineae*	laughing kookaburra		C		18
animals	birds	Alcedinidae	*Todiramphus macleayii*	forest kingfisher		C		1
animals	birds	Alcedinidae	*Todiramphus sanctus*	sacred kingfisher		C		4
animals	birds	Alcedinidae	*Todiramphus sordidus*	Torresian kingfisher		C		1
animals	birds	Anatidae	*Anas gracilis*	grey teal		C		3
animals	birds	Anatidae	*Anas superciliosa*	Pacific black duck		C		2
animals	birds	Anatidae	*Aythya australis*	hardhead		C		1
animals	birds	Anatidae	*Chenonetta jubata*	Australian wood duck		C		14
animals	birds	Anatidae	*Cygnus atratus*	black swan		C		2
animals	birds	Anhingidae	*Anhinga novaehollandiae*	Australasian darter		C		2
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		V	V	3
animals	birds	Ardeidae	*Ardea alba modesta*	eastern great egret		C		1
animals	birds	Ardeidae	*Ardea pacifica*	white-necked heron		C		1
animals	birds	Ardeidae	*Bubulcus ibis*	cattle egret		C		3
animals	birds	Ardeidae	*Egretta garzetta*	little egret		C		1
animals	birds	Ardeidae	*Egretta novaehollandiae*	white-faced heron		C		8
animals	birds	Artamidae	*Artamus cyanopterus*	dusky woodswallow		C		3
animals	birds	Artamidae	*Artamus personatus*	masked woodswallow		C		2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		8
animals	birds	Artamidae	*Cracticus torquatus*	grey butcherbird		C		11
animals	birds	Artamidae	*Gymnorhina tibicen*	Australian magpie		C		19
animals	birds	Artamidae	*Strepera graculina*	pied currawong		C		8
animals	birds	Burhinidae	*Burhinus grallarius*	bush stone-curlew		C		3
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		5
animals	birds	Cacatuidae	*Calyptorhynchus banksii*	red-tailed black-cockatoo		C		1
animals	birds	Cacatuidae	*Calyptorhynchus lathami lathami*	glossy black-cockatoo (eastern)		V	V	2
animals	birds	Cacatuidae	*Eolophus roseicapilla*	galah		C		14
animals	birds	Campephagidae	*Coracina maxima*	ground cuckoo-shrike		C		1
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		13
animals	birds	Campephagidae	*Edolisoma tenuirostre*	common cicadabird		C		6
animals	birds	Campephagidae	*Lalage leucomela*	varied triller		C		5
animals	birds	Charadriidae	*Erythrogonys cinctus*	red-kneed dotterel		C		1
animals	birds	Charadriidae	*Vanellus miles*	masked lapwing		C		1
animals	birds	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)		C		8
animals	birds	Cinclosomatidae	*Cinclosoma punctatum*	spotted quail-thrush		C		1
animals	birds	Climacteridae	*Cormobates leucophaea metastasis*	white-throated treecreeper (southern)		C		4
animals	birds	Columbidae	*Geopelia cuneata*	diamond dove		C		1
animals	birds	Columbidae	*Geopelia humeralis*	bar-shouldered dove		C		9
animals	birds	Columbidae	*Geopelia placida*	peaceful dove		C		13
animals	birds	Columbidae	*Geophaps scripta scripta*	squatter pigeon (southern subspecies)		V	V	2
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		12
animals	birds	Columbidae	*Phaps chalcoptera*	common bronzewing		C		13
animals	birds	Columbidae	*Phaps elegans*	brush bronzewing		C		1
animals	birds	Coraciidae	*Eurystomus orientalis*	dollarbird		C		9
animals	birds	Corcoracidae	*Corcorax melanorhamphos*	white-winged chough		C		1
animals	birds	Corvidae	*Corvus coronoides*	Australian raven		C		1
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		8
animals	birds	Cuculidae	*Cacomantis flabelliformis*	fan-tailed cuckoo		C		6
animals	birds	Cuculidae	*Cacomantis pallidus*	pallid cuckoo		C		2
animals	birds	Cuculidae	*Cacomantis variolosus*	brush cuckoo		C		2
animals	birds	Cuculidae	*Centropus phasianinus*	pheasant coucal		C		11
animals	birds	Cuculidae	*Chalcites lucidus*	shining bronze-cuckoo		C		3
animals	birds	Cuculidae	*Cuculus optatus*	oriental cuckoo		SL		2
animals	birds	Cuculidae	*Eudynamys orientalis*	eastern koel		C		9
animals	birds	Cuculidae	*Scythrops novaehollandiae*	channel-billed cuckoo		C		9
animals	birds	Dicaeidae	*Dicaeum hirundinaceum*	mistletoebird		C		8
animals	birds	Dicruridae	*Dicrurus bracteatus*	spangled drongo		C		7
animals	birds	Estrildidae	*Neochmia temporalis*	red-browed finch		C		5
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		1
animals	birds	Eurostopodidae	*Eurostopodus mystacalis*	white-throated nightjar		C		2
animals	birds	Falconidae	*Falco berigora*	brown falcon		C		2
animals	birds	Falconidae	*Falco cenchroides*	nankeen kestrel		C		1
animals	birds	Falconidae	*Falco longipennis*	Australian hobby		C		1
animals	birds	Falconidae	*Falco subniger*	black falcon		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Hirundinidae	*Hirundo neoxena*	welcome swallow		C		7
animals	birds	Hirundinidae	*Petrochelidon ariel*	fairy martin		C		1
animals	birds	Locustellidae	*Cincloramphus timoriensis*	tawny grassbird		C		1
animals	birds	Maluridae	*Malurus cyaneus*	superb fairy-wren		C		1
animals	birds	Maluridae	*Malurus lamberti*	variegated fairy-wren		C		1
animals	birds	Maluridae	*Malurus melanocephalus*	red-backed fairy-wren		C		14
animals	birds	Megapodiidae	*Alectura lathami*	Australian brush-turkey		C		4
animals	birds	Meliphagidae	*Acanthorhynchus tenuirostris*	eastern spinebill		C		2
animals	birds	Meliphagidae	*Anthochaera chrysoptera*	little wattlebird		C		1
animals	birds	Meliphagidae	*Caligavis chrysops*	yellow-faced honeyeater		C		4
animals	birds	Meliphagidae	*Conopophila rufogularis*	rufous-throated honeyeater		C		1
animals	birds	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater		C		11
animals	birds	Meliphagidae	*Lichmera indistincta*	brown honeyeater		C		1
animals	birds	Meliphagidae	*Manorina melanocephala*	noisy miner		C		11
animals	birds	Meliphagidae	*Meliphaga lewinii*	Lewin's honeyeater		C		4
animals	birds	Meliphagidae	*Melithreptus albogularis*	white-throated honeyeater		C		8
animals	birds	Meliphagidae	*Melithreptus brevirostris*	brown-headed honeyeater		C		3
animals	birds	Meliphagidae	*Melithreptus lunatus*	white-naped honeyeater		C		1
animals	birds	Meliphagidae	*Myzomela obscura*	dusky honeyeater		C		1/1
animals	birds	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater		C		8
animals	birds	Meliphagidae	*Philemon citreogularis*	little friarbird		C		10
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		15
animals	birds	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater		C		2
animals	birds	Meliphagidae	*Ptilotula fusca*	fuscous honeyeater		C		2
animals	birds	Meropidae	*Merops ornatus*	rainbow bee-eater		C		12
animals	birds	Monarchidae	*Carterornis leucotis*	white-eared monarch		C		1
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		16
animals	birds	Monarchidae	*Myiagra cyanoleuca*	satin flycatcher		C		1
animals	birds	Monarchidae	*Myiagra inquieta*	restless flycatcher		C		12
animals	birds	Monarchidae	*Myiagra rubecula*	leaden flycatcher		C		2
animals	birds	Neosittidae	*Daphoenositta chrysoptera*	varied sittella		C		5
animals	birds	Oriolidae	*Oriolus sagittatus*	olive-backed oriole		C		8
animals	birds	Oriolidae	*Sphecotheres vieilloti*	Australasian figbird		C		2
animals	birds	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush		C		1
animals	birds	Pachycephalidae	*Pachycephala pectoralis*	golden whistler		C		7
animals	birds	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler		C		11
animals	birds	Pardalotidae	*Pardalotus punctatus*	spotted pardalote		C		1
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		12
animals	birds	Pelecanidae	*Pelecanus conspicillatus*	Australian pelican		C		3
animals	birds	Petroicidae	*Eopsaltria australis*	eastern yellow robin		C		1
animals	birds	Petroicidae	*Microeca fascinans*	jacky winter		C		4
animals	birds	Petroicidae	*Petroica rosea*	rose robin		C		1
animals	birds	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant		C		3
animals	birds	Phalacrocoracidae	*Phalacrocorax carbo*	great cormorant		C		1
animals	birds	Phalacrocoracidae	*Phalacrocorax sulcirostris*	little black cormorant		C		4
animals	birds	Phalacrocoracidae	*Phalacrocorax varius*	pied cormorant		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Phasianidae	*Synoicus chinensis*	king quail		C		4
animals	birds	Phasianidae	*Synoicus ypsilophorus*	brown quail		C		3
animals	birds	Podargidae	*Podargus strigoides*	tawny frogmouth		C		10
animals	birds	Podicipedidae	*Podiceps cristatus*	great crested grebe		C		1
animals	birds	Podicipedidae	*Tachybaptus novaehollandiae*	Australasian grebe		C		3
animals	birds	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler		C		14
animals	birds	Psittaculidae	*Alisterus scapularis*	Australian king-parrot		C		17
animals	birds	Psittaculidae	*Glossopsitta concinna*	musk lorikeet		C		2
animals	birds	Psittaculidae	*Parvipsitta pusilla*	little lorikeet		C		2
animals	birds	Psittaculidae	*Platycercus adscitus*	pale-headed rosella		C		16
animals	birds	Psittaculidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		15
animals	birds	Psittaculidae	*Trichoglossus moluccanus*	rainbow lorikeet		C		17
animals	birds	Rallidae	*Fulica atra*	Eurasian coot		C		1
animals	birds	Rhipiduridae	*Rhipidura albiscapa*	grey fantail		C		5
animals	birds	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail		C		15
animals	birds	Rhipiduridae	*Rhipidura rufifrons*	rufous fantail		C		4
animals	birds	Strigidae	*Ninox boobook*	southern boobook		C		4
animals	birds	Strigidae	*Ninox strenua*	powerful owl		V		3
animals	birds	Threskiornithidae	*Platalea flavipes*	yellow-billed spoonbill		C		2
animals	birds	Threskiornithidae	*Platalea regia*	royal spoonbill		C		2
animals	birds	Threskiornithidae	*Plegadis falcinellus*	glossy ibis		SL		1
animals	birds	Threskiornithidae	*Threskiornis molucca*	Australian white ibis		C		1
animals	birds	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis		C		4
animals	birds	Turnicidae	*Turnix varius*	painted button-quail		C		1
animals	birds	Tytonidae	*Tyto javanica*	eastern barn owl		C		1
animals	birds	Zosteropidae	*Zosterops lateralis*	silvereye		C		2
animals	insects	Coenagrionidae	*Ischnura heterosticta heterosticta*	common bluetail				1
animals	insects	Coenagrionidae	*Pseudagrion aureofrons*	gold-fronted riverdamsel				1
animals	insects	Coenagrionidae	*Pseudagrion ignifer*	flame-headed riverdamsel				1
animals	insects	Coenagrionidae	*Pseudagrion microcephalum*	blue riverdamsel				1
animals	insects	Corduliidae	*Hemicordulia australiae*	Australian emerald				1
animals	insects	Gomphidae	*Austrogomphus amphiclitus*	pale hunter				1
animals	insects	Libellulidae	*Crocothemis nigrifrons*	black-headed skimmer				1
animals	insects	Libellulidae	*Diplacodes haematodes*	scarlet percher				1
animals	insects	Libellulidae	*Hydrobasileus brevistylus*	water prince				1
animals	insects	Libellulidae	*Orthetrum caledonicum*	blue skimmer				1
animals	insects	Libellulidae	*Orthetrum villosovittatum*	fiery skimmer				1
animals	insects	Libellulidae	*Rhyothemis graphiptera*	graphic flutterer				1
animals	insects	Libellulidae	*Rhyothemis phyllis chloe*	yellow-striped flutterer				1
animals	insects	Lindeniidae	*Ictinogomphus australis*	Australian tiger				1
animals	insects	Megapodagrionidae	*Austroargiolestes icteromelas*	common flatwing				1
animals	insects	Nymphalidae	*Euploea corinna*	common crow				1
animals	insects	Pieridae	*Eurema hecabe*	large grass-yellow				1
animals	insects	Platycnemididae	*Nosoticta solida*	orange threadtail				1
animals	insects	Synthemistidae	*Choristhemis flavoterminata*	yellow-tipped tigertail				1
animals	mammals	Acrobatidae	*Acrobates pygmaeus*	feathertail glider		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	mammals	Canidae	*Canis familiaris (dingo)*	dingo				1
animals	mammals	Dasyuridae	*Phascogale tapoatafa tapoatafa*	brush-tailed phascogale		C		1
animals	mammals	Macropodidae	*Notamacropus agilis*	agile wallaby		C		2
animals	mammals	Macropodidae	*Notamacropus dorsalis*	black-striped wallaby		C		3
animals	mammals	Macropodidae	*Notamacropus parryi*	whiptail wallaby		C		6
animals	mammals	Macropodidae	*Notamacropus rufogriseus*	red-necked wallaby		C		9
animals	mammals	Peramelidae	*Isoodon macrourus*	northern brown bandicoot		C		4
animals	mammals	Peramelidae	*Perameles nasuta*	long-nosed bandicoot		C		2
animals	mammals	Petauridae	*Petaurus norfolcensis*	squirrel glider		C		3
animals	mammals	Phalangeridae	*Trichosurus vulpecula*	common brushtail possum		C		9
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		E	E	70
animals	mammals	Potoroidae	*Aepyprymnus rufescens*	rufous bettong		C		12
animals	mammals	Pseudocheiridae	*Pseudocheirus peregrinus*	common ringtail possum		C		1
animals	mammals	Tachyglossidae	*Tachyglossus aculeatus*	short-beaked echidna		SL		3
animals	ray-finned fishes	Eleotridae	*Hypseleotris galii*	firetail gudgeon				1
animals	reptiles	Agamidae	*Pogona barbata*	bearded dragon		C		1
animals	reptiles	Boidae	*Morelia spilota*	carpet python		C		1
animals	reptiles	Colubridae	*Dendrelaphis punctulatus*	green tree snake		C		1
animals	reptiles	Colubridae	*Tropidonophis mairii*	freshwater snake		C		1
animals	reptiles	Elapidae	*Cryptophis nigrescens*	eastern small-eyed snake		C		1
animals	reptiles	Elapidae	*Pseudonaja textilis*	eastern brown snake		C		2
animals	reptiles	Gekkonidae	*Gehyra dubia*	dubious dtella		C		1
animals	reptiles	Scincidae	*Cryptoblepharus pulcher pulcher*	elegant snake-eyed skink		C		2
animals	reptiles	Scincidae	*Eulamprus quoyii*	eastern water skink		C		1
animals	reptiles	Varanidae	*Varanus varius*	lace monitor		C		1
animals	uncertain	Indeterminate	*Indeterminate*	Unknown or Code Pending				1

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.*
The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.*
The values of EPBC are Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD).

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).
This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: Animals
Type: Native
Queensland status: All
Records: All
Date: Since 1980
Latitude: -27.2997
Longitude: 152.4551
Distance: 10
Email: jedd@baamecology.com
Date submitted: Wednesday 05 Mar 2025 12:42:00
Date extracted: Wednesday 05 Mar 2025 12:50:04

The number of records retrieved = 284

Disclaimer
Information presented on this product is distributed by the Queensland Government as an information source only. While every care is taken to ensure the accuracy of this data, the State of Queensland makes no statements, representations or warranties about the accuracy, reliability, completeness or suitability of any information contained in this product.
The State of Queensland disclaims all responsibility for information contained in this product and all liability (including liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.
Information about your Species lists request is logged for quality assurance, user support and product enhancement purposes only.
The information provided should be appropriately acknowledged as being derived from WildNet database when it is used. As the WildNet Program is still in a process of collating and vetting data, it is possible the information given is not complete. Go to the WildNet database webpage (https://www.qld.gov.au/environment/plants-animals/species-information/wildnet) to find out more about WildNet and where to access other WildNet information products approved for publication. Feedback about WildNet species lists should be emailed to wildlife.online@des.qld.gov.au.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Hylidae	*Litoria balatus*	slender bleating treefrog		C		1
animals	amphibians	Hylidae	*Litoria caerulea*	common green treefrog		C		7
animals	amphibians	Hylidae	*Litoria fallax*	eastern sedgefrog		C		13
animals	amphibians	Hylidae	*Litoria latopalmata*	broad palmed rocketfrog		C		1
animals	amphibians	Hylidae	*Litoria nasuta*	striped rocketfrog		C		5
animals	amphibians	Hylidae	*Litoria rubella*	ruddy treefrog		C		5
animals	amphibians	Limnodynastidae	*Limnodynastes peronii*	striped marshfrog		C		1
animals	amphibians	Limnodynastidae	*Limnodynastes terraereginae*	scarlet sided pobblebonk		C		3
animals	amphibians	Limnodynastidae	*Platyplectrum ornatum*	ornate burrowing frog		C		1
animals	amphibians	Myobatrachidae	*Crinia parinsignifera*	beeping froglet		C		2
animals	amphibians	Myobatrachidae	*Crinia signifera*	clicking froglet		C		3
animals	amphibians	Myobatrachidae	*Pseudophryne coriacea*	red backed broodfrog		C		1
animals	amphibians	Myobatrachidae	*Pseudophryne sp.*			C		1
animals	amphibians	Myobatrachidae	*Uperoleia fusca*	dusky gungan		C		1
animals	amphibians	Myobatrachidae	*Uperoleia laevigata*	eastern gungan		C		1
animals	amphibians	Myobatrachidae	*Uperoleia sp.*			C		1
animals	birds	Acanthizidae	*Acanthiza chrysorrhoa*	yellow-rumped thornbill		C		7
animals	birds	Acanthizidae	*Acanthiza lineata*	striated thornbill		C		2
animals	birds	Acanthizidae	*Acanthiza nana*	yellow thornbill		C		7
animals	birds	Acanthizidae	*Acanthiza pusilla*	brown thornbill		C		3
animals	birds	Acanthizidae	*Acanthiza reguloides*	buff-rumped thornbill		C		3
animals	birds	Acanthizidae	*Gerygone olivacea*	white-throated gerygone		C		6
animals	birds	Acanthizidae	*Sericornis frontalis*	white-browed scrubwren		C		6
animals	birds	Acanthizidae	*Smicrornis brevirostris*	weebill		C		6
animals	birds	Accipitridae	*Accipiter cirrocephalus*	collared sparrowhawk		C		1
animals	birds	Accipitridae	*Accipiter fasciatus*	brown goshawk		C		3
animals	birds	Accipitridae	*Aquila audax*	wedge-tailed eagle		C		13
animals	birds	Accipitridae	*Aviceda subcristata*	Pacific baza		C		11
animals	birds	Accipitridae	*Circus assimilis*	spotted harrier		C		1
animals	birds	Accipitridae	*Elanus axillaris*	black-shouldered kite		C		1
animals	birds	Accipitridae	*Elanus scriptus*	letter-winged kite		C		1
animals	birds	Accipitridae	*Haliaeetus leucogaster*	white-bellied sea-eagle		C		3
animals	birds	Accipitridae	*Haliastur sphenurus*	whistling kite		C		15
animals	birds	Accipitridae	*Hieraaetus morphnoides*	little eagle		C		5
animals	birds	Acrocephalidae	*Acrocephalus australis*	Australian reed-warbler		C		1
animals	birds	Aegothelidae	*Aegotheles cristatus*	Australian owlet-nightjar		C		2
animals	birds	Alcedinidae	*Dacelo novaeguineae*	laughing kookaburra		C		40
animals	birds	Alcedinidae	*Todiramphus macleayii*	forest kingfisher		C		1
animals	birds	Alcedinidae	*Todiramphus sanctus*	sacred kingfisher		C		11
animals	birds	Alcedinidae	*Todiramphus sordidus*	Torresian kingfisher		C		1
animals	birds	Anatidae	*Anas gracilis*	grey teal		C		8
animals	birds	Anatidae	*Anas superciliosa*	Pacific black duck		C		13
animals	birds	Anatidae	*Aythya australis*	hardhead		C		5
animals	birds	Anatidae	*Biziura lobata*	musk duck		C		1
animals	birds	Anatidae	*Chenonetta jubata*	Australian wood duck		C		24
animals	birds	Anatidae	*Cygnus atratus*	black swan		C		9

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Anhingidae	*Anhinga novaehollandiae*	Australasian darter		C		8
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		V	V	3
animals	birds	Ardeidae	*Ardea alba modesta*	eastern great egret		C		7
animals	birds	Ardeidae	*Ardea intermedia*	intermediate egret		C		4
animals	birds	Ardeidae	*Ardea pacifica*	white-necked heron		C		1
animals	birds	Ardeidae	*Bubulcus ibis*	cattle egret		C		6
animals	birds	Ardeidae	*Egretta garzetta*	little egret		C		3
animals	birds	Ardeidae	*Egretta novaehollandiae*	white-faced heron		C		17
animals	birds	Ardeidae	*Nycticorax caledonicus*	nankeen night-heron		C		1
animals	birds	Artamidae	*Artamus cyanopterus*	dusky woodswallow		C		3
animals	birds	Artamidae	*Artamus personatus*	masked woodswallow		C		2
animals	birds	Artamidae	*Artamus superciliosus*	white-browed woodswallow		C		2
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		29
animals	birds	Artamidae	*Cracticus torquatus*	grey butcherbird		C		18
animals	birds	Artamidae	*Gymnorhina tibicen*	Australian magpie		C		51
animals	birds	Artamidae	*Strepera graculina*	pied currawong		C		21
animals	birds	Burhinidae	*Burhinus grallarius*	bush stone-curlew		C		3
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		6
animals	birds	Cacatuidae	*Cacatua sanguinea*	little corella		C		2
animals	birds	Cacatuidae	*Calyptorhynchus banksii*	red-tailed black-cockatoo		C		2
animals	birds	Cacatuidae	*Calyptorhynchus lathami lathami*	glossy black-cockatoo (eastern)		V	V	2
animals	birds	Cacatuidae	*Eolophus roseicapilla*	galah		C		35
animals	birds	Cacatuidae	*Nymphicus hollandicus*	cockatiel		C		5
animals	birds	Cacatuidae	*Zanda funerea*	yellow-tailed black-cockatoo		C		2
animals	birds	Campephagidae	*Coracina maxima*	ground cuckoo-shrike		C		1
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		29
animals	birds	Campephagidae	*Coracina papuensis*	white-bellied cuckoo-shrike		C		1
animals	birds	Campephagidae	*Edolisoma tenuirostre*	common cicadabird		C		6
animals	birds	Campephagidae	*Lalage leucomela*	varied triller		C		5
animals	birds	Charadriidae	*Elseyornis melanops*	black-fronted dotterel		C		1
animals	birds	Charadriidae	*Erythrogonys cinctus*	red-kneed dotterel		C		1
animals	birds	Charadriidae	*Vanellus miles*	masked lapwing		C		3
animals	birds	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)		C		19
animals	birds	Cinclosomatidae	*Cinclosoma punctatum*	spotted quail-thrush		C		1
animals	birds	Cisticolidae	*Cisticola exilis*	golden-headed cisticola		C		1
animals	birds	Climacteridae	*Cormobates leucophaea metastasis*	white-throated treecreeper (southern)		C		4
animals	birds	Columbidae	*Geopelia cuneata*	diamond dove		C		1
animals	birds	Columbidae	*Geopelia humeralis*	bar-shouldered dove		C		15
animals	birds	Columbidae	*Geopelia placida*	peaceful dove		C		29
animals	birds	Columbidae	*Geophaps scripta scripta*	squatter pigeon (southern subspecies)		V	V	4
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		30
animals	birds	Columbidae	*Phaps chalcoptera*	common bronzewing		C		14
animals	birds	Columbidae	*Phaps elegans*	brush bronzewing		C		1
animals	birds	Coraciidae	*Eurystomus orientalis*	dollarbird		C		17
animals	birds	Corcoracidae	*Corcorax melanorhamphos*	white-winged chough		C		1
animals	birds	Corvidae	*Corvus coronoides*	Australian raven		C		2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		33
animals	birds	Cuculidae	*Cacomantis flabelliformis*	fan-tailed cuckoo		C		7
animals	birds	Cuculidae	*Cacomantis pallidus*	pallid cuckoo		C		4
animals	birds	Cuculidae	*Cacomantis variolosus*	brush cuckoo		C		2
animals	birds	Cuculidae	*Centropus phasianinus*	pheasant coucal		C		19
animals	birds	Cuculidae	*Chalcites lucidus*	shining bronze-cuckoo		C		4
animals	birds	Cuculidae	*Cuculus optatus*	oriental cuckoo		SL		2
animals	birds	Cuculidae	*Eudynamys orientalis*	eastern koel		C		14
animals	birds	Cuculidae	*Scythrops novaehollandiae*	channel-billed cuckoo		C		9
animals	birds	Dicaeidae	*Dicaeum hirundinaceum*	mistletoebird		C		11
animals	birds	Dicruridae	*Dicrurus bracteatus*	spangled drongo		C		8
animals	birds	Estrildidae	*Lonchura castaneothorax*	chestnut-breasted mannikin		C		5
animals	birds	Estrildidae	*Neochmia temporalis*	red-browed finch		C		9
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		26
animals	birds	Estrildidae	*Taeniopygia guttata*	zebra finch		C		1
animals	birds	Eurostopodidae	*Eurostopodus mystacalis*	white-throated nightjar		C		3
animals	birds	Falconidae	*Falco berigora*	brown falcon		C		4
animals	birds	Falconidae	*Falco cenchroides*	nankeen kestrel		C		6
animals	birds	Falconidae	*Falco longipennis*	Australian hobby		C		1
animals	birds	Falconidae	*Falco subniger*	black falcon		C		2
animals	birds	Hirundinidae	*Hirundo neoxena*	welcome swallow		C		18
animals	birds	Hirundinidae	*Petrochelidon ariel*	fairy martin		C		2
animals	birds	Laridae	*Chroicocephalus novaehollandiae*	silver gull		C		8
animals	birds	Laridae	*Gelochelidon macrotarsa*	Australian tern		C		1
animals	birds	Laridae	*Hydroprogne caspia*	Caspian tern		SL		4
animals	birds	Locustellidae	*Cincloramphus timoriensis*	tawny grassbird		C		4
animals	birds	Maluridae	*Malurus cyaneus*	superb fairy-wren		C		4
animals	birds	Maluridae	*Malurus lamberti*	variegated fairy-wren		C		1
animals	birds	Maluridae	*Malurus melanocephalus*	red-backed fairy-wren		C		28
animals	birds	Megapodiidae	*Alectura lathami*	Australian brush-turkey		C		4
animals	birds	Meliphagidae	*Acanthorhynchus tenuirostris*	eastern spinebill		C		2
animals	birds	Meliphagidae	*Anthochaera chrysoptera*	little wattlebird		C		1
animals	birds	Meliphagidae	*Caligavis chrysops*	yellow-faced honeyeater		C		6
animals	birds	Meliphagidae	*Conopophila rufogularis*	rufous-throated honeyeater		C		1
animals	birds	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater		C		26
animals	birds	Meliphagidae	*Lichmera indistincta*	brown honeyeater		C		9
animals	birds	Meliphagidae	*Manorina melanocephala*	noisy miner		C		28
animals	birds	Meliphagidae	*Meliphaga lewinii*	Lewin's honeyeater		C		7
animals	birds	Meliphagidae	*Melithreptus albogularis*	white-throated honeyeater		C		14
animals	birds	Meliphagidae	*Melithreptus brevirostris*	brown-headed honeyeater		C		3
animals	birds	Meliphagidae	*Melithreptus lunatus*	white-naped honeyeater		C		1
animals	birds	Meliphagidae	*Myzomela obscura*	dusky honeyeater		C		1/1
animals	birds	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater		C		13
animals	birds	Meliphagidae	*Philemon citreogularis*	little friarbird		C		17
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		35
animals	birds	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater		C		5

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Meliphagidae	*Ptilotula fusca*	fuscous honeyeater		C		2
animals	birds	Meropidae	*Merops ornatus*	rainbow bee-eater		C		21
animals	birds	Monarchidae	*Carterornis leucotis*	white-eared monarch		C		1
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		35
animals	birds	Monarchidae	*Myiagra cyanoleuca*	satin flycatcher		C		2
animals	birds	Monarchidae	*Myiagra inquieta*	restless flycatcher		C		12
animals	birds	Monarchidae	*Myiagra rubecula*	leaden flycatcher		C		3
animals	birds	Motacillidae	*Anthus novaeseelandiae*	Australasian pipit		C		1
animals	birds	Neosittidae	*Daphoenositta chrysoptera*	varied sittella		C		6
animals	birds	Oriolidae	*Oriolus sagittatus*	olive-backed oriole		C		13
animals	birds	Oriolidae	*Sphecotheres vieilloti*	Australasian figbird		C		8
animals	birds	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush		C		4
animals	birds	Pachycephalidae	*Pachycephala pectoralis*	golden whistler		C		9
animals	birds	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler		C		20
animals	birds	Pardalotidae	*Pardalotus punctatus*	spotted pardalote		C		5
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		28
animals	birds	Pelecanidae	*Pelecanus conspicillatus*	Australian pelican		C		16
animals	birds	Petroicidae	*Eopsaltria australis*	eastern yellow robin		C		1
animals	birds	Petroicidae	*Microeca fascinans*	jacky winter		C		8
animals	birds	Petroicidae	*Petroica rosea*	rose robin		C		2
animals	birds	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant		C		12
animals	birds	Phalacrocoracidae	*Phalacrocorax carbo*	great cormorant		C		9
animals	birds	Phalacrocoracidae	*Phalacrocorax sulcirostris*	little black cormorant		C		14
animals	birds	Phalacrocoracidae	*Phalacrocorax varius*	pied cormorant		C		6
animals	birds	Phasianidae	*Coturnix pectoralis*	stubble quail		C		1
animals	birds	Phasianidae	*Synoicus chinensis*	king quail		C		4
animals	birds	Phasianidae	*Synoicus ypsilophorus*	brown quail		C		4
animals	birds	Pittidae	*Pitta versicolor*	noisy pitta		C		1
animals	birds	Podargidae	*Podargus strigoides*	tawny frogmouth		C		17
animals	birds	Podicipedidae	*Podiceps cristatus*	great crested grebe		C		4
animals	birds	Podicipedidae	*Tachybaptus novaehollandiae*	Australasian grebe		C		11
animals	birds	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler		C		19
animals	birds	Procellariidae	*Pterodroma nigripennis*	black-winged petrel		C		1
animals	birds	Psittaculidae	*Alisterus scapularis*	Australian king-parrot		C		25
animals	birds	Psittaculidae	*Glossopsitta concinna*	musk lorikeet		C		2
animals	birds	Psittaculidae	*Parvipsitta pusilla*	little lorikeet		C		4
animals	birds	Psittaculidae	*Platycercus adscitus*	pale-headed rosella		C		31
animals	birds	Psittaculidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		28
animals	birds	Psittaculidae	*Trichoglossus moluccanus*	rainbow lorikeet		C		39
animals	birds	Rallidae	*Fulica atra*	Eurasian coot		C		2
animals	birds	Rallidae	*Gallinula tenebrosa*	dusky moorhen		C		3
animals	birds	Rallidae	*Porphyrio melanotus*	purple swamphen		C		2
animals	birds	Recurvirostridae	*Himantopus leucocephalus*	pied stilt		C		1
animals	birds	Rhipiduridae	*Rhipidura albiscapa*	grey fantail		C		12
animals	birds	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail		C		37
animals	birds	Rhipiduridae	*Rhipidura rufifrons*	rufous fantail		C		4

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Strigidae	*Ninox boobook*	southern boobook		C		10
animals	birds	Strigidae	*Ninox strenua*	powerful owl		V		3
animals	birds	Threskiornithidae	*Platalea flavipes*	yellow-billed spoonbill		C		2
animals	birds	Threskiornithidae	*Platalea regia*	royal spoonbill		C		4
animals	birds	Threskiornithidae	*Plegadis falcinellus*	glossy ibis		SL		1
animals	birds	Threskiornithidae	*Threskiornis molucca*	Australian white ibis		C		5
animals	birds	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis		C		8
animals	birds	Turnicidae	*Turnix varius*	painted button-quail		C		2
animals	birds	Tytonidae	*Tyto javanica*	eastern barn owl		C		1
animals	birds	Tytonidae	*Tyto novaehollandiae novaehollandiae*	masked owl (southern subspecies)		C		1
animals	birds	Zosteropidae	*Zosterops lateralis*	silvereye		C		15
animals	insects	Coenagrionidae	*Ischnura heterosticta heterosticta*	common bluetail				1
animals	insects	Coenagrionidae	*Pseudagrion aureofrons*	gold-fronted riverdamsel				1
animals	insects	Coenagrionidae	*Pseudagrion ignifer*	flame-headed riverdamsel				1
animals	insects	Coenagrionidae	*Pseudagrion microcephalum*	blue riverdamsel				1
animals	insects	Corduliidae	*Hemicordulia australiae*	Australian emerald				1
animals	insects	Gomphidae	*Austrogomphus amphiclitus*	pale hunter				1
animals	insects	Libellulidae	*Crocothemis nigrifrons*	black-headed skimmer				1
animals	insects	Libellulidae	*Diplacodes haematodes*	scarlet percher				1
animals	insects	Libellulidae	*Hydrobasileus brevistylus*	water prince				1
animals	insects	Libellulidae	*Orthetrum caledonicum*	blue skimmer				1
animals	insects	Libellulidae	*Orthetrum villosovittatum*	fiery skimmer				1
animals	insects	Libellulidae	*Rhyothemis graphiptera*	graphic flutterer				1
animals	insects	Libellulidae	*Rhyothemis phyllis chloe*	yellow-striped flutterer				1
animals	insects	Lindeniidae	*Ictinogomphus australis*	Australian tiger				1
animals	insects	Megapodagrionidae	*Austroargiolestes icteromelas*	common flatwing				1
animals	insects	Nymphalidae	*Danaus petilia*	lesser wanderer				1
animals	insects	Nymphalidae	*Euploea corinna*	common crow				2
animals	insects	Pieridae	*Eurema hecabe*	large grass-yellow				1
animals	insects	Platycnemididae	*Nosoticta solida*	orange threadtail				1
animals	insects	Synthemistidae	*Choristhemis flavoterminata*	yellow-tipped tigertail				1
animals	lobe-finned fishes	Ceratodontidae	*Neoceratodus forsteri*	Australian lungfish		V	V	2
animals	mammals	Acrobatidae	*Acrobates pygmaeus*	feathertail glider		C		1
animals	mammals	Canidae	*Canis familiaris (dingo)*	dingo				1
animals	mammals	Dasyuridae	*Phascogale tapoatafa tapoatafa*	brush-tailed phascogale		C		4
animals	mammals	Macropodidae	*Macropus giganteus*	eastern grey kangaroo		C		2
animals	mammals	Macropodidae	*Notamacropus agilis*	agile wallaby		C		2
animals	mammals	Macropodidae	*Notamacropus dorsalis*	black-striped wallaby		C		3
animals	mammals	Macropodidae	*Notamacropus parryi*	whiptail wallaby		C		6
animals	mammals	Macropodidae	*Notamacropus rufogriseus*	red-necked wallaby		C		16
animals	mammals	Macropodidae	*Petrogale penicillata*	brush-tailed rock-wallaby		V	V	20
animals	mammals	Molossidae	*Austronomus australis*	white-striped freetail bat		C		2
animals	mammals	Muridae	*Hydromys chrysogaster*	water rat		C		1
animals	mammals	Ornithorhynchidae	*Ornithorhynchus anatinus*	platypus		SL		2
animals	mammals	Peramelidae	*Isoodon macrourus*	northern brown bandicoot		C		4
animals	mammals	Peramelidae	*Perameles nasuta*	long-nosed bandicoot		C		2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	mammals	Petauridae	*Petaurus breviceps sensu lato*	sugar glider		C		3
animals	mammals	Petauridae	*Petaurus norfolcensis*	squirrel glider		C		5
animals	mammals	Phalangeridae	*Trichosurus vulpecula*	common brushtail possum		C		14
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		E	E	308
animals	mammals	Potoroidae	*Aepyprymnus rufescens*	rufous bettong		C		17
animals	mammals	Pseudocheiridae	*Pseudocheirus peregrinus*	common ringtail possum		C		1
animals	mammals	Pteropodidae	*Pteropus alecto*	black flying-fox		C		37
animals	mammals	Pteropodidae	*Pteropus poliocephalus*	grey-headed flying-fox		C	V	34
animals	mammals	Pteropodidae	*Pteropus scapulatus*	little red flying-fox		C		10
animals	mammals	Tachyglossidae	*Tachyglossus aculeatus*	short-beaked echidna		SL		4
animals	ray-finned fishes	Ambassidae	*Ambassis agassizii*	Agassiz's glassfish				11
animals	ray-finned fishes	Anguillidae	*Anguilla australis*	southern shortfin eel				1
animals	ray-finned fishes	Anguillidae	*Anguilla reinhardtii*	longfin eel				4
animals	ray-finned fishes	Atherinidae	*Craterocephalus marjoriae*	silverstreak hardyhead				6
animals	ray-finned fishes	Atherinidae	*Craterocephalus stercusmuscarum*	flyspecked hardyhead				20
animals	ray-finned fishes	Clupeidae	*Nematalosa erebi*	bony bream				2
animals	ray-finned fishes	Eleotridae	*Gobiomorphus australis*	striped gudgeon				2
animals	ray-finned fishes	Eleotridae	*Hypseleotris galii*	firetail gudgeon				58
animals	ray-finned fishes	Eleotridae	*Hypseleotris klunzingeri*	western carp gudgeon				39
animals	ray-finned fishes	Eleotridae	*Mogurnda adspersa*	southern purplespotted gudgeon				46
animals	ray-finned fishes	Eleotridae	*Oxyeleotris lineolata*	sleepy cod				1
animals	ray-finned fishes	Eleotridae	*Philypnodon grandiceps*	flathead gudgeon				15
animals	ray-finned fishes	Eleotridae	*Philypnodon macrostomus*	dwarf flathead gudgeon				15
animals	ray-finned fishes	Hemiramphidae	*Arrhamphus sclerolepis*	snubnose garfish				1
animals	ray-finned fishes	Melanotaeniidae	*Melanotaenia duboulayi*	crimsonspotted rainbowfish				24
animals	ray-finned fishes	Percichthyidae	*Macquaria novemaculeata*	Australian bass				2
animals	ray-finned fishes	Plotosidae	*Tandanus tandanus*	freshwater catfish				29
animals	ray-finned fishes	Pseudomugilidae	*Pseudomugil signifer*	Pacific blue eye				12
animals	ray-finned fishes	Retropinnidae	*Retropinna semoni*	Australian smelt				11
animals	ray-finned fishes	Terapontidae	*Amniataba percoides*	barred grunter				7
animals	ray-finned fishes	Terapontidae	*Leiopotherapon unicolor*	spangled perch				31
animals	reptiles	Agamidae	*Intellagama lesueurii*	eastern water dragon		C		1
animals	reptiles	Agamidae	*Pogona barbata*	bearded dragon		C		7
animals	reptiles	Boidae	*Morelia spilota*	carpet python		C		2
animals	reptiles	Chelidae	*Emydura sp.*			C		1
animals	reptiles	Colubridae	*Boiga irregularis*	brown tree snake		C		2
animals	reptiles	Colubridae	*Dendrelaphis punctulatus*	green tree snake		C		3
animals	reptiles	Colubridae	*Tropidonophis mairii*	freshwater snake		C		1
animals	reptiles	Diplodactylidae	*Oedura tryoni*	southern spotted velvet gecko		C		1
animals	reptiles	Elapidae	*Cacophis harriettae*	white-crowned snake		C		1
animals	reptiles	Elapidae	*Cryptophis nigrescens*	eastern small-eyed snake		C		2
animals	reptiles	Elapidae	*Furina diadema*	red-naped snake		C		1
animals	reptiles	Elapidae	*Pseudechis porphyriacus*	red-bellied black snake		C		2
animals	reptiles	Elapidae	*Pseudonaja textilis*	eastern brown snake		C		4
animals	reptiles	Elapidae	*Vermicella annulata*	bandy-bandy		C		2
animals	reptiles	Gekkonidae	*Gehyra dubia*	dubious dtella		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	reptiles	Scincidae	*Carlia pectoralis sensu lato*			C		2
animals	reptiles	Scincidae	*Carlia schmeltzii*	robust rainbow-skink		C		1
animals	reptiles	Scincidae	*Cryptoblepharus pulcher pulcher*	elegant snake-eyed skink		C		3
animals	reptiles	Scincidae	*Ctenotus taeniolatus*	copper-tailed skink		C		1
animals	reptiles	Scincidae	*Eulamprus quoyii*	eastern water skink		C		1
animals	reptiles	Scincidae	*Lampropholis delicata*	dark-flecked garden sunskink		C		1
animals	reptiles	Varanidae	*Varanus varius*	lace monitor		C		1
animals	uncertain	Indeterminate	*Indeterminate*	Unknown or Code Pending				1

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.*
The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.*
The values of EPBC are Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD).

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).
This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

APPENDIX C

BioCondition scoring sheets

Assessment Unit - Regional Ecosystem	AU1- Patchy Regrowth (RE12.9-10.2)														
	RE12.9-10.2 Benchmark	Transect 1	Transect 4	Transect 9	Transect 10	BC1	BC2	BC4	BC7	BC9	BC13	BC14	Average of Transect(s)	% Benchmark	Score
BIOCONDITION															
Recruitment of woody perennial species in EDL	**100**	100	100	66	0	100	100	100	100	100	100	100	**87.82**	87.81818182	**5.0**
Native plant species richness - trees	**6**	3	4	4	3	6	6	7	4	3	5	7	**4.73**	78.79	**2.5**
Native plant species richness - shrubs	**7**	2	3	3	2	5	5	3	7	4	7	5	**4.18**	59.74	**2.5**
Native plant species richness - grasses	**7**	5	8	2	2	7	7	4	2	3	4	3	**4.27**	61.04	**2.5**
Native plant species richness - forbs	**13**	6	9	7	1	14	14	13	8	9	7	15	**9.36**	72.03	**2.5**
Tree canopy height (Canopy)*	**21**	0	0	0	0	12.0	25	17.0	14	18	16	19	**11.00**	52.38	3.0
Tree canopy height (Sub-canopy)*	**12**	12	9	14	9	9.0	15	8.0	9	12	6	13	**10.55**	87.88	5.0
														***Average tree canopy height**	**4.0**
Tree canopy cover (Canopy)**	**64**	0	0	0	0	31.5	13	13	23.4	5.6	42.5	7	**12.3636364**	19.32	2.0
Tree canopy cover (Sub-canopy)**	**20**	35.2	24.3	28.1	42	15.5	25	12	15.3	16.3	18.2	22	**23.08**	115.41	5.0
														****Average tree canopy cover**	**3.5**
Shrub canopy cover	**6**	0.7	1.8	3.1	2	0.0	0	1.5	2.3	4.6	4.5	0	**1.86**	31.06	**3.0**
Native grass cover*	**21**	55.6	74	80.4	44	14.0	41	8	1	18	27.2	40	**36.65**	174.55	**5.0**
Organic litter*	**48**	4	9	8	22	37.0	4	25	11.6	12	37	8	**16.15**	33.64	**3.0**
Large trees (euc plus non-euc) (per ha)	**38**	0	0	0	0	2	6	2	4	8	4	6	**2.91**	7.66	**5.0**
Coarse woody debris (per ha)	**506**	0	0.5	8	46.2	55	70	30	310	580	130	10	**112.70**	22.27	**2.0**
Non-native plant cover	**0**	50	15	35	25	20.0	10.0	30.0	8.0	5.0	2.0	5	**18.64**	18.64	**5.0**
														BioCondition Score (/80)	45.5
														Overall Site BioCondition Score - out of 10	**5.69**

Assessment Unit - Regional Ecosystem	AU 2 -Non-remnant Paddock (RE12.9-10.2)								
	RE12.9-10.2 Benchmark	Transect 5	Transect 6	BC6	BC11	BC17	Average of Transect(s)	% Benchmark	Score
BIOCONDITION									
Recruitment of woody perennial species in EDL	100	25	33	100	100	100	**71.60**	71.60	**3.0**
Native plant species richness - trees	6	4	3	7	4	4	**4.40**	73.33	**2.5**
Native plant species richness - shrubs	7	1	1	5	4	3	**2.80**	40.00	**2.5**
Native plant species richness - grasses	7	4	6	3	2	4	**3.80**	54.29	**2.5**
Native plant species richness - forbs	13	5	6	16	7	5	**7.80**	60.00	**2.5**
Tree canopy height (Canopy)*	21	0	0	10.0	12	12	**6.80**	32.38	3.0
Tree canopy height (Sub-canopy)*	12	5	9	5.0	7	9	**7.00**	58.33	3.0
								***Average tree canopy height**	**3.0**
Tree canopy cover (Canopy)**	64	0	0	7.5	9.5	4	**4.20**	6.56	0.0
Tree canopy cover (Sub-canopy)**	20	2.9	6.2	1.0	5.4	0	**3.10**	15.50	2.0
								****Average tree canopy cover**	**1.0**
Shrub canopy cover	6	0.9	1.7	2.5	0.5	1.4	**1.40**	23.33	**3.0**
Native grass cover*	21	85	76.6	13.0	26	23.2	**44.76**	213.14	**5.0**
Organic litter*	48	0	0	18.0	6	3.2	**5.44**	11.33	**3.0**
Large trees (euc plus non-euc) (per ha)	38	0	0	0	0	0	**0.00**	0.00	**0.0**
Coarse woody debris (per ha)	506	0.9	0	0	220	80	**60.18**	11.89	**2.0**
Non-native plant cover	0	28	31	40	15.0	5.0	**23.80**	23.80	**5.0**
								BioCondition Score (/80)	35
								Overall Site BioCondition Score - out of 10	**4.38**

Assessment Unit - Regional Ecosystem	AU 3 - Remnant Vegetation (RE12.9-10.2)									
	RE12.9-10.2 Benchmark	Transect 2	Transect 11	BC3	BC5	BC10	BC15	Average of Transect(s)	% Benchmark	Score
BIOCONDITION										
Recruitment of woody perennial species in EDL	100	33	75	100	100	100	100	84.66666667	84.66666667	5.0
Native plant species richness - trees	6	3	6	4	2	12	4	5.166666667	86.11	2.5
Native plant species richness - shrubs	7	1	4	5	8	8	10	6	85.71	2.5
Native plant species richness - grasses	7	8	3	3	7	6	4	5.166666667	73.81	2.5
Native plant species richness - forbs	13	7	8	12	8	14	4	8.833333333	67.95	2.5
Tree canopy height (Canopy)*	21	22	20	24.0	19	30	22.0	22.83333333	108.73	5.0
Tree canopy height (Sub-canopy)*	12	11	16	12.0	12	8	14.0	12.16666667	101.39	5.0
									*Average tree canopy height	5.0
Tree canopy cover (Canopy)**	64	20.3	59.7	13.3	42.2	34	30.5	33.33333333	52.08	5.0
Tree canopy cover (Sub-canopy)**	20	36.4	54.8	88.3	25.4	17.5	0.0	37.06666667	185.33	5.0
									**Average tree canopy cover	5.0
Shrub canopy cover	6	10.6	1.2	17.8	13.33	8.5	65.0	19.405	323.42	3.0
Native grass cover*	21	49	28.4	28.0	52	22	12.6	32	152.38	5.0
Organic litter*	48	32	52	51.0	17.6	52	45.4	41.66666667	86.81	5.0
Large trees (euc plus non-euc) (per ha)	38	0	6	12	10	12	10	8.333333333	21.93	5.0
Coarse woody debris (per ha)	506	51.3	15	945	560	390	230	365.2166667	72.18	5.0
Non-native plant cover	0	20	19	2.0	10.0	12.0	2.0	10.83333333	10.83	5.0
									BioCondition Score (/80)	53
									Overall Site BioCondition Score - out of 10	6.63

Assessment Unit - Regional Ecosystem	AU 4 - Remnant Vegetation (RE12.3.7)						
	RE12.3.7 Benchmark	Transect 7	Transect 14	BC 16	Average of Transect(s)	% Benchmark	Score
BIOCONDITION							
Recruitment of woody perennial species in EDL	100	75	100	100	**91.67**	91.67	**5.0**
Native plant species richness - trees	6	12	3	6	**7.00**	116.67	**5.0**
Native plant species richness - shrubs	8	6	7	6	**6.33**	79.17	**2.5**
Native plant species richness - grasses	6	5	4	4	**4.33**	72.22	**2.5**
Native plant species richness - forbs	17	14	6	16	**12.00**	70.59	**2.5**
Tree canopy height (Canopy)*	22	24	16	25.0	**21.67**	98.48	5.0
Tree canopy height (Sub-canopy)*	12	11	5	9.0	**8.33**	69.44	3.0
						*Average tree canopy height	**4.0**
Tree canopy cover (Canopy)**	31	49.8	14	28.0	**30.60**	98.71	5.0
Tree canopy cover (Sub-canopy)**	23	39.6	13.9	18.0	**23.83**	103.62	5.0
						**Average tree canopy cover	**5.0**
Shrub canopy cover	22	17.7	5.9	0.5	**8.03**	36.52	**3.0**
Native grass cover*	8	29	52	0.4	**27.13**	339.17	**5.0**
Organic litter*	27	38	35	31.0	**34.67**	128.40	**5.0**
Large trees (euc plus non-euc) (per ha)	60	10	8	20	**12.67**	21.11	**5.0**
Coarse woody debris (per ha)	667	58.8	330	530	**306.27**	45.92	**2.0**
Non-native plant cover	0	35	7	5.0	**15.67**	15.67	**5.0**
						BioCondition Score (/80)	51.5
						Overall Site BioCondition Score - out of 10	**6.44**

APPENDIX D

Koala and Grey-headed Flying-fox context mapping

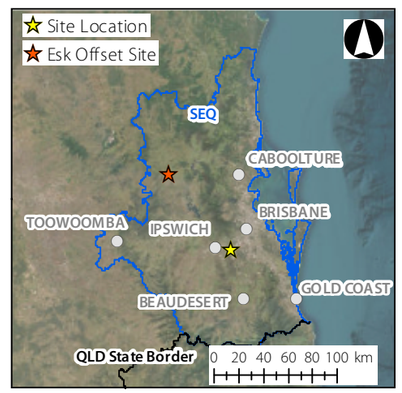
Esk Landholdings Offset Area – Koala Context Assessment

Notes:
This plan was prepared as a desktop assessment tool. The information on this plan is not suitable for any other purpose. Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

Layer Sources:
© State of Queensland 2025. Updated data available at http://qldspatial.information.qld.gov.au/catalogue//
© Nearmap, 2025
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
* This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

Legend

- Esk Landholdings Offset Area
- 1km Offset area buffer
- Percentage of offset area boundary length supporting a connection off and on site to Koala critical habitat - 38.4%
- Percentage of Koala critical habitat within 1km of offset area (27.6%)
- Size of Koala critical habitat patch > 500 ha



0 100 200 300 400 500 m

Transverse Mercator | GDA 2020 | Zone 56 | 1:22,500 @ A3

Address / RPD: Esk

25/11/2025 | 9612 E 04 BAAM Esk Koala A

Cherish Enterprises Pty Ltd

Springfield
Residential Development

Esk Landholdings Offset Area – Grey-headed Flying-Fox Context Assessment

152°10'0"E 152°20'0"E 152°30'0"E 152°40'0"E

27°10'0"S 27°20'0"S 27°30'0"S

Toogoolawah, Cressbrook Creek (1217)

Esk (156)

Camira, Stephen Cook Memorial Park (1269)

Atkinsons Dam (985)

Lowood Bend (Camp 1) Brisbane River (383)

Lowood (Camp 2) Water Tower (382)

Pine Mountain (Camerons Scrub/Sapling Pocket) (423)

Notes:

This plan was prepared as a desktop assessment tool. The information on this plan is not suitable for any other purpose. Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

Layer Sources:

© State of Queensland 2025. Updated data available at http://qldspatial.information.qld.gov.au/catalogue//

© Nearmap, 2025

Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

* This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

Legend

- Esk Landholdings Offset Area
- 20km Offset Area Buffer
- Potential and known Grey-headed Flying-fox foraging habitat within 20km of offset area [33%]

Grey-headed Flying-fox Roosts (Fed. Gov., 2025)

- Grey-headed Flying Fox roost inactive within recent surveys [1]
- Grey-headed Flying Fox roost active within recent surveys
- Grey-headed Flying Fox roost active within recent surveys with a population level of 3 or above [1]
- Nationally significant Grey-headed Flying Fox roost active within recent surveys
- Nationally significant Grey-headed Flying Fox roost active within recent surveys with a population level of 3 or above [1]

0 1 2 3 4 5 km

Transverse Mercator | GDA 2020 | Zone 56 | 1:200,000 @ A3

Cherish Enterprises Pty Ltd

Springfield
Residential Development

Address / RPD: Esk

25/11/2025 | 9612 E 05 BAAM Esk GHFF A

APPENDIX E

Tree plot data

Tree Plot Data

Listed as a Significant Food Tree
Listed under the recovery plan

Site	AU	Species	Total no Trees
BC1	AU1	*E. tereticornis*	57
		C. intermedia	4
		A. subvelutina	25
		L. suaveolens	7
BC2	AU1	*A. subvelutina*	17
		E. tereticornis	31
		C. intermedia	1
		Acacia sp	2
		L. suaveolens	3
		C. tessilaris	1
BC4	AU1	*E. tereticornis*	49
		L. suaveolens	3
		C. intermedia	3
BC7	AU1	*Banksia integrifolia*	16
		Petalostigma pubescens	1
		A. subvelutina	5
		Acacia leiocalyx	1
		E. tereticornis	21
		C. intermedia	1
BC9	AU1	*C. tessilaris*	47
		E. tereticornis	7
		C. citriodora	3
BC 13	AU1	*C. tessilaris*	10
		C. citriodora	3
		C. intermedia	9
		L. suaveolens	19
		E. crebra	5
BC14	AU1	*A. subvelutina*	9
		Casuarina littoralis	4
		E. tereticornis	37

Site	AU	Species	Total no Trees
		C. intermedia	4
		Acacia sp	1
		Dodonaeae sp	1
BC6	AU2	*E. tereticornis*	9
		A. subvelutina	14
		C. intermedia	1
BC11	AU2	*C. tessilaris*	5
		C. citriodora	5
		Erythrina vespertilio	1
		Acacia leiocalyx	1
		C. intermedia	1
BC17	AU2	*C. tessilaris*	2
		E. tereticornis	1
		L. suaveolens	2
		C. intermedia	2
BC3	AU3	*C. citriodora*	93
		E. crebra	9
		C. tessilaris	1
		C. intermedia	1
BC5	AU3	*C. citriodora*	64
		E. crebra	6
		C. tessilaris	2
		C. intermedia	4
BC10	AU3	*C. citriodora*	22
		C. intermedia	27
		Euc acmenoides	12
		E. crebra	18
		Petalostigma pubescens	1
		C. tessilaris	1
		Alphitonia excelsa	2
BC15	AU3	*C. tessilaris*	8
		E. tereticornis	6
		C. citriodora	56
		Alphitonia excelsa	1

Site	AU	Species	Total no Trees
		Petalostigma pubescens	9
		E. crebra	6
		C. intermedia	1
BC16	AU4	*E. tereticornis*	7
		C. tessilaris	6
		C. citriodora	2
		L. suaveolens	5

APPENDIX F

Grey-headed Flying-fox site condition scoring sheets

Esk offset area - GHFF AU1

Assessment Unit - Regional Ecosystem	AU 1 Non-remnant patchy regrowth RE12.9-10.2													
Site Reference	Transect 1	Transect 4	BC1	BC2	BC4	BC7	BC9	BC13	BC14	Transect 9	Transect 10	Average	AU Score	OUT OF
	Raw Data	Raw Data								Raw Data	Raw Data	Score		(X/X)
Vegetation Condition	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.00	**5**	**20**
Species Richness	3.0	4.0	4.0	3.0	3.0	3.0	3.0	4.0	3.0	3.0	3.0	3.27	**5**	**20**
Flower Score	0.613	0.560	0.448	0.368	0.345	0.453	0.560	0.590	0.230	0.613	0.63	0.4918	**5**	**10**
Timing of Biological Shortages	10	10	10	10	10	10	10	10	10	10	10	10.00	**10**	**10**
Quality of Foraging Habitat	2	2	2	2	1	2	2	3	1	2	2	1.91	**5**	**20**
Non-native Plant Cover	50.00	15.00	20.00	10.00	30.00	8.00	5.00	2.00	5.00	35.00	25.00	18.64	**10**	**20**
Site Condition Score													**40**	***X***
MAX Site Condition Score													***100***	***X***
Site Condition Score - out of 4													**1.60**	***X***

Site Condition

Vegetation Description	Score
Cat X	5
Cat C	10
Cat B	20

Canopy Species Richness	Score
0 GHFF Foraging Species	0
1 - 3 GHFF Foraging Species	5
4 - 6 GHFF Foraging Species	10
> 6 GHFF Foraging Species	20

Quality of Foraging Species	Score
0 Significant Foraging Species	0
1 - 3 Significant Foraging Species	5
4 - 6 Significant Foraging Species	10
> 6 Significant Foraging Species	20

Listed as a Significant Food Tree
Listed under the recovery plan

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
T1									
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Angophora subvelutina	0.35			x			x		
Corymbia intermedia	0.86			x	x		x	1	
Average	**0.613**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**2**	
Total Species:									
GHFF Species:	3								
Important Species:	2								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
T4									
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Angophora subvelutina	0.35			x			x		
Corymbia intermedia	0.86			x	x		x	1	
Corymbia tessellaris	0.4			x	x		x		
Average	**0.560**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**2**	
Total Species:									
GHFF Species:	4								
Important Species:	2								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
T9									
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Corymbia tessellaris	0.4			x	x		x		
Eucalyptus siderophloia	0.81	x	x			x	x	1	
Average	**0.613**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**2**	
Total Species:									
GHFF Species:	3								
Important Species:	2								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
T10									
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Corymbia tessellaris	0.4			x	x		x		
Corymbia intermedia	0.86			x	x		x	1	
Average	**0.630**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**2**	
Total Species:									
GHFF Species:	3								
Important Species:	2								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
BC1									
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Corymbia tessellaris	0.4			x	x		x		
Lophostemon suaveolens	0								
Angophora subvelutina	0.35			x			x		
Corymbia intermedia	0.86			x	x		x	1	
Average	**0.448**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**2**	
Total Species:	5								
GHFF Species:	4								
Important Species:	2								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
BC2									
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Corymbia intermedia	0.86			x	x		x	1	
Angophora subvelutina	0.35			x			x		
Acacia disparrima	0								
Lophostemon suaveolens	0								
Average	**0.368**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**2**	
Total Species:	5								
GHFF Species:	3								
Important Species:	2								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
BC4									
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Corymbia tessellaris	0.4			x	x		x		
Lophostemon suaveolens	0								
Angophora subvelutina	0.35			x			x		
Average	**0.345**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**1**	
Total Species:	4								
GHFF Species:	3								
Important Species:	1								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
BC7									
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Pelatostigma pubescence	0								
Banksia integrifolia	0.83	x	x		x		x		
Angophora subvelutina	0.35			x			x		
Average	**0.453**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**2**	
Total Species:	4								
GHFF Species:	3								
Important Species:	2								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
BC9									
Corymbia citriodora	0.65	x	x					1	
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Corymbia tessellaris	0.4			x	x		x		
Average	**0.560**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**		
Total Species:	3								
GHFF Species:	3								
Important Species:	2								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
BC13									
Corymbia citriodora	0.65		x	x	x			1	
Eucalyptus siderophloia	0.81	x	x			x	x	1	
Lophostemon suaveolens	0								
Corymbia tessilaris	0.63			x	x		x		
Corymbia intermedia	0.86			x	x		x	1	
Average	**0.590**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**3**	
Total Species:	5								
GHFF Species:	4								
Important Species:	3								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
BC14									
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Corymbia tessellaris	0.4			x	x		x		
Acacia disparrima	0								
Dodonea sp	0								
Casuarina littoralis	0								
Angophora subvelutina	0.35			x			x		
Average	**0.230**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**1**	
Total Species:	6								
GHFF Species:	3								
Important Species:	1								

Esk offset area - GHFF AU2

Assessment Unit - Regional Ecosystem								
Site Reference	BC6	BC11	BC17	Transect 5	Transect 6	Average	AU Score	OUT OF
				Raw Data	Raw Data	Score		(X/X)
Vegetation Condition	5.0	5.0	5.0	5.0	5.0	5.00	**5**	**20**
Species Richness	3.0	3.0	2.0	4.0	3.0	3.00	**5**	**20**
Flower Score	0.613	0.382	0.420	0.5475	0.46	0.4846	**5**	**10**
Timing of Biological Shortages	10	8.5	10	10	10	9.70	**9.7**	**10**
Quality of Foraging Habitat	2	2	2	2	1	1.80	**5**	**20**
Non-native Plant Cover	40.00	15.00	5.00	0.90	0.00	12.18	**10**	**20**
Site Condition Score							**39.7**	***X***
MAX Site Condition Score							***100***	***X***
Site Condition Score - out of 4							**1.59**	***X***

Site Condition

Vegetation Description	Score
Cat X	5
Cat C	10
Cat B	20

Canopy Species Richness	Score
0 GHFF Foraging Species	0
1 - 3 GHFF Foraging Species	5
4 - 6 GHFF Foraging Species	10
> 6 GHFF Foraging Species	20

Quality of Foraging Species	Score
0 Significant Foraging Species	0
1 - 3 Significant Foraging Species	5
4 - 6 Significant Foraging Species	10
> 6 Significant Foraging Species	20

Listed as a Significant Food Tree
Listed under the recovery plan

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
Flower Scores	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating and conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
T5									
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Angophora subvelutina	0.35			x			x		
Corymbia tessellaris	0.4			x	x		x		
Eucalyptus siderophloia	0.81	x	x			x	x	1	
Average	**0.5475**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**2**	
Total Species:									
GHFF Species:	4								
Important Species:	2								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
Flower Scores	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating and conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
T6									
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Angophora subvelutina	0.35			x			x		
Corymbia tessellaris	0.4			x	x		x		
Average	**0.4600**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**1**	
Total Species:									
GHFF Species:	3								
Important Species:	1								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
Flower Scores	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating and conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
BC6									
Corymbia intermedia	0.86			x	x		x	1	
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Angophora subvelutina	0.35			x			x		
Average	**0.6133**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**0**	
Total Species:	3								
GHFF Species:	3								
Important Species:	2								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
Flower Scores	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating and conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	0	1.5		8.5
BC11									
Corymbia tessellaris	0.4			x	x		x		
Erythrina vespertilio	0								
Acacia leiocalyx	0								
Corymbia intermedia	0.86			x	x		x	1	
Corymbia citriodora	0.65	x	x					1	
Average	**0.3820**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**1**	
Total Species:	5								
GHFF Species:	3								
Important Species:	2								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
Flower Scores	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating and conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
BC17									
Corymbia tessellaris	0.4			x	x		x		
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Lophostemon suaveolens	0								
Corymbia citriodora	0.65	x	x					1	
Average	**0.4200**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**1**	
Total Species:	4								
GHFF Species:	2								
Important Species:	2								

Esk offset area - GHFF AU3

Assessment Unit - Regional Ecosystem	AU 3 - Regrowth/Remnant RE12.9-10.2											
Site Reference	Transect 2	BC3	BC5	BC8	BC10	BC15	Transect 11	Transect 12	Transect 13	Average Score	AU Score	OUT OF (X/X)
	Raw Data						Raw Data	Raw Data	Raw Data			
Vegetation Condition	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.00	**10**	**20**
Species Richness	3.0	4.0	4.0	5.0	4.0	5.0	5.0	3.0	4.0	4.11	**10**	**20**
Flower Score	0.720	0.640	0.640	0.508	0.427	0.456	0.592	0.620	0.685	0.5875	**8**	**10**
Timing of Biological Shortages	8.5	8.5	8.5	10	8.5	10	8.5	10	8.5	9.0000	**9**	**10**
Quality of Foraging Habitat	3	3	3	3	2	4	3	2	4	3.00	**5**	**20**
Non-native Plant Cover	20.00	2.00	10.00	4.00	12.00	2.00	14.00	5.00	6.00	8.33	**10**	**20**
Site Condition Score											**52**	***X***
MAX Site Condition Score											***100***	***X***
Site Condition Score - out of 4											**2.08**	***X***

Site Condition

Vegetation Description	Score
Cat X	5
Cat C	10
Cat B	20

Canopy Species Richness	Score
0 GHFF Foraging Species	0
1 - 3 GHFF Foraging Species	5
4 - 6 GHFF Foraging Species	10
> 6 GHFF Foraging Species	20

Quality of Foraging Species	Score
0 Significant Foraging Species	0
1 - 3 Significant Foraging Species	5
4 - 6 Significant Foraging Species	10
> 6 Significant Foraging Species	20

Listed as a Significant Food Tree
Listed under the recovery plan

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	0	1.5		8.5
T2									
Corymbia citriodora	0.65	x	x					1	
Eucalyptus crebra	0.65	x	x					1	
Corymbia intermedia	0.86			x	x		x	1	
Average	**0.720**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**3**	
Total Species:									
GHFF Species:	3								
Important Species:	3								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	0	1.5		8.5
T11									
Corymbia citriodora	0.65	x	x					1	
Eucalyptus crebra	0.65	x	x					1	
Corymbia intermedia	0.86			x	x		x	1	
Corymbia tessellaris	0.4			x	x		x		
Lophostemon suaveolens	0.4				x		x		
Average	**0.592**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**3**	
Total Species:									
GHFF Species:	4								
Important Species:	3								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
T12									
Corymbia tessellaris	0.4			x	x		x		
Eucalyptus siderophloia	0.81	x	x			x	x	1	
Corymbia citriodora	0.65	x	x					1	
Average	**0.620**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**2**	
Total Species:									
GHFF Species:	3								
Important Species:	2								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	0	1.5	1.5		8.5
T13									
Eucalyptus siderophloia	0.81	x	x			x	x	1	
Corymbia citriodora	0.65	x	x					1	
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Eucalyptus crebra	0.65	x	x					1	
Average	**0.685**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**4**	
Total Species:									
GHFF Species:	4								
Important Species:	4								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	0	1.5		8.5
BC3									
Corymbia citriodora	0.65	x	x					1	
Corymbia tessellaris	0.4			x	x		x		
Corymbia intermedia	0.86			x	x		x	1	
Eucalyptus crebra	0.65	x	x					1	
Average	**0.640**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**3**	
Total Species:	4								
GHFF Species:	4								
Important Species:	3								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	0	1.5		8.5
BC5									
Corymbia citriodora	0.65	x	x					1	
Eucalyptus crebra	0.65	x	x					1	
Corymbia intermedia	0.86			x	x		x	1	
Corymbia tessellaris	0.4			x	x		x		
Average	**0.640**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**1**	
Total Species:	4								
GHFF Species:	4								
Important Species:	3								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	0	1.5		8.5
BC10									
Corymbia citriodora	0.65	x	x					1	
Corymbia intermedia	0.86			x	x		x	1	
Eucalyptus crebra	0.65	x	x					1	
Corymbia tessellaris	0.4			x	x		x		
Pelatostigma pubescence	0								
Alphitonia excelsa	0								
Eucalyptus acmenoides	0.43		x	x	x		x		
Average	**0.427**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**2**	
Total Species:	7								
GHFF Species:	5								
Important Species:	3								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
BC15									
Corymbia citriodora	0.65	x	x					1	
Pelatostigma pubescence	0								
Alphitonia excelsa	0								
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Corymbia intermedia	0.86			x	x		x	1	
Eucalyptus crebra	0.65	x	x					1	
Corymbia tessellaris	0.4			x	x		x		
Average	**0.456**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**2**	
Total Species:	7								
GHFF Species:	5								
Important Species:	4								

Esk offset area - GHFF AU4

Assessment Unit - Regional Ecosystem	AU 4 - Waterway Remnant RE12.3.7					
Site Reference	Transect 7	BC16	Transect 14	Average	AU Score	OUT OF
	Raw Data		Raw Data	Score		(X/X)
Vegetation Condition	20.0	20.0	20.0	20.00	**20**	**20**
Species Richness	4.0	4.0	2.0	3.33	**5**	**20**
Flower Score	0.448	0.635	0.49	0.5243	**8**	**10**
Timing of Biological Shortages	10	10	8.5	9.50	**9.5**	**10**
Quality of Foraging Habitat	2	3	1	2.00	**5**	**20**
Non-native Plant Cover	35.00	5.00	7.00	15.67	**10**	**20**
Site Condition Score					**57.50**	***X***
MAX Site Condition Score					***100***	***X***
Site Condition Score - out of 4					**2.30**	***X***

Site Condition

Vegetation Description	Score
Cat X	5
Cat C	10
Cat B	20

Canopy Species Richness	Score
0 GHFF Foraging Species	0
1 - 3 GHFF Foraging Species	5
4 - 6 GHFF Foraging Species	10
> 6 GHFF Foraging Species	20

Quality of Foraging Species	Score
0 Significant Foraging Species	0
1 - 3 Significant Foraging Species	5
4 - 6 Significant Foraging Species	10
> 6 Significant Foraging Species	20

Listed as a Significant Food Tree
Listed under the recovery plan

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
Flower Scores	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating and conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
T7									
Angophora subvelutina	0.35			x			x		
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Corymbia intermedia	0.86			x	x		x	1	
Corymbia tessellaris	0.4			x	x		x		
Lophostemon suaveolens	0.4				x		x		
Average	**0.5280**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**2**	
Total Species:									
GHFF Species:	5								
Important Species:	2								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
Flower Scores	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating and conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	0	1.5		8.5
T14									
Angophora subvelutina	0.35			x			x		
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Average	**0.4900**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**1**	
Total Species:									
GHFF Species:	2								
Important Species:	1								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
Flower Scores	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating and conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
BC16									
Corymbia tessellaris	0.4			x	x		x		
Corymbia intermedia	0.86			x	x		x	1	
Corymbia citriodora	0.65	x	x					1	
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Average	**0.6350**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**3**	
Total Species:	4								
GHFF Species:	4								
Important Species:	3								

APPENDIX G

Rehabilitation Plan

Esk Landholdings Offset Area

Rehabilitation Management Plan

Springfield Residential Development (EPBC 2019/8575)

DWG NO.	DRAWING TITLE	ISSUE	DATE
9612 E 01 ESK RMP A	COVER SHEET	A	01/12/2025
9612 E 02 ESK RMP A	INTRODUCTION AND NOTES	A	01/12/2025
9612 E 03 ESK RMP A	REHABILITATION ZONES	A	01/12/2025
9612 E 04 ESK RMP A	DETAIL SHEET	A	01/12/2025
9612 E 05-08 ESK RMP A	PLANTING SPECIES SCHEDULES	A	01/12/2025
9612 E 09 ESK RMP A	SITE PREPARATION	A	01/12/2025
9612 E 10 ESK RMP A	PLANTING NOTES	A	01/12/2025
9612 E 11 ESK RMP A	MAINTENANCE AND MONITORING	A	01/12/2025
9612 E A01 ESK RMP A	APPENDIX 1. WEED TREATMENT AND REMOVAL	A	01/12/2025

Saunders Havill

PATHWAYS TO SUCCESS

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Introduction and Notes*

Introduction

This Esk Rehabilitation Management Plan (Esk RMP) has been prepared by Saunders Havill (SH) for Cherish Enterprises and forms part of the Esk Offset Area Management Plan (OAMP) for the Springfield Residential Development (EPBC 2019/8575).

The Esk Landholdings Offset Area is located at Gatton Esk Road, Esk, Queensland within the Somerset Regional Council Local Government Area (LGA).

The primary objective of this RMP is to provide a detailed guide for the creation of resilient, fully-functioning vegetation communities that achieve the Environmental Outcomes proposed under the OAMP. Vegetation communities are to be rehabilitated in accordance with the composition and structure of the delineated Regional Ecosystems within each Environmental Management Zone to support the koala, grey-headed flying-fox, regent honeyeater and swift parrot.

This RMP is to function as a guide and reference document for the proposed rehabilitation techniques, planting palettes and monitoring program proposed for the EPBC 2019/8575 offset area.

This document should be read in conjunction with the Esk Landholdings Offset Area Management Plan for EPBC 2019/8575.

No planting is proposed to occur within designated 'Non-offset Land Use Areas' which include Building Location Envelopes (BLEs) and bushfire management zones located within the landholdings..

BACKGROUND

Cherish Enterprises Pty Ltd are the owner of 364.71 ha (911 acres) of partially cleared rural land located within the Somerset Regional Council LGA approximately 4 km south-east of the town of Esk. The landholding is made up of all or part of the following titles:

- L125/CA31385 (45.52 ha)
- L60/CA31149 (161.77 ha)
- L266/CA311094 (64.75 ha)
- L147/CA31617 (92.67 ha)

The offset area is located approximately 56.5 km north-west of the Springfield Residential Development project area. The portion of the landholdings proposed to be dedicated as offset area is 280.2 ha and excludes three areas proposed to be used as BLEs for the establishment of rural acreages and have been excluded from the offset area. These non-offset land use areas include a designated bushfire management zone where planting is not permitted.

The offset area contains multiple constructed farm dams which will be retained and utilised as part of the management of the offset.

Vegetation

The Esk Landholdings offset area is mapped predominantly as RE12.9-10.2 with creekline vegetation areas mapped as RE12.3.7. Vegetation structure varies from open paddock to patchy regrowth and remnant creeklines.

RE12.9-10.2 is described as: Corymbia citriodora subsp. variegata open forest or woodland usually with Eucalyptus crebra. Other species such as Eucalyptus tereticornis, E. moluccana, E. acmenoides and E. siderophloia may be present in scattered patches or in low densities. Understorey can be grassy or shrubby. Shrubby understorey of Lophostemon confertus (whipstick form) often present in northern parts of bioregion. Occurs on Cainozoic and Mesozoic sediments. Not a Wetland. (BVG1M: 10b).

RE12.3.7 is described as: Narrow fringing woodland of Eucalyptus tereticornis, Casuarina cunninghamiana subsp. cunninghamiana +/- Melaleuca viminalis. Other species associated with this RE include Melaleuca bracteata, M. trichostachya, M. linariifolia. North of Brisbane Waterhousea floribunda commonly occurs and may at times dominate this RE. Melaleuca fluviatilis occurs in this RE in the north of the bioregion. Lomandra hystrix often present in stream beds. Occurs on fringing levees and banks of rivers and drainage lines of alluvial plains throughout the region. Riverine. (BVG1M: 16a).

Planting species the above regional ecosystems is proposed as part of the overall planting outcome with the dominant regional ecosystem as defined by Environmental Management Zones.

The majority of the offset area has been cleared for grazing with areas of sparse regrowth and remnant vegetation located in patches within the offset area.

Soils

The Atlas of Australia soils map the site as predominantly comprising Kandosols with Sodosols as defined by the Australian Soils Classification (ASC).

Kandosols are red, yellow and grey massive earths. They generally have a sandy to loamy-surface soil, grading to porous sandy-clay subsoils with low fertility and poor water-holding capacity. A wide range of crops can be grown on these soils where rainfall is higher or where irrigation is available.

Sodosols are texture-contrast soils with impermeable subsoils due to the concentration of sodium. These soils occupy a large area of inland Queensland. Generally Sodosols have a low-nutrient status and are very vulnerable to erosion and dryland salinity when vegetation is removed.

REHABILITATION – APPROACHES

Rehabilitation or "Ecological Restoration" can be described as "the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed" (source: Society for Ecological Restoration International). The following four ecological restoration approaches are listed under the SEQERF guidelines and are described in further detail on Sheet 03.

Ecological Restoration Approaches	
Natural Regeneration	
Applies:	To relatively large, intact and weed-free areas of native vegetation. Where native plants are healthy and capable of regenerating without human intervention. When native plant seed is stored in the soil or will be able to reach the site from nearby natural areas, by birds or other animals, wind or water. Where the plant community has a high potential for recovery after any short-live disturbance such as a fire or cyclonic winds. When preventative action is all that is required to avert on-going disturbances e.g. erection of fencing to prevent intrusion by cattle.
Role of planting:	Planting in such areas can work against the aims of restoration by interfering with natural regeneration.
Goal vegetation community:	The re-establishing plant community will be similar in structure, composition and diversity to the original vegetation.
Assisted Natural Regeneration	
Applies:	To natural areas where the native plant community is largely healthy and functioning. When native plant seed is still stored in the soil or will be able to reach the site from nearby natural areas, by birds or other animals, wind or water. Where the natural regeneration processes (seedling germination, root suckering, etc.) are being inhibited by external factors, such as weed invasion, soil compaction, cattle grazing, mechanical slashing, etc. When limited human intervention, such as weed control, minor amelioration of soil conditions, erection of fencing, cessation of slashing, etc. will be enough to trigger the recovery processes through natural regeneration. When the main management issue is weed infestation and/or current land use practices.
Role of planting:	Planting in such areas can work against the aims of restoration by interfering with natural regeneration except where species cannot return to site without direct intervention.
Goal vegetation community:	The re-establishing plant community will be substantially similar in structure, composition and diversity to the original vegetation.
Reconstruction	
Applies:	Where the site is highly degraded or altered. When the degree of disturbance has been so great and long-standing that the pre-existing native plant community cannot recover by natural means. To sites such as areas of fill, sites affected by stormwater flow, areas that have been drastically cleared, even though there may be a few remaining native trees or shrubs. When a greater degree of human intervention is required, such as weed control, cessation of grazing and/or slashing, amelioration of soil conditions such as importation of soils, drainage works or re-shaping of the landscape.
Role of planting:	Importation of native species to the area is required, either through planting or direct seeding (in some situations). natural regeneration and recruitment is insufficient to initially re-establish the original vegetation. Depending on the prevailing circumstances, the planting of a broad diversity of species from the target ecosystem may be unnecessary and the use of pioneers may be sufficient to re-establish ecological processes.
Goal vegetation community:	The re-establishing planted community should be similar to the original vegetation in structure, composition and diversity.
Fabrication (Type Conversion)	
Applies:	Where site conditions have been irreversibly changed. When it is not possible to restore the original native plant community. Where a better-adapted local plant community can be planted that will function within the changed conditions. In situations such as the construction of a wetland plant community to mitigate increased urban storm-water run-off.
Role of planting:	Revegetation (planting) is the major component in a fabrication program.
Goal vegetation community:	The re-establishing planted community should be similar to a naturally occurring plant community of the same type (e.g. a constructed freshwater wetland should resemble a natural system in terms of structure, composition and diversity).

Adapted from Gold Coast Council's 'Guideline for the preparation of a Rehabilitation Plan'

REHABILITATION - METHODOLOGY

Detailed assessment of site conditions prior to commencement of documentation is essential. As part of most rehabilitation scopes, it is worth considering an appropriate methodology for both compiling documentation and site works. This can be broken down into the following items:

- Site assessment
- Rehabilitation Design Documentation (this plan)
- Site Works
- Maintenance and monitoring

METHODOLOGY – SITE ASSESSMENT

Detailed assessment of site conditions prior to commencement of documentation is essential in the establishment of a site-specific ecological restoration methodology. In accordance with the SEQERF. The following checklist has formed part of the site assessment process and is detailed in the OAMP:

- Describe the history and background of the site
- Describe the soil, drainage, topography and aspect
- Describe the native vegetation on the site and along site boundaries
- Describe the weeds on site
- Describe the vegetation dispersal and structure
- Describe the fauna use onsite
- Describe estimated native regeneration response.

The responses to the above checklist provides the basis of the proposed restoration approach primarily using reconstruction with elements of assisted natural regeneration for each management zone within this RMP.

Consideration should be made in the importance of integrating site-specific measures for fauna habitat and movement. With many fauna species having specific habitat requirements, foraging patterns and movement patterns. During the site assessment process, the following provisions should be taken into consideration:

- Fauna movement opportunities via easements, tracts, utility corridors and or infrastructure pathways;
- Diversity and type of fauna and distribution on site;
- Habitat opportunities e.g. Dense foliage, roosting areas, log hollows and potential nesting boxes;
- Fauna disturbance and vicinity of works to significant nesting areas and or fauna movement;
- Distribution of significant specialized food resources e.g. Koala trees; and
- Stage weed removal and or altering of weed control technique if the weeds are currently forming a significant fauna habitat.

For the sake of keeping this plan concise, site analysis results are compiled under a separate template, and may or may not be included in this set, however the analysis outcomes derive the Rehabilitation design methodology.

METHODOLOGY – REHABILITATION DESIGN

This documentation has been compiled through processes outlined in the SEQERF, site analysis and previous rehabilitation project experiences. The rehabilitation design—comprising distinct management zones—provides assessment managers, clients and contractors a clear methodology to assist the recovery of an ecosystem(s) that has been degraded, damaged or destroyed. Rehabilitation zones were identified through detailed site analysis and are described on *Sheet 03*.

REHABILITATION TIMELINE

Specific timeframes for rehabilitation are described within the following sections of this RMP. The following timeframes for each phase of rehabilitation is recommended. It is noted timeframes may be subject to change depending on climate and site conditions. Where timeframes are required to change, the proposed schedule will be updated accordingly. Timing is taken from the legal securement of the offset area.

- Source and propagate seed – Years 1-2
- Site preparation (initial weed treatment, soil cultivation, controlled burns) – Years 1-2
- Broadscale planting works – Years 2-3
- Maintenance (watering, follow-up weed works) – Years 2-5 with potential to extend to Year 7 (minimum of 2-5 years for establishment)

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER
DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:
South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

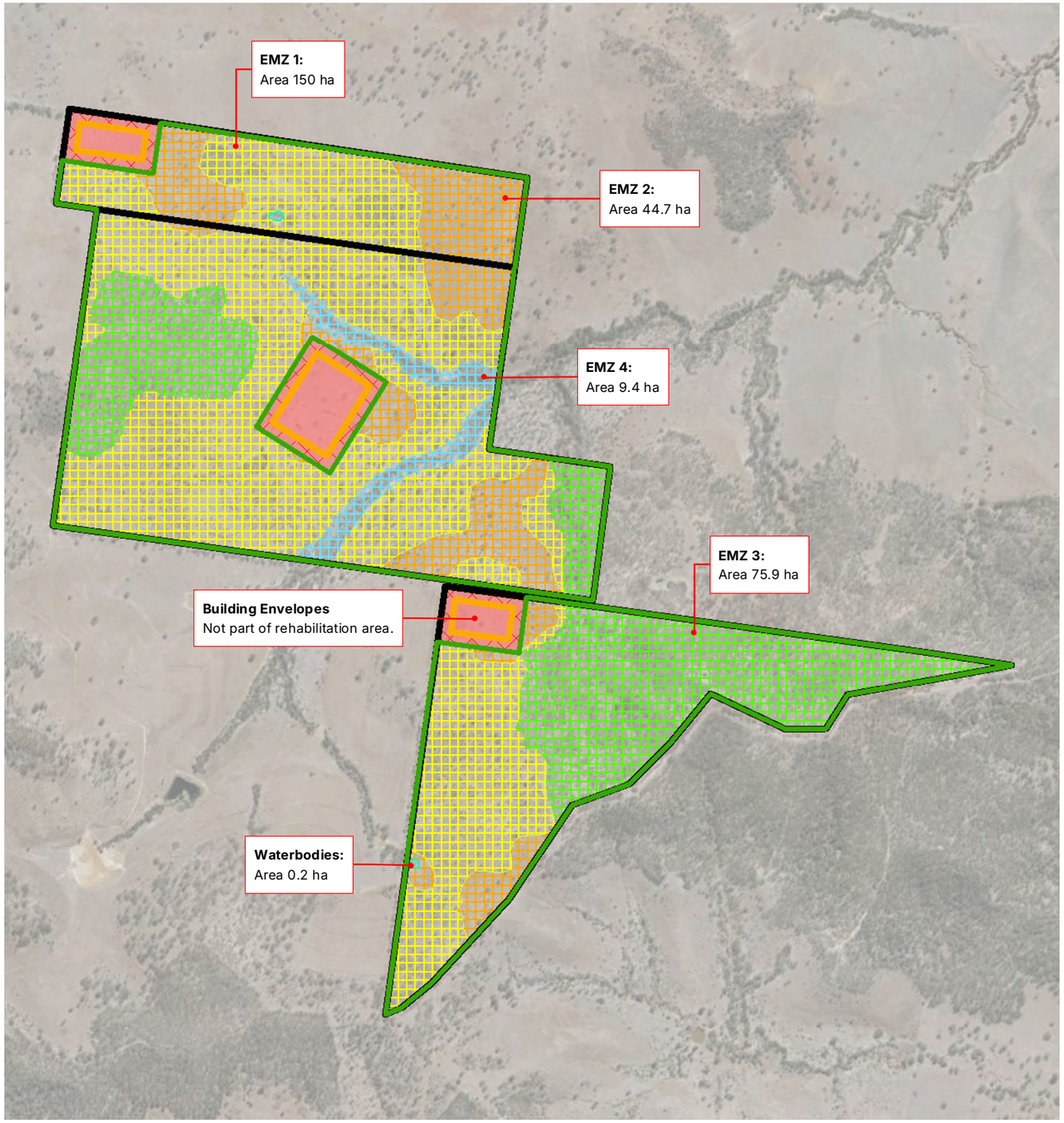
PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 02 ESK RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Rehabilitation Zones*



ENVIRONMENTAL MANAGEMENT ZONES LEGEND

Environmental Management Zone 1 – Sparse Regrowth RE 12.9-10.2 (Reconstruction)

Existing native trees, shrubs and groundcovers to be protected and retained where possible.

Appropriate (sensitive) weed management methodology within this zone to encourage natural regeneration, minimise damage to existing native vegetation, stabilise soil and minimise impacts to aquatic / semi-aquatic fauna.

Entire zone to be planted with trees following weed management works at densities appropriate for providing foraging habitat for koala, grey-headed flying-fox, regent honeyeater and swift parrot. Any planting on creek bank to comply with 'Categories of channel vegetation' figure on Sheet 10. Species to be of local provenance and consistent with native species occurring naturally on site and/or regional ecosystems 12.9-10.2.

Refer to Rehabilitation Notes for additional details, plant species and densities.

Environmental Management Zone 2 – Non-remnant Paddock RE 12.9-10.2 (Reconstruction)

Existing native trees, shrubs and groundcovers to be protected and retained where possible.

Appropriate (sensitive) weed management methodology within this zone to encourage natural regeneration, minimise damage to existing native vegetation, stabilise soil and minimise impacts to aquatic / semi-aquatic fauna.

Entire zone to be planted with trees following weed management works at densities appropriate for providing foraging habitat for koala, grey-headed flying-fox, regent honeyeater and swift parrot. Any planting on creek bank to comply with 'Categories of channel vegetation' figure on Sheet 10. Species to be of local provenance and consistent with native species occurring naturally on site and/or regional ecosystems 12.9-10.2.

Refer to Rehabilitation Notes for additional details, plant species and densities.

Environmental Management Zone 3 – Dense Regrowth RE12.9-10.2 (Assisted Natural Regeneration with Infill Planting)

Existing native trees, shrubs and groundcovers to be protected and retained where possible.

Appropriate (sensitive) weed management methodology within this zone to encourage natural regeneration, minimise damage to existing native vegetation, stabilise soil and minimise impacts to aquatic / semi-aquatic fauna.

All rehabilitation works within creek riparian zone to adhere to Natural Channel Design guidelines. Weed management to comprise hand/manual removal techniques near waterway, or in lead up to rainfall to minimise harm to broader estuarine environment. Ongoing weed management throughout the maintenance period to reinforce primary weed removal. Any planting on creek bank to comply with 'Categories of channel vegetation' figure on Sheet 10.

Infill planting in cleared patches to be planted with trees throughout at a rate of 1 per 100 m^2, and trees installed at locations >3m from existing tree trunks. Infill planting is to occur utilising seedling trees where required to supplement density of foraging tree species for koala, grey-headed flying-fox, regent honeyeater and swift parrot. Species to be of local provenance and consistent with native species occurring naturally on site and/or regional ecosystems 12.9-10.2.

Refer to Rehabilitation Notes for additional details, plant species and densities.

Environmental Management Zone 4 – Remnant RE 12.3.7 (Assisted Natural Regeneration with Infill Planting)

Existing native trees, shrubs and groundcovers to be protected and retained where possible.

Appropriate (sensitive) weed management methodology within this zone to encourage natural regeneration, minimise damage to existing native vegetation, stabilise soil and minimise impacts to aquatic / semi-aquatic fauna.

Infill planting in cleared patches to be planted with trees throughout at a rate of 1 per 1000 m^2, and trees installed at locations >3m from existing tree trunks. Infill planting is to occur utilising seedling trees where required to supplement density of foraging tree species for koala, grey-headed flying-fox, regent honeyeater and swift parrot. Species to be of local provenance and consistent with native species occurring naturally on site and/or regional ecosystems 12.3.7.

Refer to Rehabilitation Notes for additional details, plant species and densities.

Waterbodies

No rehabilitation measures are proposed within this zone.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

N

SCALE (A3)
1:16,021

Service Layer Credits: Includes material © State of Queensland (Department of Resources); © Planet Labs Netherlands B.V. reproduced under licence from Planet and Geoplex, all rights reserved, 2025.

0 50 100 200 300 400 500 m

AMENDMENTS				
ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

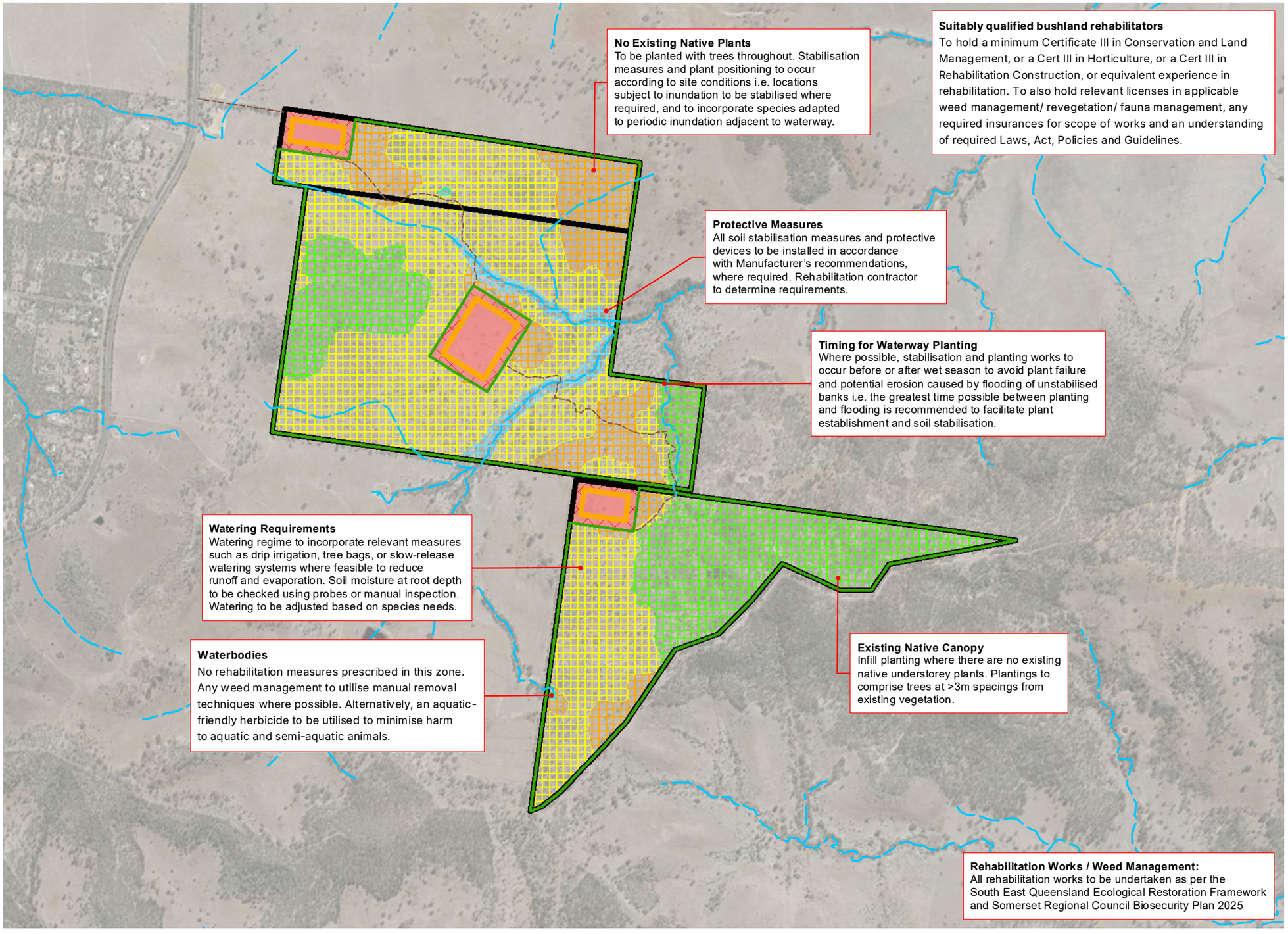
PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 03 ESK RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Detail Sheet*



LEGEND

- Mapped Fisheries Waterways
- Access Tracks (indicative - to be maintained)
- Esk Landholdings Offset Area [300.3 ha]
- Non-offset Land Use Area [20.1 ha]
- Building Location Envelopes (BLEs) - 9.5 ha
- Bushfire Management Zone - 10.6 ha
- Waterbodies [0.2 ha]

Environmental Management Zones

- **Environmental Management Zone 1:** Sparse Regrowth RE12.9-10.2 (Reconstruction) [150 ha]
- **Environmental Management Zone 2:** Non-remnant Paddock RE12.9-10.2 (Reconstruction) [44.7 ha]
- **Environmental Management Zone 3:** Dense Regrowth RE12.9-10.2 (Assisted Natural Regeneration with Infill Planting) 75.9 ha]
- **Environmental Management Zone 2:** Waterway Corridor - Remnant RE12.3.7 (Assisted Natural Regeneration with Infill Planting) [9.4 ha]

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER
DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

N

SCALE (A3)
1:17,000

Service Layer Credits: Includes material © State of Queensland (Department of Resources); © Planet Labs Netherlands B.V. reproduced under licence from Planet and Geoplex, all rights reserved, 2025.

0 50 100 200 300 400 500 m

AMENDMENTS				
ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 04 ESK RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Planting Species Schedule (i)*

FINAL SPECIES PALETTE TO COMPRISE MAXIMUM DIVERSITY OF SPECIES FROM SCHEDULES. TO BE APPROVED BY ENVIRONMENTAL COORDINATOR.

NOTES

- Final species palette to comprise maximum diversity of species from schedules.
- Area calculations are a maximum calculation for use as needed.
- Final on-ground planting numbers and densities may be subject to change based on planting requirements and seed stock availability except for densities and volumes prescribed for swift parrot and regent honeyeater foraging species.

Environmental Management Zone 1 – Paddock to Sparse Regrowth RE 12.9-10.2 (Reconstruction)

Notes:

1) Trees 1 to be planted at a density of 1 tree per 25 m².
2) Setback trees 3 metres minimum from all property boundaries and services
3) Distribute plants in groups on site in random arrangement - to be confirmed with super-intendent on site
4) Plant species according to tolerances and site conditions
5) Plant quantities to be confirmed by rehabilitation supervisor according to site conditions. Unsuitable or unavailable species to be substituted with other species from this schedule.
6) Species consistent with RE 12.9-10.2 technical description.

SCIENTIFIC NAME	COMMON NAME	HABITAT VALUE	PLANT FORM	POT SIZE	PLANTING DENSITY	PERCENTAGE	QUANTITY
T1 / TREES							
*Corymbia citriodora subsp. variegata**	Spotted Gum	**SP preferred** **RHE preferred** Koala GHFF	Tree to 50 m	Tube	1 per 25 m²	30%	18000
Eucalyptus crebra	Narrow-leaved Ironbark	Koala GHFF	Tree to 35 m	Tube	1 per 25 m²	10%	6000
Eucalyptus moluccana	Gum-topped Box	Koala GHFF	Tree to 30 m	Tube	1 per 25 m²	5%	3000
Eucalyptus acmenoides	White Mahogany	Koala GHFF	Tree to 30 m	Tube	1 per 25 m²	5%	3000
Eucalyptus siderophloia	Grey Ironbark	Koala GHFF	Tree to 20 m	Tube	1 per 25 m²	5%	3000
Angophora leiocarpa	Smooth-barked Apple	Koala GHFF	Tree to 25 m	Tube	1 per 25 m²	5%	3000
Corymbia intermedia	Pink Bloodwood	Koala GHFF	Tree to 35 m	Tube	1 per 25 m²	5%	3000
Eucalyptus propinqua	Grey Gum	Koala GHFF	Tree to 40 m	Tube	1 per 25 m²	5%	3000
Corymbia tessellaris	Moreton Bay Ash	Koala GHFF	Tree to 35 m	Tube	1 per 25 m²	5%	3000
Allocasuarina torulosa	Forest Oak	N/A Pioneer	Shrub or small tree	Tube	1 per 50 m²	5%	3000
Acacia concurrens	Black Wattle	N/A Pioneer	Shrub or small tree	Tube	1 per 50 m²	10%	6000
Acacia disparrima	Hickory Wattle	N/A Pioneer	Shrub or small tree	Tube	1 per 50 m²	5%	3000
						TOTAL	**60,000**

*Planting percentages required at prescribed rate to fulfil offset planting requirements for Swift Parrot and Regent Honeyeater.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:

South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 05 ESK RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Planting Species Schedule (ii)*

FINAL SPECIES PALETTE TO COMPRISE MAXIMUM DIVERSITY OF SPECIES FROM SCHEDULES. TO BE APPROVED BY ENVIRONMENTAL COORDINATOR.

NOTES

- Final species palette to comprise maximum diversity of species from schedules.
- Area calculations are a maximum calculation for use as needed.
- Final on-ground planting numbers and densities may be subject to change based on planting requirements and seed stock availability except for densities and volumes prescribed for swift parrot and regent honeyeater foraging species.

Environmental Management Zone 2 – Non-remnant Paddock RE 12.9-10.2 (Reconstruction)

Notes:

1) Trees 1 to be planted at a density of 1 tree per 10 m^2.
2) Setback trees 3 metres minimum from all property boundaries and services
3) Distribute plants in groups on site in random arrangement - to be confirmed with super-intendent on site
4) Plant species according to tolerances and site conditions
5) Plant quantities to be confirmed by rehabilitation supervisor according to site conditions. Unsuitable or unavailable species to be substituted with other species from this schedule.
6) Species consistent with RE 12.9-10.2 technical description.

SCIENTIFIC NAME	COMMON NAME	HABITAT VALUE	PLANT FORM	POT SIZE	PLANTING DENSITY	PERCENTAGE	QUANTITY
T1 / TREES							
*Corymbia citriodora subsp. variegata**	Spotted Gum	**SP preferred** **RHE preferred** Koala GHFF	Tree to 50 m	Tube	1 per 10 m^2	30%	13416
Eucalyptus crebra	Narrow-leaved Ironbark	Koala GHFF	Tree to 35 m	Tube	1 per 10 m^2	10%	4472
Eucalyptus moluccana	Gum-topped Box	Koala GHFF	Tree to 30 m	Tube	1 per 10 m^2	5%	2236
Eucalyptus acmenoides	White Mahogany	Koala GHFF	Tree to 30 m	Tube	1 per 10 m^2	5%	2236
Eucalyptus siderophloia	Grey Ironbark	Koala GHFF	Tree to 20 m	Tube	1 per 10 m^2	5%	2236
Angophora leiocarpa	Smooth-barked Apple	Koala GHFF	Tree to 25 m	Tube	1 per 10 m^2	5%	2236
Corymbia intermedia	Pink Bloodwood	Koala GHFF	Tree to 35 m	Tube	1 per 10 m^2	5%	2236
Eucalyptus propinqua	Grey Gum	Koala GHFF	Tree to 40 m	Tube	1 per 10 m^2	5%	2236
Corymbia tessellaris	Moreton Bay Ash	Koala GHFF	Tree to 35 m	Tube	1 per 10 m^2	5%	2236
Allocasuarina torulosa	Forest Oak	N/A Pioneer	Shrub or small tree	Tube	1 per 10 m^2	5%	2236
Acacia concurrens	Black Wattle	N/A Pioneer	Shrub or small tree	Tube	1 per 10 m^2	10%	4472
Acacia disparrima	Hickory Wattle	N/A Pioneer	Shrub or small tree	Tube	1 per 10 m^2	5%	2236
						TOTAL	**44,720**

*Planting percentages required at prescribed rate to fulfil offset planting requirements for Swift Parrot and Regent Honeyeater.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:

South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 06 ESK RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Planting Species Schedule (iii)*

FINAL SPECIES PALETTE TO COMPRISE MAXIMUM DIVERSITY OF SPECIES FROM SCHEDULES. TO BE APPROVED BY ENVIRONMENTAL COORDINATOR.

NOTES

- Final species palette to comprise maximum diversity of species from schedules. To be approved by environmental coordinator and Somerset Regional Council prior to installation.
- Area calculations are a maximum calculation for use as needed.
- Final on-ground planting numbers and densities may be subject to change based on planting requirements and seed stock availability except for densities and volumes prescribed for swift parrot and regent honeyeater foraging species.

Environmental Management Zone 3 – Dense Regrowth RE 12.9-10.2 (Assisted Natural Regeneration with Infill Planting)

Notes:

1) Trees 1 to be planted at a density of 1 tree per 100 m².
2) Setback trees 3 metres minimum from all property boundaries and services
3) Distribute plants in groups on site in random arrangement - to be confirmed with super-intendent on site
4) Plant species according to tolerances and site conditions
5) Plant quantities to be confirmed by rehabilitation supervisor according to site conditions. Unsuitable or unavailable species to be substituted with other species from this schedule.
6) Species consistent with RE 12.9-10.2 technical description.

SCIENTIFIC NAME	COMMON NAME	HABITAT VALUE	PLANT FORM	POT SIZE	PLANTING DENSITY	PERCENTAGE	QUANTITY
T1 / TREES							
*Corymbia citriodora subsp. variegata**	Spotted Gum	**SP preferred** **RHE preferred** Koala GHFF	Tree to 50 m	Tube	1 per 100 m²	30%	2277
Eucalyptus crebra	Narrow-leaved Ironbark	Koala GHFF	Tree to 35 m	Tube	1 per 100 m²	10%	759
Eucalyptus moluccana	Gum-topped Box	Koala GHFF	Tree to 30 m	Tube	1 per 100 m²	5%	380
Eucalyptus acmenoides	White Mahogany	Koala GHFF	Tree to 30 m	Tube	1 per 100 m²	5%	380
Eucalyptus siderophloia	Grey Ironbark	Koala GHFF	Tree to 20 m	Tube	1 per 100 m²	5%	380
Angophora leiocarpa	Smooth-barked Apple	Koala GHFF	Tree to 25 m	Tube	1 per 100 m²	5%	380
Corymbia intermedia	Pink Bloodwood	Koala GHFF	Tree to 35 m	Tube	1 per 100 m²	5%	380
Eucalyptus propinqua	Grey Gum	Koala GHFF	Tree to 40 m	Tube	1 per 100 m²	5%	380
Corymbia tessellaris	Moreton Bay Ash	Koala GHFF	Tree to 35 m	Tube	1 per 100 m²	5%	380
Allocasuarina torulosa	Forest Oak	N/A Pioneer	Shrub or small tree	Tube	1 per 100 m²	5%	380
Acacia concurrens	Black Wattle	N/A Pioneer	Shrub or small tree	Tube	1 per 100 m²	10%	759
Acacia disparrima	Hickory Wattle	N/A Pioneer	Shrub or small tree	Tube	1 per 100 m²	5%	380
						TOTAL	**7,595**

*Planting percentages required at prescribed rate to fulfil offset planting requirements for Swift Parrot and Regent Honeyeater.

RE 12.9-10.2 GROUNDCOVERS (Indicative – as required)					
Aristida caput-medusae	Many-headed Wiregrass	N/A Other	Grass	Tube or seed	As required
Imperata cylindrica	Blady Grass	N/A Other	Grass	Tube or seed	As required
Themeda triandra	Kangaroo Grass	N/A Other	Grass	Tube or seed	As required
Eremochloa bimaculata	Poverty Grass	N/A Other	Grass	Tube or seed	As required
Cymbopogon refractus	Barbed Wire Grass	N/A Other	Grass	Tube or seed	As required
Heteropogon contortus	Black Speargrass	N/A Other	Grass	Tube or seed	As required
Digitaria parviflora	Small-flowered Finger Grass	N/A Other	Grass	Tube or seed	As required
Eragrostis brownii	Browns Lovegrass	N/A Other	Grass	Tube or seed	As required
Sarga leiocladum	Wild Sorghum	N/A Other	Grass	Tube or seed	As required
Panicum effusum	Hairy Panic	N/A Other	Grass	Tube or seed	As required
Aristida vagans	Threeawn Speargrass	N/A Other	Grass	Tube or seed	As required
Oplismenus aemulus	Australian Basket Grass	N/A Other	Grass	Tube or seed	As required
Gahnia aspera	Saw Sedge	N/A Other	Forb	Tube or seed	As required
Lepidosperma laterale	Variable Swordsedge	N/A Other	Forb	Tube or seed	As required
Lomandra multiflora	Many-flowered Mat-rush	N/A Other	Forb	Tube or seed	As required
Lomandra longifolia	Spiny-headed Mat-rush	N/A Other	Forb	Tube or seed	As required
Dianella caerulea	Blue Flax-lily	N/A Other	Forb	Tube or seed	As required
Eremophila debilis	Winter Apple	N/A Other	Forb	Tube or seed	As required
Hardenbergia violacea	False Sarsparilla	N/A Other	Forb	Tube or seed	As required
Eustrephus latifolius	Wombat Berry	N/A Other	Forb	Tube or seed	As required
Chrysocephalum apiculatum	Yellow Buttons	N/A Other	Forb	Tube or seed	As required
Glycine clandestina	Twining Glycine	N/A Other	Forb	Tube or seed	As required
Murdannia graminea	Grass Lily	N/A Other	Forb	Tube or seed	As required
Cheilanthes sieberi	Bristle Cloak Fern	N/A Other	Forb	Tube or seed	As required

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER
DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:
South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 07 ESK RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Planting Species Schedule (iv)*

FINAL SPECIES PALETTE TO COMPRISE MAXIMUM DIVERSITY OF SPECIES FROM SCHEDULES. TO BE APPROVED BY ENVIRONMENTAL COORDINATOR.

NOTES

- Final species palette to comprise maximum diversity of species from schedules.
- Area calculations are a maximum calculation for use as needed.
- Final on-ground planting numbers and densities may be subject to change based on planting requirements and seed stock availability except for densities and volumes prescribed for swift parrot and regent honeyeater foraging species.

Environmental Management Zone 4– Remnant RE 12.3.7 (Assisted Natural Regeneration with Infill Planting)

Notes:

1) Trees 1 to be planted at a density of 1 tree per 1000 m².
2) Setback trees 3 metres minimum from all property boundaries and services
3) Distribute plants in groups on site in random arrangement - to be confirmed with super-intendent on site
4) Plant species according to tolerances and site conditions
5) Plant quantities to be confirmed by rehabilitation supervisor according to site conditions. Unsuitable or unavailable species to be substituted with other species from this schedule.
6) Species consistent with RE 12.3.7 technical description.

SCIENTIFIC NAME	COMMON NAME	HABITAT VALUE	PLANT FORM	POT SIZE	PLANTING DENSITY	PERCENTAGE	QUANTITY
T1 / TREES							
*Eucalyptus tereticornis subsp. tereticornis**	Forest Red Gum	**SP preferred** Koala GHFF	Tree to 50 m	Tube	1 per 1000 m²	25%	24
Casuarina cunninghamiana	River She-oak	N/A Pioneer	Tree to 35 m	Tube	1 per 1000 m²	20%	18
Eucalyptus siderophloia	Grey Ironbark	Koala GHFF	Tree to 20 m	Tube	1 per 1000 m²	10%	9
Angophora subvelutina	Broad-leaved Apple	Koala GHFF	Tree to 20 m	Tube	1 per 1000 m²	15%	14
Corymbia intermedia	Pink Bloodwood	Koala GHFF	Tree to 35 m	Tube	1 per 1000 m²	10%	9
Corymbia tessellaris	Moreton Bay Ash	Koala GHFF	Tree to 35 m	Tube	1 per 1000 m²	10%	9
Lophostemon suaveolens	Swamp Box	Koala GHFF	Tree to 10 to 25 m	Tube	1 per 1000 m²	5%	5
Melaleuca viminalis	Creek Bottlebrush	Koala GHFF	Shrub or small tree	Tube	1 per 1000 m²	5%	5
						TOTAL	**93**
RE 12.3.7 GROUNDCOVERS (Indicative – as required)							
Lomandra hystrix	Creek Mat-rush	N/A Other	Forb	Tube or seed	As required		
Bothriochloa decipiens var. decipiens	Red Grass	N/A Other	Grass	Tube or seed	As required		
Themeda triandra	Kangaroo Grass	N/A Other	Grass	Tube or seed	As required		
Oplismenus aemulus	Australian Basket Grass	N/A Other	Grass	Tube or seed	As required		
Cyperus gracilis	Slender Sedge	N/A Other	Forb	Tube or seed	As required		
Aristida vagans	Threeawn Speargrass	N/A Other	Grass	Tube or seed	As required		
Heteropogon contortus	Black Speargrass	N/A Other	Grass	Tube or seed	As required		
Glycine clandestina	Twining Glycine	N/A Other	Forb	Tube or seed	As required		
Lomandra longifolia	Spiny-headed Mat-rush	N/A Other	Forb	Tube or seed	As required		
Eustrephus latifolius	Wombat Berry	N/A Other	Forb	Tube or seed	As required		
Parsonsia straminea	Monkey Rope	N/A Other	Forb	Tube or seed	As required		

*Planting percentages required at prescribed rate to fulfil offset planting requirements for Swift Parrot and Regent Honeyeater.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER
DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:
South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 08 ESK RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Site Preparation*

METHODOLOGY – SITE PREPARATION

Prior to site works commencing, the site should be secured from degrading impacts such as grazing by stock, unauthorised access and rubbish.

Some factors that may require immediate attention include:

- The presence of highly invasive weed species which may disperse further prior to substantial site works commencing
- The presence of weed species which may have a long-term impact on ecological communities such as exotic and weed varieties of vines
- Flammable materials (including weed thickets, grasses and vines)
- Damaging and easy access by 4WD, motorbikes and pedestrians into core retained vegetation and ecological restoration areas. This may require installation of temporary fencing if deemed appropriate Site works can be typically broken down into the following categories:
    - Primary Works
    - Follow-up Works
    - Maintenance Works (refer Methodology – Maintenance)

Primary Works

Primary works or initial works within the site or a section of the site will commonly involve a sequence of activities such as the control of all groundcover weeds, woody weeds in the understorey and exotic vines prior to the control of weed trees. Primary work has the effect of creating a large degree of disturbance which will stimulate the germination of native and exotic species. Therefore, continuing works should be scheduled shortly after the initial visit to allow for timely control of the newly regenerating weeds.

Highly invasive weeds, such as the Restricted Invasive Plants listed under the Biosecurity Act 2014, should be treated as a priority during primary works to alleviate competition on native flora species and inhibit spread into newly disturbed areas. For example, canopy smothering vines such as Cat's Claw Creeper can have a detrimental impact on native canopy trees and should be prioritised over less invasive herbs such as Blue Billy Goat Weed. Some weeds will also need to be treated in stages i.e. where the weed provides protection and habitat for native fauna or where it is providing bank stabilisation. For example, where Lantana is providing the only habitat for small birds, it should be removed in phases as native shrub habitat establishes.

Techniques used during primary work commonly involve spot spray, cut-scrape paint, cut-paint, scrape-paint, roll-hang and over spraying (source: SEQERF). *Refer to Weed Management notes for additional details.* Following completion of weed management, rehabilitation (such as assisted natural regeneration, construction and fabrication planting) can occur in areas unaffected by weed management activities or areas that primary weed management activities have concluded. Refer to Rehabilitation Works notes for additional details. At the end of primary work, the zone will have been comprehensively and systematically worked, ready for follow-up works.

Follow-up Works

At intervals, which will vary according to the type of weed impacting the site and growing conditions, follow-up work will be necessary. This generally involves the spot-spraying of newly germinating weeds and resprouting sections of woody weeds and vines. It is at this stage that observational visits should be made to the site to determine what progress the vegetation is making and decide when to implement further follow-up work. A site that receives badly timed, too frequent or too little follow-up will rapidly experience setbacks, as weed propagules will quickly become established in the newly disturbed areas. Germinating native seedlings may be swamped by weeds or damaged by inexperienced operators thereby exhausting the seed bank. Unless adequate follow-up can be ensured when planning restoration works, there is little point in commencing primary work, as time and resources are consumed with no substantial gain achieved (source: SEQERF).

METHODOLOGY – WEED NOTES

Weed management typically comprises a major part of rehabilitation site works. Weed management provides the basis of aiding natural regeneration and assisted natural regeneration. It also forms part of the preliminary work required for reconstruction and fabrication scopes.

Weed Management is to be undertaken in accordance with the SEQERF Primary, Follow-up and Maintenance works notes above. Weed management shall encompass all species declared at the commonwealth, state and local level, and any weeds that appear to be invasive at the site.

Critical skills for Weed Management include:

- Knowledge of relevant legislation
- Plant Identification skills
- Knowledge of different weed management techniques

Knowledge of Relevant Legislation

It is expected contractors have a depth of knowledge of relevant legislation to complete site rehabilitation works. This includes invasive plant classifications and control obligations under the Queensland *Biosecurity Act 2014* and local Biosecurity Plans (Refer to adjacent schedules for classification of weeds under the Act).

Bush regenerators must also comply with the requirements of the Workplace Health and Safety Act 2011 or, when working on Commonwealth lands, the Commonwealth's Occupational Health and Safety (Commonwealth Employment) Act 1991.

Contractors should also obtain all relevant permits required under State and Commonwealth legislation (e.g. Nature Conservation Act 1992, Fisheries Act 1994, Vegetation Management Act 1999, Biosecurity Act 2014). Contractors must also be aware of and adhere to cultural heritage protection obligations under the Aboriginal Cultural Heritage Act 2003 and where chemicals are in use, the Agricultural Chemicals Distribution Control Act 1966. In addition to the above, contractors should also be familiar with local government body requirements (e.g. Local Codes, Policies and Guidelines).

RESTRICTED MATTERS (*BIOSECURITY ACT 2014*)	
Category	**Description**
1	must be reported to an inspector within 24 hours if it is present in, or on, something in your possession or under your control or at a place where you are the occupier, unless an appropriately authorised officer has already been advised or you possess a permit for the restricted matter. Includes red imported fire ants, electric ants, Asian honey bees, and certain animal diseases, aquatic diseases and pathogens.
2	must be reported to an inspector within 24 hours if it is present in, or on, something in your possession or under your control or at a place where you are the occupier, unless an appropriately authorised officer has already been advised or you possess a permit for the restricted matter. includes certain noxious fish, weeds and pest animals
3	You must not distribute this restricted matter. It must not be given as a gift, sold, traded or released into the environment unless the distribution or disposal is authorised in a regulation or under a permit. Deliberate human distribution or disposal contrary to the legislation is a key source of spread into other areas. includes weeds, pest animals and noxious fish
4	You must not move this restricted matter to ensure that it does not spread into other areas of the state. includes specific weeds, pest animals and noxious fish
5	You must not possess or keep this restricted matter under your control. These pests have a high risk of negatively impacting on the environment. You may only keep this restricted matter under a permit of the *Biosecurity Act 2014* or another Act. includes weeds, pest animals and noxious fish
6	You must not feed this category of restricted matter. Feeding this restricted matter may cause their numbers to increase and negatively impact the economy or the environment. Feeding for the purpose of preparing for or undertaking a control program is exempted. Includes invasive animals such as feral deer, foxes, rabbits and wild dogs and noxious fish such as carp, gambusia and tilapia.
7	If you have these noxious fish in your possession, you must kill the restricted matter and dispose of the carcass by burying the whole carcass in the ground above the high tide water mark or placing it in a waste disposal receptacle. Includes noxious fish such as carp, weather loach, climbing perch and gambusia

Plant Identification Skills

Both native and weed species should be identified prior to primary weed removal works and ongoing throughout the follow-up and maintenance periods. This is to maximise natural regeneration and reducing likelihood of accidental weed spraying to native vegetation. Regenerating species to be treated and maintained in a similar manner to newly planted revegetation tube stock. If contractor is unsure of species, advice should be sought by botanist, specialist contractor or confirmed with Queensland Herbarium. Refer to indicative Weed Treatment schedules derived from Queensland Herbarium for an indication of weed species and treatments.

Knowledge of Different Weed Management Techniques

A range of weed management techniques are available to combat a variety of weeds and scenarios. Refer to adjacent schedules and Appendix A for weed management techniques.

WEED MANAGEMENT TECHNIQUES	
METHOD	**DESCRIPTION**
Herbicide	**The herbicide weed control techniques described below provide a range of proven methods that can be used on a restoration site.**
Cut - Scrape-Paint	Cut the stem of the plant close to the ground (approximately 1-2cm) ensuring that soil does not come in contact with the cut surface. The cut can be made at a slight angle in order to increase the surface area that is exposed to the chemical. Apply herbicide immediately to the cut stump using poison pot and brush or dripper bottle. Using a knife, scrape the sides of the stump thoroughly to expose the green tissue. Apply herbicide to the scraped stump. The chemical must be applied within 10 seconds of the cut or scrape being made in order for it to be fully effective.
Cut - Paint	Cut the stem of the plant close to ground level. Apply herbicide to the cut stump using poison pot and brush or dripper bottle. This method is best suited to easy-to-treat weeds such as small-leaved privet (Ligustrum sinense), provided that the diameter of the stem at ground level is less than approximately three centimetres. If a glyphosate-/ metsulfuron methyl herbicide mix is being used in the poison pot, a greater range of weeds can be controlled using this method e.g. Easter cassia.
Scrape - Paint	Scrape as much of the stem as possible (one side of the stem) using a knife and apply herbicide to the scrape. Leave a small section of the vine unscraped and then twist the vine so that the next scrape is made on the opposite side of the stem to the preceding scrape. Continue along the length of the vine, scraping and painting as much of the stem as possible, with scraping to be concentrated along the thicker stems close to the root of the plant. This is the best method to use for madeira vine, as it allows the chemical to translocate to the underground storage organs and aerial tubers which may be hanging in large clusters above head height. This avoids the potential problem of tubers from cut stems left hanging in the trees from dropping to the ground and sprouting. When scraping madeira vine stems a deep scrape is advisable – scrape right through to the fibrous, stringy section of the stem, taking care not to sever the vine. This method is also suitable for treatment of ochna.
Over-spraying	Over-spraying involves the use of knapsacks or power sprayers to treat large expanses of weed such as lantana thickets. The foliage must be covered with herbicide but not to the point of running off the plant. The dead plants remain in place and can be cut down at a later stage. Prior to over-spraying, any weeds that are growing closely around established native plants must be hand removed or treated by cut-scrape-paint.
Spot-spraying	A knapsack filled with an appropriate herbicide mix is used by the operator to selectively control environmental weeds. A keen eye and an ability to distinguish between the native and weed species likely to be present, especially at seedling stage, is essential. Marker dye is added to the chemical mix to allow the operator to see what has already been sprayed, thus covering the ground weeds comprehensively and thoroughly Glyphosate and metsulfuron methyl are the main herbicides used for spot-spraying in ecological restoration, together with the addition of a penetrant and/or surfactant and marker dye.
Splatter Gun	This small gas-powered injector kit is fitted into a knapsack for easy carrying and delivers large droplets in a stream over the weed. The gun is used to deliver a concentrated herbicide (glyphosate or metsulfuron methyl) across large dense expanses of weed. The method is used for species such as lantana (ratio of 1:9 of glyphosate:water). Splatter gun involves spraying strips at one to two metre intervals over the thicket. The herbicide is then translocated throughout the entire plant. The method does not require the whole plant to be covered as in over-spray.
Oil-hang	Vines such as mile-a-minute (Ipomoea cairica) which produce long stolons extending many metres along the surface of the ground, are suited to the roll-hang method. Locate the base of the plant and carefully pull up the runners and roll them up. The resulting roll of vine is then hung in the fork of a tree to dry out as if it is left on the ground it is likely to re-shoot. Where runners are climbing up into a tree they are cut off at head height prior to the runner being rolled up – there is no need to pull cut vines down from trees as this action is likely to damage the tree. The base of the vine is treated using the cut scrape-paint method.
Gouge-paint	This method applies to plant species that have a fleshy underground storage organ, such as the large tuber that is often found at the base of madeira vine. It is also particularly appropriate for the treatment of climbing asparagus (Protasparagus plumosus). If using this technique on climbing asparagus, first cut the stems that are growing into the canopy at head height and also at the base. The fleshy rhizome can then be gouged, or alternatively in the case of climbing asparagus, it may be struck several times firmly with the head of a pair of loppers, allowing the brown outer covering of the crown to peel away exposing the white fleshy inner section of the rhizome for application of herbicide. Gouge out sections of the fleshy base with a knife and apply herbicide using a paint pot and brush or dripper bottle within 10 seconds.
Basal Barking	This method involves mixing an oil-soluble herbicide in diesel/kerosene and painting or spraying the full circumference of the trunk or stem of the plant from ground level to a height of approximately 45cm. Basal bark application is suitable for thin-barked woody weeds including saplings, regrowth and multi-stemmed shrubs. The method will usually result in the mortality of difficult-to-control woody weeds at any time of the year, provided the bark is not wet or too thick to enable the herbicide to penetrate. The method should not be used in wet weather, adjacent to waterways or in areas where native trees and shrubs are located. The use should be restricted to situations where a weed is particularly difficult to control e.g. cherry guava and where other methods have been unsuccessful.
Stem Injection	Large woody weeds such as camphor laurel, coral trees (Erythrina spp, Privet Ligustrum spp) and umbrella trees are generally treated by stem-injection. Holes are drilled at regular intervals around the base of the tree and exposed roots using a drill. A tree injection syringe attached to a small capacity knapsack is used to fill the holes with the herbicide. Stem-injection of trees can also be undertaken using a hatchet to create cuts in a 'brickwork pattern' in trunks of trees for the application of herbicide (known as tree frilling). Frilling is more labour intensive than drilling. The greatest benefit of stem injection is that the trees can be left standing in situ as they die, provided there is no risk to humans or infrastructure from falling limbs. This creates convenient roosts for birds and other animals and prevents the formation of large amounts of debris on the ground and damage to understorey plants which would result if the trees were to be cut down using a chainsaw.
Wick Wiping	Wick wipers can be manually used with a sponge or wick applicator, attached to a container filled with herbicide or as an attachment towed by a tractor. The manual method can be used to selectively apply herbicide to the leaves of weeds growing in sensitive situations. The handheld container can leak, and generally spot spraying would be recommended. The use of a tractor drawn wick wiper is used to control taller growing species such as introduced grasses and to encourage the growth of lower growing species. This method could be used in preparation for planting.
Mechanical	**Mechanical weed control involves the use of powered and non-powered equipment such as brush cutters, chainsaws, slashers, shovels, pruners, saws, etc. These methods are best used in situations where there is a large, uninterrupted stand of weeds.**
Dig and Bag	Dig and remove tuberous/ rhizomatous root systems. Remove roots or whole plant in hard/ compacted soils. Place in suitable container and remove from site, dispose of by deep burial, burn or burial at a land fill, must not place declared weed species in recycling (mulch).
Hand-Pull	Remove totally from ground by hand (human). Perform when soil is moist. Applicable to small infestations or areas of environmental sensitivity (including sensitive watercourses, when frogs are breeding, or presence of threatened species).
General Mechanical	May involve use of machinery (e.g. brush cutter, chainsaw, slasher, dozer, excavator). Suitable for large infestations and weed trees. Initially cost-effective but requires immediate revegetation of site or matting/ mulch application and extensive maintenance periods. Generates excessive soil and vegetation disturbance.

Note: Table adapted from a table in SEQERF

Site specific notes

Based on site-specific data, the following weed management methods and techniques are recommended:

- Stick rake, grubbing, ploughing or slashing major accessible areas of Lantana where not on a slope greater than 15% or where no existing native values occur.
- Apply broadscale herbicide and spot spray during high germination summer periods (Nov-March). Utilise organic based Lantana targeted herbicides which minimise impacts on native vegetation regenerating within and surrounding Lantana patches.
- Control methods applied will be guided by methods outlined in the DAF's Improved practices catalogue: Best management practice for maintaining and improving land condition on grazing lands (DAF, 2017).
- Cautionary options to reduce run off or contamination from herbicides will be utilised within proximity to the creek within EMZ 4. Spot spraying of glyphosate will limit potential for impact as it is known to breakdown immediately on contact with soil and has no residual effect (Gray et al. 2006). It is understood that permits from relevant state Environment Protection Authorities may be required if herbicides are to be sprayed on riverbanks. If seen fit, other forms of control, such as mechanical or fire management, may be utilised adjacent to the creek within EMZ 4 to reduce potential impacts to waterbodies.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER
DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:
South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 09 ESK RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Planting Notes*

Burns and Soil Cultivation

Controlled cool burns – if weather allows, controlled cool burns are undertaken prior to cultivation or planting to remove grass and broadleaved plants. Qualified and experienced burning contractors are used in all instances, and in accordance with rural fire legislation, permit conditions and stakeholder/near neighbour notification requirements.

Cultivation of soil through ripping – this helps root penetration, increases moisture infiltration and retention around the planted tree's root zone and increases planting efficiency. In all instances, lines are ripped along contours. At no stage will downhill ripping be undertaken due to the high risk of channelling water in the rip lines and associated risk of serious erosion. The upper limit for contour ripping is 30 degrees. Below this, limits for contour ripping are to be set by the contractor, with operator safety being the primary consideration. Ripping must always take place during dry soil conditions, to enable effective soil fracture, and be completed several months before planting, to allow for settling of soil within the rip. Cultivation should not take place when soil moisture content is sufficient to allow the ripping implement to 'slice' through the soil without de-compacting it. Importantly:

- Ripping should always be undertaken with an angled steel plate affixed to the boot of the ripper to enable maximum soil decompaction at depth
- Minimum soil ripping depth is 30 cm – optimal soil ripping depth is 50 cm
- Ripped planting rows are spaced between 4 to 5 m apart to allow future vehicles access but retain planting density targets
- Machinery used to undertake ripping is typically a minimum D5 dozer, however, some high horsepower 4WD tractors or skid steers may also be suitable.

External Nursery

The Offset Provider will coordinate with local nurseries to source and propagate seedlings for planting. Species selection is critical in achieving the desired ecological restoration outcomes for rehabilitation sites. The planting palette proposed in this RMP has been derived from:

- Local Regional Ecosystem (RE) descriptions.
- Observed site native vegetation.
- Climatic and weather conditions observed on site (frost, salt-spray, etc.
- 'Pioneer' species are useful in site stabilisation and encouraging native regeneration (proposed to be planted in T2 subcanopy layer).
- Required foraging species to support regent honeyeater and swift parrot.
- Utilising flowering and fruiting species are useful to attract wildlife and result in introduction of seeds.
- Species availability from seed propagation and or local nurseries.

Sourcing Seed Stock

Seed stock will be comprised of locally sourced seed stock where possible. Sourcing planting from local nurseries is the commonly chosen option and has the following benefits:

- Awareness of genetic considerations when collecting seed.
- Experience with breaking dormancy mechanisms in hard to germinate seeds.
- Highly successful propagation techniques.
- Ability to provide high quality stock to order
- Draw on industry resources.

Swift parrot and regent honeyeater foraging tree species (*C. citriodora* and *E. tereticornis*) are required to be planted at the densities and quantities prescribed in this RMP in order to meet the required offset outcomes for the species. Densities of the other species may be modified where unable to meet the seed stock requirements, however, the volume of tube stock to be planted should be the same.

METHODOLOGY – PLANTING

Primary weed management works, broad scale planting (reconstruction and fabrication) and assisted natural regeneration is proposed to be undertaken. Prior to installation, the following items should be considered:

- Timing of planting
- Site preparation
- Planting density
- Planting installation

Timing of Planting

The timing of planting should ideally be aligned with the wet season in SEQ (summer and autumn). This minimises the need for intensive watering to establishment planting. Planting between February to May is the most beneficial as it also seeks to avoid intense heat periods of summer. Furthermore, planting at flood-prone and frost-prone locations should aim for plant establishment prior to the onsite of flooding / frost events. Despite this, it is understood planting may occur at various times within rehabilitation areas due to development timing needs.

Site Preparation

Site or planting preparation includes:

- Fencing to exclude grazing animals and people (if required)
- Pre-spraying of exotic grasses and other weeds to planting areas
- Consideration of source of water for new planting (access tracks, temporary irrigation)
- Arranging delivery of mulch, jute netting and tree guards (if required)
- Treatment of heavily compacted soils by ripping and or application of gypsum
- Soil amelioration as required

Planting Density

The planting capacity or number of trees (all species) that can be supported within each EMZ was determined based on the following planting densities proposed in accordance with the South East Queensland Ecological Restoration Framework (SEQERF):

- 1 tree per 10 m^2 or 1000 trees per hectare for non-remnant paddock
- 1 per 25m^2 or 400 trees per hectare for sparse regrowth to non-remnant paddock
- 1 per 50 m^2 or 200 trees for sparse regrowth
- 1 per 100 m^2 or 100 trees for dense regrowth
- 1 per 1000 m^2 or 10 trees for remnant

The proposed density of trees per hectare depending on the EMZ was multiplied by the size of the EMZ (in hectares) to determine the maximum planting capacity. Waterbodies were excluded from potential planting areas.

Each EMZ was assigned a planting palette of tree species developed based on the ground-truthed pre-clear regional ecosystem mapping and local availability of seed stock. Each planting palette comprises a mix of preferred foraging species for the Swift Parrot, other eucalypt trees and pioneer species such as *Acacia* sp. and *Allocasuarina* sp. Preferred foraging tree species comprise a percentage of the total planting palette where it is suitable for the pre-clear RE and/or consistent with the local seed stock.

Refer to plant schedule for the proposed species composition and planting densities.

Planting Installation

The following outlines the preferred installation methodology for revegetation works within the rehabilitation areas. It has been designed to maximise plant establishment success rates and minimise plant mortality. Revegetation works shall be either undertaken or directly supervised by an experienced and qualified contractor. All works shall be in accordance with the provisions of this RMP, and local government policies and Australian Standards.

Techniques are determined based on individual site conditions and will vary from bare seed, seed pods, drone seeding, seedling planting by ground machine, or spades/mattocks, or a combination of several techniques across the site.

Where cultivation has occurred, seedlings are planted into the prepared rip-lines. Seedlings should be planted in cultivated or uncultivated sites at a depth to make good contact with moist soil, and the soil then compressed around the seedling to remove any air pockets.

Planting should be of sufficient depth to ensure the entire root ball is buried with a minimum of five centimetres of natural ground covering the top of the root ball/potting mix. The stem of the seedling should be as vertical as possible.

Spreading bare seeds onto the top of the ground by hand or machine has a very low germination rate and requires high volumes of seed and good soil to seed contact to be successful. A high degree of pre-plant preparation is required before direct seeding is undertaken. Relatively flat open sites with little ground layer competition and sandy soils could be suitable for direct seeding by machine. Inaccessible sites with good pre-plant ground layer vegetation control could be suitable for drone dispersal.

Tube stock of native trees and shrubs should be planted into moist soil with good soil to seed contact at an optimum depth to maximise the seed germination. Seeds of the same species combined with various materials (e.g. clay) into a small pod shape can be used to reduce seed predation by insects, protect the seeds from adverse weather conditions, and increase germination. Inaccessible sites with good pre-plant ground layer vegetation control may be suitable for drone or manual dispersal of seed pods.

Timing must occur during seasons of high rainfall and mild temperatures. Dry weather conditions, extreme high temperatures, and extreme low temperatures will have a negative impact on seed germination and seedling survival.

Seedling types must be a variety of local provenance genetics to ensure future resilience and ecological benefits. Multiple seedlings can be grown in a solid tray or individually in 50 mm tube stock pots. Transplanting the tallest, most mature seedlings with solid mature root ball density maximises the survival and early growth rate of the seedlings.

Fertilising seedlings is important just prior to planting. Alternately a liquid fertiliser can be added to the water when the seedlings are soaked on the day of planting. A complete, slow-release fertiliser is recommended, and is to be administered appropriately during planting. Topdressing with slow-release fertiliser is preferred to avoid toxic levels of fertiliser accumulating in the plant hole around the plant roots.

Moisture is a key element to reduce seedling transplant shock. The ground should have a full moisture profile, the seedlings should be soaked fully before planting, and there should be a high chance of rain after planting. Hand watering planted seedlings should be considered only as a last resort. Planting seedlings provides an opportunity to have the greatest control over forest design.

Maps, including species combinations, will inform the planting contractors of the species mix for each planting site, the density and spacing of the seedlings and the specific location of each species mix across the site. Seedlings of the same species can be planted in small groups or spread randomly across the site.

Quality control is undertaken at the time of planting. Clear instructions to planting contractor is required to ensure the planting quality standard is understood. This is usually best undertaken on the same day as contractor induction to make sure the planters understand the quality standards from day one. Any trees not planted correctly, or planted at the incorrect spacing, will need to be reworked at the contractor's cost. Further inspection of the planting work will be undertaken prior to completion of the planting work to ensure the standard and spacing requirements have been met. Invoices received from the planting contractor cannot be paid until the final inspection has been undertaken and any problems rectified. Work that does not meet the standard will need to be re-done as soon as possible at the expense of the contractor.

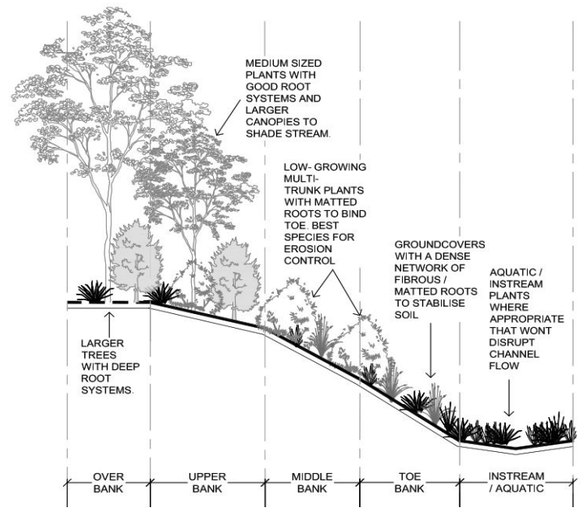


Figure 2: Categories of channel vegetation adapted from the Brisbane City Council Natural Channel Design Guidelines.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER
DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:
South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 10 ESK RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Maintenance and Monitoring*

METHODOLOGY – MAINTENANCE

By the maintenance stage, the vegetation community is at a point where native plant species are germinating and establishing. Weed density is starting to decrease as the native plants are able to out-compete the weeds. One of the fundamental principles of ecological restoration is that it attempts to create or re-establish an ecosystem that is self-sustaining. Therefore, it is the underlying goal that maintenance will eventually be decreased to a minimum. While this is not always possible, due to factors such as the continual reintroduction of weed propagules to the site from surrounding areas; unfavourable seasons or weather event; persistent weed species; or global influences such as the enhanced greenhouse effect, it should always be strived for (source: SEQERF). Maintenance works include watering, follow-up weed management, pest management and remedial planting as informed by adaptive management.

Watering regime – if required based on site conditions

Watering is a critical component during the establishment phase of ecological restoration where site conditions are unsuitable for plant growth. Watering regime is to be adjusted based on site conditions, species, and seasonal variability. Indicative intensive watering regime is as below.

Primary Establishment Phase (0–12 months)

- Frequency:
  - Weeks 1–4: Water every 2–3 days, especially in sandy or well-drained soils.
  - Weeks 5–12: Reduce to twice weekly, depending on rainfall and soil moisture.
  - Months 4–12: Weekly deep watering during dry spells.
- Volume:
  - Apply 10–20 litres per plant for trees and shrubs.
  - Groundcovers require less water, but will require full root zone saturation.
- Method:
  - Use drip irrigation, tree bags, or slow-release watering systems to minimise runoff and evaporation.
  - Avoid overhead watering to reduce disease risk.
- Seasonal Adjustments
  - Summer (Dec–Feb): Increase frequency due to high evapotranspiration.
  - Autumn/Winter (Mar–Aug): Reduce watering unless dry conditions persist.
  - Spring (Sep–Nov): Resume intensive watering as temperatures rise.
- Monitoring and Adaptation
  - Check soil moisture at root depth using probes or manual inspection.
  - Observe plant stress indicators: wilting, leaf drop, discoloration.
  - Adjust watering based on species needs.

Pest management

Non-native vertebrate pests will be managed as part of the broad management of the offset prescribed under the OAMP. Management will target non-native vertebrate predator and herbivore species which have potential to damage regenerating habitat areas. This includes wild dogs, European red foxes, feral cats, feral pigs and deer.

Weed control

Intensive weed control maintenance will be undertaken for at least two years after planting is completed, or until the planted seedlings are tall enough to access full sunlight and adequate soil moisture free from adjacent competing plants. Ongoing weed maintenance activities will be completed throughout the life of the offset with a focus on WONS. Care should be taken to ensure weed control approaches do not impact planted seedlings and herbicide application is used precisely and selectively to ensure no dieback to the plantings or developing understorey. Herbicide application must be undertaken by licensed and experienced contractors, and in accordance with registered label conditions and safety data sheet requirements at all times. Mechanical methods will be used where appropriate.

MONITORING AND REPORTING FRAMEWORK

Monitoring

Monitoring methods to track rehabilitation progress will comprise a mix of informal and formal monitoring methods to track progress against the proposed environmental outcomes for each MNES and objectives of this RMP. All monitoring will be undertaken by a suitably qualified Rehabilitation Contractor/Landscape consultant and/or Ecologist.

It is important for the long-term success of a habitat establishment project that both growth and survival are monitored at regular intervals. A monitoring program is proposed whereby the offset area is monitored annually using informal techniques (i.e., photo monitoring) and formal monitoring techniques at prescribed intervals under the MHQA method (i.e., years 5, 10, 15 and 20).

Informal

Informal or qualitative monitoring techniques will be employed as part of the offset monitoring. Informal monitoring methods are less time-consuming and technical and form an important tool for determining ecological restoration success. Informal monitoring will occur through site inspections at prescribed monitoring intervals and will include the following techniques:

1. Photo monitoring, and
2. Visual assessment.

Photo monitoring

Photo monitoring is a cost-effective and objective method to visually assess plant survival and growth. Photo monitoring can be used to build a consistent reference point for rehabilitation progress and provide a visual time series of the offset area from a baseline state to a self-sustaining state. Permanent photo points will be established in the first year of the offset commencement prior to any works commencing on-site (weed management or planting) using a star picket marked with fluorescent yellow safety cap or painted timber stakes. This will enable photos to be taken of the site at regular intervals as it is being restored. Photo point locations will be spread between EMZs at representative locations of each EMZ. Indicative photo monitoring locations will be established by the overseeing qualified Rehabilitation Contractor/Landscape Consultant and/or Ecologist. Photo monitoring will use the following method to ensure adequate data collection and consistency across monitoring events as recommended by the Guide to photo monitoring of ecological restoration projects (OEH, 2018):

- Each photo will include the established star picket demarcating the photo point location to create a fixed reference object in the field of view.
- Point the photo towards an established compass bearing (e.g. 55° North) for the photo point location.
- Take multiple photos (left, right, centre) allowing for each image to overlap to create a panoramic view. This will increase the coverage and representativeness of the scene/subject.
- Always take the photo from the same point, and at the same height.
- Use the same camera or the same type of camera each time the photo is taken.
- Minimise sun glare and shadow in the photo and try to take photos at the same time of day.
- Identify key species that will be visible in the photo.
- Take along copies of the original photos for reference when returning to the photo points to help match the field of view contents.

Visual assessment

At each photo monitoring location, a visual assessment will also be completed whereby general observations such as mortality rate, species, weed/WONS presence and other degrading factors are recorded.

Reporting

Following each photo monitoring event, a Photo Monitoring Report will be prepared which will include the following information:

- Photo set at each monitoring location.
- Commentary on mortality rate and presence of WONS/other weeds at a minimum with any additional relevant observations to inform adaptive management such as species-specific responses or herbivory.
- Adaptive management (if required).

Photo Monitoring Reports will be distributed to the rehabilitation contractor to instigate rectification works. After each monitoring event, photos will be transferred to a master photo monitoring data template, designed to show changes in each photo monitoring location between events.

Formal

Formal monitoring of rehabilitation works involves collecting quantitative data at prescribed monitoring intervals using a combination of monitoring methods and techniques. Formal monitoring provides data that cannot be measured by informal observations and can be easily compared against quantitative performance indicators. This will include:

MHQA Surveys

MHQA transects at 5-yearly intervals (5, 10, 15 and 20 years) following the commencement of the offset. Transects will be repeated at baseline locations before the end of the relevant monitoring interval (e.g. before the end of Year 5) and will be completed in accordance with the baseline survey methodologies described in the OAMP.

Reporting and Monitoring – Summary

The results of informal (photo monitoring and visual assessment) will be detailed in bi-annual monitoring reports and formal monitoring (MHQA surveys) in Milestone Survey Reports. Bi-annual monitoring reports will include a summary of estimated success rate (namely of tree species), any degrading factors at the site that may or are currently affecting survival success and any recommended adaptive management measures while Milestone Survey Reports will report on habitat quality improvements relative to the baseline survey condition and proposed Environmental Outcomes detailed in the OAMP.

The reporting schedule for the monitoring program is summarised in the table below.

Report	Purpose	Frequency	Responsible party
Milestone Survey Report *Details the results of MHQA, GHFF FHA and swift parrot and regent honeyeater foraging habitat assessment.*	Designed to demonstrate increase in value of offset area for Matters of National Environmental Significance (koala, grey-headed flying-fox, swift parrot and regent honeyeater) as proposed under the OAMP.	Five-yearly at Years 5, 10, 15 and 20	Suitably qualified Ecologist as appointed by the Proponent
Photo Monitoring Report *Qualitative monitoring report showing photos of the offset area, commentary on rehabilitation progress and recommended adaptive management measures.*	Function is to provide regular assessment of the offset area and feedback to engaged rehabilitation contractors to guide on-ground works.	Bi-annually from Years 1 to 5 Years 10, 15 and 20	Suitably qualified Rehabilitation Contractor, Landscape Consultant or Ecologist as appointed by Offset Provider

ADAPTIVE MANAGEMENT

Adaptive management is a systematic approach for improving rehabilitation outcomes by learning from existing management techniques. It is a cyclic process that involves:

1. Identification of unsuccessful treatments and new threats during monitoring events
2. Investigation of new and alternative treatments
3. Implementation of new / alternative management strategies based on best available knowledge
4. Review of new / alternative management strategies during monitoring

Adopting an adaptive approach to rehabilitation works is recommended to maximise environmental outcomes for the site. Once an area is revegetated, the survival and growth of plants needs to be assessed, monitored and managed. Plans need to be adaptive in order to respond to identified issues on the site.

Multiple corrective action triggers for adaptive management are proposed. This includes:

- Native plant mortality >20% during the initial contractor establishment phase (3-5 years) of the plantings
- WONS cover >5% after Year 10
- Number of non-juvenile stems of swift parrot foraging species (*C. citriodora* and *E. tereticornis*) not increasing (as extrapolated from stem density assessments)
- Number of non-juvenile stems of regent honeyeater foraging species (*C. citriodora* and *E. tereticornis*) not increasing (as extrapolated from stem density assessments)
- Planting with groundcover species (grasses and forbs) if required to improve species richness targets as determined through MHQA monitoring. Indicative species palette is provided in this RMP.

A survival rate of 80% of tree species is proposed to be achieved for the offset area during the establishment phase of the plantings (3-5 years) with a focus on species identified as preferred or supporting foraging species for the Critically Endangered regent honeyeater and swift parrot. This is required in order to achieve the proposed offset outcomes for the species under the OAMP. The 80% survival rate is to be achieved throughout the 3-5 year contractor establishment phase, after which the plantings are considered self-sustaining. It is anticipated the overall density of plantings will normalise to typical eucalypt forest density during the successional phase of the offset (5-20 years post planting). Where survival rates are observed to be less than 80% during the contractor establishment phase, this may indicate the presence of a degrading factor not previously identified or considered at the site and may require adaptive management measures to be considered and implemented. Degrading factors are to be identified as part of regular monitoring and will form the basis for actioning adaptive management.

Adaptive management measures may include a combination of the following:

- Identify and address the degrading factor (e.g. soil issue, species failure).
- Remedial plantings in areas of dieback to bolster survival rates to above 80% during the contractor establishment phase.
- Introduce a different species *i.e.,* if one plant species consistently dies on a site, consider using in its place a species that is performing well.
- Adjust planting methods such as using advanced tube stock or direct seeding, modifying site preparation techniques.
- Modify weed management techniques or frequency where WONS exceed 5% after Year 10.

REHABILITATION TEAM RESPONSIBILITIES

It is critical for all parties to understand their responsibilities within the rehabilitation 'team'.

PARTY	DESCRIPTION
Proponent	Ensure all consultants, contractors, sub-contractors or others utilising the area are aware of the Rehabilitation Management Plan. Appoint appropriate consultants and contractors to undertake works as prescribed on the drawings. Provide security via an uncompleted works bond and maintenance bond for the cost of works if required. Cover costs of all resources to ensure works are completed as per approved plans.
Consultants	Brief proponent on their requirements in implementing and maintaining works as per the Rehabilitation Management Plan. Attend monitoring inspections. Undertake monitoring and reporting as per this plan. Be available to respond to technical queries to the approved documentation when on-site conditions require changes. Liaise with team throughout all stages of approval, initial works and maintenance of works.
Assessment Manager	Provide technical expertise via commentary on the approval of documentation. Attend monitoring inspections. Reduce and release securities held against works at the completion of successful milestone inspections. Be available to respond to technical queries to the approved documentation when on-site conditions require changes. Accept and review maintenance reports as dictated (if required)
Land Manager / Contractor	Ensuring implementation of works and compliance with this Rehabilitation Management Plan. Attend monitoring inspections. Has a minimum Certificate III in Conservation and Land Management, or a Certificate III in Horticulture, or a Certificate III in Rehabilitation Construction, or equivalent experience in rehabilitation. Hold relevant licenses in applicable weed management/ revegetation/ fauna management, any required insurances for scope of works and an understanding of required Laws, Act, Policies and Guidelines. Recommend changes to the documentation when specific experience or on-site conditions require so.

References

Chenoweth EPLA and Bushland Restoration Services (2012). South East Queensland Ecological Restoration Framework: manual. Prepared on behalf of SEQ Catchments and South East Queensland Local Governments, Brisbane.

Department of Agriculture and Fisheries (Qld). (2017). *Improved practices catalogue: Best management practice for maintaining and improving land condition on grazing lands*. Queensland Government.

Gray, J. M., Rawling, J. L., & Chapman, G. A. (2006). Soil and land assessment for native vegetation rehabilitation: Technical guidelines (Publication No. DNR 06_081). New South Wales Department of Natural Resources.

Office of Environment and Heritage (2018). Guide to photo monitoring of ecological restoration projects. OEH New South Wales, January 2018.

Thackway, R., Neldner, V.J. and Bolton, M.P. (2008). Vegetation. In McKenzie, N.J., Grundy, M.J., Webster, R. and Ringrose Voase, A.J. (eds) Guidelines for surveying soil and land resources (2nd edition). CSIRO Publishing, Melbourne.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:

South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 11 ESK RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - APPENDIX 01 *Weed Treatment and Removal (i)*

The below table identifies all treatment and control measures for any invasive naturalised plants which may be encountered on-site during rehabilitation works.

Queensland Herbarium Invasive Naturalised Plants In South East Queensland								
Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
1	Mimosaceae	Acacia boliviana (Bolivian wattle)	1	1	4	T/O	Mechanical or chain removal.	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
2	Mimosaceae	Acacia farnesiana (mimosa bush)	6	15	3	T/A	Mechanical removal of small plants.	
3	Mimosaceae	Acacia nilotica subsp. indica (prickly acacia)	3	3	4.4	T/A	Mechanical or chain removal.	
4	Cactaceae	Acanthocereus tetragonus (sword pear)	1	1	3	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
5	Polygonaceae	Acetosa sagittata (rambling dock)	4	18	4	V/U	Tubers: Dig up, bag and remove.	
6	Agavaceae	Agave americana (century plant)	4	9	4	S/OA	Dig out by hand or machine	
7	Agavaceae	Agave sisalana (sisal)	2	4	4	S/OA	Dig out by hand or machine	
8	Agavaceae	Agave vivipara var. vivipara (sisal)	2	3	4	S/OA	Dig out by hand or machine	
9	Asteraceae	Ageratina adenophora (crofton weed)	6	38	5	H/O	Hand pull and hang to dry.	
10	Asteraceae	Ageratina riparia (mistflower)	5	38	5	H/O	Hand pull and hang to dry.	
11	Asteraceae	Ageratum houstonianum (blue billygoat weed)	8	81	4	H/UO	N/A	
12	Simaroubaceae	Ailanthus altissima (tree of heaven)	1	3	4	T/O	Seedlings: Hand pull	
13	Amaranthaceae	Alternanthera philoxeroides (alligator weed)	1	3	5	Ha/U	Physical removal of plant should not be attempted	
14	Poaceae	Andropogon virginicus (whisky grass)	6	14	4	H/A	Hand pull or dig out small infestations.	
	Basellaceae	Anredera cordifolia (madeira vine)	8	16	5	V/O	Small Vines & Tubers: Hand pull. Bag and dispose.	
16	Asclepiadaceae	Araujia sericifera (mothvine)	9	38	4	V/O	Seedlings & Vines: Hand pull. Bag and remove fruit.	
17	Aristolochiaceae	Aristolochia elegans (Dutchman's pipe)	8	30	4	V/O	Stems: Hand pull; Fruit: Bag and remove.	
18	Poaceae	Arundo donax (giant reed)	1	4	4	H/O	Physical removal of small infestations.	
19	Asclepiadaceae	Asclepias curassavica (red cotton bush)	9	43	3	S/O	Hand pull; Slash	
20	Asparagaceae	Asparagus aethiopicus cv. Sprengeri (asparagus ground fern)	5	35	5	H/O	Dig out unwanted plants and dispose of at the appropriate council landfill. Remove the entire crown of underground stem of plant to prevent regrowth	
21	Asparagaceae	Asparagus africanus (ornamental asparagus, asparagus fern)	7	26	5	V/O	Dig out roots and dispose of at local council landfill site. Remove entire crown and underground stem to prevent regrowth	
22	Asparagaceae	Asparagus plumosus (asparagus fern)	4	8	4	V/O	Rhizomes: crown and hang to dry.	
23	Poaceae	Axonopus compressus (broad leaved carpet grass)	5	23	4	H/AO	Cut stems from roos.	
24	Asteraceae	Baccharis halimifolia (groundsel bush)	10	168	5	S/O	Seedlings: Hand pull	
25	Asteraceae	Bidens pilosa (cobbler's pegs)	10	110	4	H/U	Hand pull or cultivation.	
26	Poaceae	Brachiaria decumbens (signal grass)	4	14	4	H/A	Grazing	
27	Poaceae	Brachiaria mutica (para grass)	6	18	4	Ha/A	Grazing	
28	Crassulaceae	Bryophyllum daigremontianum x B. delagoense (hybrid mother-of millions)	6	15	5	H/O	Hand pull and dispose	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
29	Crassulaceae	Bryophyllum delagoense (mother of millions)	8	38	5	H/O	Hand pull and dispose	
30	Crassulaceae	Bryophyllum pinnatum (resurrection plant)	6	17	4	H/O	Hand pull and dispose	
31	Buddlejaceae	Buddleja madagascariensis (buddleja)	5	6	3	S,V/O	N/A	
32	Cabombaceae	Cabomba caroliniana (cabomba, fanwort)	4	12	5	Ha/F	Mechanical removal of small infestations	
33	Caesalpiniaceae	Caesalpinia decapetala (thorny poinciana)	4	20	4	S,V/O	Seed-heads: Bag and remove.	
34	Brassicaceae	Cakile edentula (American sea rocket)	4	24	4	H/U	Manually grub and destroy.	
35	Commelinaceae	Callisia fragrans (purple succulent)	3	9	4	H/O	N/A	
36	Cannaceae	Canna indica (canna lily)	3	9	3	H/O	Dig out entire plant	
37	Sapindaceae	Cardiospermum grandiflorum (balloon vine)	7	31	4	V/O	Seedlings & Small Vines: Hand Pull	
38	Apocynaceae	Cascabela thevetia (syn. Thevetia peruviana) (yellow oleander)	5	9	3	ST/O	Hand pull small infesttions. Slashing can be used but should be followed up by herbicide application.	
39	Apocynaceae	Catharanthus roseus (pink periwinkle)	5	22	4	S/O	Hand pull	
40	Ulmaceae	Celtis sinensis (Chinese celtis)	8	19	5	T/O	Remove when small. Hand pull or dig out small seedlings. Combine dozing, burning and controlled grazing for large infestations	
41	Poaceae	Cenchrus ciliaris (buffel grass)	4	15	4	H/A	Hand or mechanical removal of young plants	
42	Poaceae	Cenchrus echinatus (Mossman river grass)	8	43	3	H/A	Hand or mechanical removal of young plants	
43	Solanaceae	Cestrum parqui (green cestrum)	6	36	4	S/O	Seedlings: Hand pull	
44	Caesalpiniaceae	Chamaecrista rotundifolia (round-leaf cassia)	6	14	3	ST/A	Seedlings: Hand pull	
45	Poaceae	Chloris gayana (Rhodes grass)	9	55	4	H/A	Hand pulling and removal and digging of larger clumps	
46	Asteraceae	Chrysanthemoides monilifera subsp. rotundata (bitou bush)	3	23	5	S/OA	N/A	
47	Lauraceae	Cinnamomum camphora (camphor laurel)	7	25	5	T/O	Seedlings: Hand pull	
48	Rubiaceae	Coffea arabica (coffee)	3	7	3	ST/A	Saplings: Hand pull	
49	Arecaceae	Colocasia esculenta (taro)	3	4	3	H/AO	Hand pull.	
50	Commelinaceae	Commelina benghalensis (hairy wandering jew)	4	7	4	H/O	Collect and Bag	
51	Asteraceae	Conyza bonariensis (flax-leaf fleabane)	7	38	3	H/U	Hand or mechanical removal of small infestations	
54	Poaceae	Cortaderia selloana (pampas grass)	2	1	4	H/O	Small Plants: dig out by hand or machine	
55	Asclepiadaceae	Cryptostegia grandiflora (rubber vine)	6	19	4	V/O	Scattered or medium-density infestations: Where possible, repeated slashing close to ground level is recommended.	
56	Poaceae	Cynodon dactylon (couch, Bahama grass introduced cultivars)	10	45	4	H/OA	Hand pull small infestations, removing all roots or smother with mulch.	
57	Cyperaceae	Cyperus brevifolius (Mullumbimby couch)	8	53	3	H/O	Each has to be dug out with a spade and the entire plant turned over, exposing the root system while making sure all aerial parts of the plant are completely covered.	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
58	Cyperaceae	Cyperus involucratus (African sedge)	6	15	4	Ha/OF	Each has to be dug out with a spade and the entire plant turned over, exposing the root system while making sure all aerial parts of the plant are completely covered.	
59	Fabaceae	Desmodium intortum (greenleaf desmodium)	4	11	3	H/A	Hand pull or crown and dispose	
60	Fabaceae	Desmodium uncinatum (silverleaf desmodium)	5	14	4	H/A	Hand pull or crown and dispose	
61	Poaceae	Digitaria didactyla (Queensland blue couch)	9	70	4	H/A	Hand pull or cultivation	
62	Poaceae	Digitaria eriantha (pangola grass)	5	20	3	H/A	Hand pull or cultivation	
63	Verbenaceae	Duranta erecta (duranta)	6	14	4	ST/O	Shrubs: CS&P (1:1.5)	
64	Poaceae	Echinochloa colona (awnless barnyard grass)	9	44	3	H/A	Hand or mechanical removal of small infestations	
65	Poaceae	Echinochloa crus-galli (barnyard grass)	6	34	4	H/A	Hand pull or dig out small infestations.	
66	Hydrocharitaceae	Egeria densa (egeria waterweed)	2	7	4	Ha/F	Hand pulling, cutting and digging with machines effective	
67	Pontederiaceae	Eichhornia crassipes (water hyacinth)	4	8	5	Ha/OF	Mechanical removal of small infestations	
68	Poaceae	Eleusine indica (crowsfoot grass)	8	55	4	H/A	Pull and chip. Replant with native couch.	
69	Poaceae	Eragrostis curvula (African lovegrass)	7	29	4	H/U	Chipped out before they flower. When chipping out the plant ensure that the tussock crowns are removed, as this will prevent regrowth. If in seed, the stems must be cut and bagged first.	
70	Rosaceae	Eriobotrya japonica (loquat)	3	5	3	T/O	Seedlings: Hand pull	
71	Fabaceae	Erythrina crista-galli (cockspur coral tree)	2	4	4	T/O	N/A	
72	Myrtaceae	Eugenia uniflora (Brazilian cherry)	4	19	4	ST/O	N/A	
73	Euphorbiaceae	Euphorbia cyathophora (painted spuge)	8	20	3	H/O	Hand pull	
74	Euphorbiaceae	Euphorbia heterophylla (milk weed)	5	12	3	H/O?	Hand pull	
75	Agavaceae	Furcraea foetida (Cuban hemp)	3	4	4.3	S/OA	Dig out by hand or machine	
76	Agavaceae	Furcraea selloa (hemp)	1	2	4	S/OA	Dig out by hand or machine	
77	Caesalpiniaceae	Gleditsia triacanthos (honey locust)	7	12	4	T/O	For the control of dense infestations on grazing land, burning followed by spot spraying is an economical control method.	
78	Colchicaceae	Gloriosa superba (glory lily)	3	26	4	V/O	N/A	
79	Asclepiadaceae	Gomphocarpus physocarpus (balloon cotton bush)	10	132	4	S/OU	Slash in winter and burn cuttings. Wanderer Butterfly can also be used as biological control.	

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:

South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E A01_1 ESK RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - APPENDIX 01 *Weed Treatment and Removal (ii)*

Queensland Herbarium Invasive Naturalised Plants In South East Queensland								
Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
80	Asteraceae	Gymnocoronis spilanthoides (Senegal tea)	3	4	5	Ha/F	Place plant material in a sealed plastic bag, leave in sunlight to rot then burn or dispose of at a council-approved land fill tip	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
81	Cactaceae	Harrisia martinii (harrisia cactus)	2	4	4	S/O	The use of the biological mealy-bug agent is recommended	
82	Zingiberaceae	Hedychium coronarium (wild ginger)	2	2	4	H/O	Small Plants: Hand pull and dispose	
83	Zingiberaceae	Hedychium gardnerianum (ginger lily)	1	3	4	H/O	Small Plants: Hand pull and dispose	
84	Malpighiaceae	Hiptage benghalensis (hiptage)	3	5	4	S,V/O	Hand pull small infestations.	
85	Acanthaceae	Hygrophila costata (Glush weed)	3	7	5	Ha/F	Hand pull smal infestations. Can be controlled by planting competitive native species.	
86	Poaceae	Hymenachne amplexicaulis cv. Olive (hymenachne)	1	1	4	Ha/A	A combined approach of different control methods including mechanical, chemical and biological with land management practices is most effective	
87	Acanthaceae	Hypoestes phyllostachya (polka-dot plant	3	5	4	H/O	Hand pull or crown and dispose	
88	Balsaminaceae	Impatiens walleriana (balsam)	2	6	4	H/O	N/A	
89	Convolvulaceae	Ipomoea cairica (mile-a-minute)	7	56	4	V/O	Vines & Runners: hand pull, roll up and hand up to dry.	
90	Convolvulaceae	Ipomoea indica (blue morning glory)	5	24	4	V/O	Vines and Runners: hand pull, roll up and hang to dry.	
91	Bignoniaceae	Jacaranda mimosifolia (jacaranda)	4	12	3	T/O	Seedlings: Hand pull	
92	Euphorbiaceae	Jatropha gossypiifolia (cotton-leaf physic nut, bellyache bush)	1	1	4	S/O	Hand pull	
93	Juncaceae	Juncus articulatus (jointed rush)	1	2	4	Ha/FO	Hand pull.	
94	Acanthaceae	Justicia betonica (squirreltail)	2	4	4	S/O	Hand pull smal infestations. Can be controlled by planting competitive native species.	
95	Sapindaceae	Koelreuteria elegans (Chinese rain tree)	1	1	3.6	T/O	Seedlings: Hand pull	
96	Verbenaceae	Lantana camara var. camara (lantana)	10	455	5	S/O	Seedlings: Hand pull	
97	Verbenaceae	Lantana montevidensis (creeping lantana)	8	62	5	S/O	Fire and/or mechanical control	
98	Mimosaceae	Leucaena leucocephala (leucaena)	6	14	4	ST/A	Small plants: Hand pull or mechanical removal	
99	Oleaceae	Ligustrum lucidum (tree privet)	5	9	5	T/O	Seedlings: Hand pull	
100	Oleaceae	Ligustrum sinense (Chinese privet)	4	11	5	T/O	Seedlings: Hand pull	
101	Liliaceae	Lilium formosanum (Taiwan lily)	5	10	4	H/O	Hand pull or crown and dispose	
102	Caprifoliaceae	Lonicera japonica (Japanese honeysuckle)	3	6	4	V/O	Vines and Runners: hand pull, roll up and hang to dry.	
103	Solanaceae	Lycium ferocissimum (African boxthorn)	1	5	4.4	S/O	N/A	
104	Bignoniaceae	Macfadyena unguis-cati (cat's claw creeper)	5	36	5	V/O	Tubers: crown or dig up, bag and remove.	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
105	Fabaceae	Macroptilium atropurpureum (siratro)	8	39	4	V/A	N/A	
106	Fabaceae	Macrotyloma axillare (perennial horse gram)	4	12	3	V,H/A	N/A	
107	Poaceae	Melinis minutiflora (molasses grass)	5	17	5	H/A	Grazing or mowing	
108	Poaceae	Melinis repens (red Natal grass)	10	134	4	H/A	Grazing or mowing	
109	Mimosaceae	Mimosa pudica (common sensitive plant)	4	12	4	S/A	N/A	
110	Moraceae	Morus alba (white mulberry)	3	10	3	T/O	N/A	
111	Rutaceae	Murraya paniculata cv. Exotica (murraya)	6	26	4	S/O	Seedlings: Hand pull	
112	Haloragaceae	Myriophyllum aquaticum (parrot's feather)	3	15	4	Ha/F	N/A	
113	Brassicaceae	Nasturtium officinale (Qld use Rorippa nasturtium-aquaticum) (watercress)	7	19	4	Ha/FU	Manually grub and destroy.	
114	Fabaceae	Neonotonia wightii (glycine)	5	16	5	H/A	N/A	
115	Nymphaeaceae	Nymphaea caerulea subsp. zanzibarensis (blue lotus)	4	17	4	Ha/OF	Hand pull small infestations.	
116	Nymphaeaceae	Nymphaea mexicana (yellow waterlily)	2	4	4	Ha/OF	Hand pull small infestations.	
117	Ochnaceae	Ochna serrulata (ochna)	7	33	5	S/O	N/A	
118	Onagraceae	Oenothera drummondii subsp. drummondii (beach evening primrose)	3	17	4	H/O	Hand pull	
119	Oleaceae	Olea europaea (olive)	2	6	4	T/A	Seedlings: Hand pull	
120	Cactaceae	Opuntia aurantiaca (tiger pear)	1	2	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
121	Cactaceae	Opuntia imbricata (rope pear)	1	1	4	H/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
122	Cactaceae	Opuntia monacantha (drooping tree pear, syn. O. vulgaris)	2	3	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
123	Cactaceae	Opuntia stricta (common prickly pear)	7	67	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
124	Cactaceae	Opuntia tomentosa (velvet tree pear)	8	46	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
125	Poaceae	Panicum maximum (green panic and guinea grass)	8	78	5	H/A	Hand or mechanical removal of small infestations	
126	Asteraceae	Parthenium hysterophorus (parthenium weed)	6	14	4	H/U	Hand pulling of small areas is not recommended	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
127	Poaceae	Paspalum conjugatum (paspalum grass)	7	38	4	H/A	Cut below crown.	
128	Poaceae	Paspalum dilatatum (paspalum grass)	10	30	4	H/A	Hand pull or dig up	
129	Poaceae	Paspalum mandiocanum (broad leaf paspalum)	3	6	4	H/A	N/A	
130	Poaceae	Paspalum notatum (bahia grass)	4	10	4	H/A	Hand pull or dig up	
131	Passifloraceae	Passiflora edulis (passion fruit)	6	12	3	V/AO	Hand Pull	
132	Passifloraceae	Passiflora foetida (stinking passion flower)	7	50	4	V/O	Hand Pull	
133	Passifloraceae	Passiflora suberosa (cork passionflower)	8	166	4	V/O	N/A	
134	Passifloraceae	Passiflora subpeltata (white passion flower)	10	60	4	V/O	Stems: Hand pull	
135	Scrophulariaceae	Paulownia tomentosa (paulownia)	3	5	4	T/AO	Seedlings: Hand pull	
136	Poaceae	Pennisetum alopecuroides (swamp foxtail)	7	29	4	H/O	Hand Pull	
137	Poaceae	Pennisetum clandestinum (kikuyu grass)	4	12	4	H/A	Hand Pull	
138	Poaceae	Pennisetum purpureum (elephant grass)	2	9	4	H/O	Grazing or mechanical removal	
139	Poaceae	Pennisetum setaceum (fountain grass)	3	11	3	H/O	Hand Pull	
140	Verbenaceae	Phyla canescens (lippia, Condamine couch)	3	4	4	Ha/O	A combined approach of different control methods including chemical and mechanical with land management practices is most effective	
141	Poaceae	Phyllostachys aurea (fishpole bamboo)	1	2	4	S/O	N/A	
142	Phytolaccaceae	Phytolacca octandra (inkweed)	10	50	3	H/O	Hand pull or crown	
143	Pinaceae	Pinus elliottii (slash pine)	4	22	4	T/A	Seedlings: Hand pull; Saplings and Trees: cut close to ground or ring-bark	
144	Araceae	Pistia stratiotes (water lettuce)	3	8	4	Ha/OF	Mechanical removal of small infestations	
145	Mimosaceae	Prosopis pallida (algaroba)	2	2	4	ST/O	When using mechanical control methods, it is important to remove the bud zone of the root system (about 30 cm below the ground surface). If this is not removed, re-shooting can occur.	
146	Rosaceae	Prunus munsoniana (wild goose plum)	7	31	4	ST/A	Seedlings: Hand pull	
147	Myrtaceae	Psidium guajava and P. guineense (yellow guava and West Indes guava)	4	7	4	ST/AO	N/A	
148	Fabaceae	Pueraria lobata (kudzu)	3	4	4	V,S/O	Slash; Diminish by shading site	
149	Bignoniaceae	Pyrostegia venusta (flame vine)	1	1	4	V/O	N/A	
150	Rosaceae	Rhaphiolepis indica (Indian hawthorn)	3	10	4	ST/O	Seedlings: Hand pull	

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:

South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E A01_2 ESK RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - APPENDIX 01 *Weed Treatment and Removal (iii)*

Queensland Herbarium Invasive Naturalised Plants In South East Queensland

Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
150	Rosaceae	Rhaphiolepis indica (Indian hawthorn)	3	10	4	ST/O	Seedlings: Hand pull	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance
151	Euphorbiaceae	Ricinus communis (castor oil plant)	7	20	4	S/O	Seedlings: Hand pull	
152	Phytolaccaceae	Rivina humilis (baby pepper)	8	61	4	H/O	Hand pull and hang to dry.	
153	Rosaceae	Rubus bellobatus (kittatinny blackberry)	5	22	4	S/O	Slashing hinders growth, giving some control if plants are slashed before they seed	
154	Rosaceae	Rubus discolor (R. fruticosus complex, a blakberry)	4	10	4	S/OA	Slashing hinders growth, giving some control if plants are slashed before they seed	
155	Rosaceae	Rubus ellipticus (yellowberry)	4	26	4	S/O	Slashing hinders growth, giving some control if plants are slashed before they seed	
156	Acanthaceae	Ruellia malacosperma (ruellia)	5	16	4	H/O	N/A	
157	Ruppiaceae	Ruppia maritima (sea tassel)	2	8	4	Ha/F	Hand pull or dig up	
158	Alismataceae	Sagittaria graminea var. platyphylla (sagittaria arrowhead)	3	7	4	Ha/FO	Physical removal of small infestations.	
159	Lamiaceae	Salvia coccinea (red salvia)	9	46	4	H/O	remove small areas by hand or machine	
160	Salviniaceae	Salvinia molesta (salvinia)	8	57	5	Ha/F	Mechanical removal of small infestations; Salvinia weevil (Biological control)	
161	Caprifoliaceae	Sambucus canadensis (American elder)	3	7	3	ST/O	Vines and Runners: hand pull, roll up and hang to dry.	
162	Dracaenaceae	Sansevieria trifasciata (sansevieria)	2	7	3	H/O	Hand pull or dig up	
163	Anacardiaceae	Schinus terebinthifolius (broad-leaf pepper tree)	6	49	5	T/O	Seedlings: Hand pull	
164	Asteraceae	Senecio madagascariensis (fire weed)	6	28	4	H/U	Vines: Hand pull and remove; Runners: Roll up and hang to dry.	
165	Asteraceae	Senecio tamoides (Canary creeper)	3	8	4	V/O	Vines: Hand pull and remove; Runners: Roll up and hang to dry.	
166	Caesalpiniaceae	Senna pendula var. glabrata (Easter cassia)	7	33	4	ST/O	Seedlings: Hand pull	
167	Caesalpiniaceae	Senna septemtrionalis (arsenic bush, was S. floribunda)	6	25	4	S/O	Seedlings: Hand pull	
168	Poaceae	Setaria palmifolia (palm leaf setaria)	5	13	3	H/O	Hand pull or dig up	
169	Poaceae	Setaria sphacelata (South African pigeon grass)	9	41	4	H/A	Hand pull or dig up	
170	Malvaceae	Sida rhombifolia (Paddy`s lucerne)	9	69	4	S/U	Hand pull or dig out.	
171	Asteraceae	Sigesbeckia orientalis (Indian weed)	10	148	4	H/U	Hand pull or cultivation.	
172	Solanaceae	Solanum erianthum (a tobacco bush)	7	19	3	S/O	Hand pull	
173	Solanaceae	Solanum hispidum (giant devil's fig)	5	23	4	S/O	Hand pull	
174	Solanaceae	Solanum mauritianum (wild tobacco tree)	8	30	4	S/O	Seedlings: Hand pull	
175	Solanaceae	Solanum seaforthianum (Brazilian nightshade)	8	78	4	V/O	Hand pull	
176	Solanaceae	Solanum torvum (devil's fig)	6	39	4	S/O	Seedlings: Hand pull	
177	Asteraceae	Solidago canadensis var. scabra (Canadian goldenrod)	7	15	4	H/O	Hand pull and hang to dry.	
178	Bignoniaceae	Spathodea campanulata (African tulip tree)	1	1	3	T/O	N/A	
179	Asteraceae	Sphagneticola trilobata (Singapore daisy)	6	34	5	H/O	Hand pull	
180	Poaceae	Sporobolus africanus (Parramatta grass)	8	48	5	H/U	Hand or mechanical removal of small infestations	
181	Poaceae	Sporobolus fertilis (giant Parramatta grass)	9	27	5	H/U	Hand or mechanical removal of small infestations	
182	Poaceae	Sporobolus pyramidalis and S. natalensis (giant rat's tail grasses)	8	72	5	H/U?	Hand or mechanical removal of small infestations	
183	Poaceae	Stenotaphrum secundatum (buffalo grass)	3	23	3	H/AO	Hand or mechanical removal of small infestations	
184	Fabaceae	Stylosanthes scabra (shrubby stylo)	4	4	4.3	H/A	N/A	
185	Arecaceae	Syagrus romanzoffiana (queen palm)	4	10	4	T/O	Seedlings: Hand pull or crown; Trees: cut below growing point	
186	Asteraceae	Tagetes minuta (stinking roger)	8	32	3	H/U	Hand pull and hang to dry.	
187	Bignoniaceae	Tecoma capensis (Cape honeysuckle)	3	8	4	ST/O	N/A	
188	Bignoniaceae	Tecoma stans (yellow bells)	4	16	4	ST/O	N/A	
189	Poaceae	Themeda quadrivalvis (grader grass)	8	25	4	H/A	Hand pull or dig out small infestations.	
190	Acanthaceae	Thunbergia alata (black eyed susan)	5	22	4	H/O	N/A	
191	Acanthaceae	Thunbergia grandiflora (thunbergia, blue thunbergia)	2	3	5	V/O	N/A	
192	Acanthaceae	Thunbergia laurifolia (laurel clock vine)	1	1	4	V/O	N/A	
193	Fabaceae	Tipuana tipu (tipuana)	2	5	3	T/O	Seedlings: Hand pull	
194	Asteraceae	Tithonia diversifolia (Mexican sunflower)	5	11	4	H/O	N/A	
195	Commelinaceae	Tradescantia fluminensis (Qld use T. albiflora) (wandering jew)	5	9	4	H/O	N/A	
196	Commelinaceae	Tradescantia zebrina (zebrina)	3	12	4	H/O	N/A	
197	Tiliaceae	Triumfetta rhomboidea (Chinese burr)	7	44	4	H/U	Hand pull	
198	Asteraceae	Verbesina encelioides (crownbeard)	7	34	4	H/U	Vines: Hand pull and remove; Runners: Roll up and hang to dry.	
199	Iridaceae	Watsonia meriana var. bulbillifera (bulbil watsonia)	2	3	3	H/O	Dig up, bag and remove	
200	Asteraceae	Zinnia peruviana (wild zinnia)	6	33	3	H/O	Seedlings: Hand pull	

Explanatory notes.

Sub-region (Sr): Number of the ten sub-regions of the Southeast Queensland bioregion (Young and Dillewaard 1999) within which species recorded (Queensland Herbarium data).
Rec no. (R): Total number of records for species within study area, Queensland Herbarium CORVEG and HERBRECS data.
Scores (S): Based on panel data of invasiveness, 5 (highest) to 3 (moderate). ? indicate doubtful scores.

Life forms (LFS): T-tree (woody plant >5m), ST-small tree (2-5m), S-shrub (woody <2m), H-herb (grasses & forbes), Ha-aquatic herbs.
Source: A-agriculture, O-ornamental and landscaping, F-fish aquarium, U-unintentional introduction and/or contaminant.

Abbreviations: Control Methods

CS&P = cut scrape and paint

S&P = scrape and paint

C&P = cut and paint

F/I = frill or inject stem

Abbreviations: Herbicides

G = Glyphosate, eg. Roundup Biactive, Weedmaster Duo

MM = Metsulfuron methyl, eg, Brushoff

F = Fluroxypyr, eg. Starane

Abbreviations: Herbicide Dilution Rates for High Concentration Applications

GU = Glyphosate undiluted

G1 = 1 part water to 1 part glyhphosate

G1.5 = 1.5 parts water to 1 part glyphosate

G4 = 4 parts water to 1 part glyphosate

Abbreviations: Herbicide Spray Concentrations

G100 = 100mL glyphosate per 10L of water + surfuctant, eg 20mL LI 700 per 10L
G200 = 200mL glyphosate per 10L of water + surfuctant, eg 50mL LI 700 per 10L

G100 + MM = 100mL glyphosate + 1.5g metsulfuron methyl per 10L of water + wetting agent, eg. 2mL Agral per 10L water
G200 + MM = 200mL glyphosate + 1.5g metsulfuron methyl per 10L of water + wetting agent, eg. 2mL Agral per 10L water

MM = 1.5g metsulfuron methyl per 10L water + wetting agent, eg. 2mL Agral per 10L water

F100 = 100mL fluroxypyr per 10L water

F150 = 150mL fluroxypyr per 10L water

Other Abbreviations

= Locally non-indigenous native species

Ref. 1. Big Scrub Rainforest Landcare Group (2008), 'Common Weeds of Subtropical Rainforests of Eastern Australia: A practical manual on their identification and control'

Ref. 2. Department of Primary Industries and Fisheries (QLD), 'Weeds and pest animals and ants'.

Ref. 3. Holland et al. (1996), 'Suburban Weeds', DPI QLD.

Ref 4. Port Stephens Council (NSW), 'Weed Busters'.
Ref 5. Department of Primary Industries (NSW), 'Noxious and Environmental Weed Handbook, 3rd Edition'.
Ref 6. Department of Environment and Conservation, 'Florabase', (DEC- WA)

Ref 7. Vitelli, J.S. and Madigan, B.A. and Van Haaren, P.E. and Setter, S. and Logan, P. (2009) Control of the invasive liana, Hiptage benghalensis. Weed Biology and Management, 9 (1). pp. 54-62.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:

South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E A01_3 ESK RMP A

APPENDIX H

Current and predicted habitat quality score tables

Assessment Unit - Regional Ecosystem																							
																	AU1: Patchy Regrowth (HE12.8-10.2)							
	BC14 (10.2 Benchmark	Transect 1	Transect 4	Transect 9	Transect 10	BC1	BC2	BC4	BC7	BC9	BC13	BC14	Average of Transect(s)	% Benchmark	Score	Year 5	Year 5 Score Increase Justification	Year 10	Year 10 Score Increase Justification	Year 15	Year 15 Score Increase Justification	Year 20	Year 20 Score Increase Justification
SITE CONDITION																							
Recruitment of woody perennial species in EDL	100	100	100	66	0	100	100	100	100	100	100	100	**87.82**	87.81818182	**5.0**	5		5		5		5	
Native plant species richness - trees	6	3	4	4	3	6	6	7	4	3	5	7	**4.73**	78.79	**2.5**	2.5		5		5		5	
Native plant species richness - shrubs	7	2	3	3	2	5	5	3	7	4	7	5	**4.18**	59.74	**2.5**	2.5		2.5		5		5	
Native plant species richness - grasses	7	5	8	2	2	7	7	4	2	3	4	3	**4.27**	61.04	**2.5**	2.5		2.5		5		5	
Native plant species richness - forbs	13	6	9	7	1	14	14	13	8	9	7	15	**9.36**	72.03	**2.5**	2.5		5		5		5	
Tree canopy height (Canopy)*	21	0	0	0	0	12.0	25	17.0	14	18	16	19	**11.00**	52.38	3.0	3		3		3		3	
Tree canopy height (Sub-canopy)*	12	12	9	14	9	9.0	15	8.0	9	12	8	13	**10.55**	87.88	5.0	5		5		5		5	
													***Average tree canopy height**		**4.0**	**4.0**		4		**4.0**		5	
Tree canopy cover (Canopy)**	64	0	0	0	0	31.5	13	13	23.4	5.6	42.5	7	**12.36363636**	19.32	2.0	2	Non-native plant cover to be less than 5% for the Assessment Unit	2		2		2	Canopy height to reach 70% of benchmark
Tree canopy cover (Sub-canopy)**	20	35.2	24.3	28.1	42	15.5	25	12	15.3	16.3	18.2	22	**23.00**	115.41	5.0	5		5	Tree and forb species richness to reach 90% of benchmark	5	Shrubs and grass species richness to reach 90% of benchmark	5	Canopy cover to reach 50% of benchmark
													****Average tree canopy cover**		**3.5**	**3.5**		3.5		**3.5**	Shrub canopy cover to reach 50% of benchmark	5	Organic litter to reach 50% of benchmark
Shrub canopy cover	6	0.7	1.8	3.1	2	0.0	0	1.5	2.3	4.6	4.5	0	**1.86**	31.06	**3.0**	3		3		5		5	Coarse woody debris to reach 50% of benchmark
Native grass cover*	21	55.8	74	80.4	44	14.0	41	8	1	18	27.2	40	**36.65**	174.55	**5.0**	5		5		5		5	
Organic litter*	48	4	9	8	22	37.0	4	25	11.6	12	37	8	**16.15**	33.64	**3.0**	3		3		3		5	
Large trees (euc plus non-euc) (per ha)	38	0	0	0	0	2	6	2	4	8	4	6	**2.91**	7.66	**5.0**	5		5		5		5	
Coarse woody debris (per ha)	506	0	0.5	8	46.2	55	70	30	310	580	130	10	**112.70**	22.27	**2.0**	2		2		2		5	
Non-native plant cover	0	50	15	35	25	20.0	10.0	30.0	8.0	5.0	2.0	5	**18.64**	18.64	**5.0**	10		10		10		10	
Quality and availability of food and foraging habitat	NA	5	5	5	5	5	5	5	5	5	5	5	**5.00**	-	5.0	5.0		10.0		10.0		10.0	
Quality and availability of shelter	NA	5	5	5	5	5	5	5	5	5	5	5	**5.00**	-	5.0	5.0		10.0		10.0		10.0	
														Site Condition Score (/100)	55.3	60.5		75.5		82.5		90	
														Overall Site Condition Score - out of 3	**1.67**	1.82		2.27		2.48		2.70	
SITE CONTEXT																							
Size of patch	10	10	10	10	10	10	10	10	10	10	10	10	**10.00**		**10**	10		10		10		10	
Connectedness	5	2	2	2	2	2	2	2	2	2	2	2	**2.00**		**2**	2		2		2		2	
Context	5	2	2	2	2	2	2	2	2	2	2	2	**2.00**		**2**	2		2		2		2	
Ecological Corridors	6	4	4	4	4	4	4	4	4	4	4	4	**4.00**		**4**	4		4		4		4	Mobility capacity to be optimal with maturity to remnant habitat
Role of site location to species overall population in the state	5	5	5	5	5	5	5	5	5	5	5	5	**5.00**		**5**	5		5		5		5	
Threats to the species	15	7	7	7	7	7	7	7	7	7	7	7	**7.00**		**7**	7		7		7		7	
Species mobility capacity	10	7	7	7	7	7	7	7	7	7	7	7	**7.00**		**7**	7		7		7		10	
														Site Context Score (/56)	37	37		37		37		40	
														Overall Site Context Score - out of 3	**1.98**	1.98		1.98		1.98		2.14	
SPECIES STOCKING RATE																							
Koala Stocking Rate (utilising SSR & SSR Supplementary Table(s)	70	40	40	40	40	40	40	40	40	40	40	40	**40.00**		**40**	40		40		40		40	
														Species Stocking Rate Score (/70)	**40.00**	40		40		40		40	
														Overall Species Stocking Rate Score - out of 4	**2.29**	2.29		2.29		2.29		2.29	
Overall Assessment Unit Score															**5.93**	**6.08**		**6.53**		**6.74**		**7.13**	

Species Stocking Rate (SSR)					
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5		10
		No	Yes - adjacent		Yes - on site
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15
		Not habitat	Dispersal	Foraging	Breeding
Approximate density (per ha)	Score	0	10	20	30
		0%	low	med	high
Role/importance of species population on site*	Score (Total from supplementary table below)	0	5	10	15
		0	5 - 15	20 - 35	40 - 45
Total SSR score (out of 70)		30			
SRR Score (out of 4)		**1.714285714**			

***SSR Supplementary Table**			
*Key source population for breeding	Score	0	10
		No	Yes/ Possibly
*Key source population for dispersal	Score	0	5
		No	Yes/ Possibly
*Necessary for maintaining genetic diversity	Score	0	15
		No	Yes/ Possibly
*Near the limit of the species range	Score	0	15
		No	Yes

Assessment Unit - Regional Ecosystem	AU 2 -Non-remnant Paddock (RE12.9-10.2)																
	RE12.9-10.2 Benchmark	Transect 5	Transect 6	BC6	BC11	BC17	Average of Transect(s)	% Benchmark	Score	Year 5	Year 5 Score Increase Justification	Year 10	Year 10 Score Increase Justification	Year 15	Year 15 Score Increase Justification	Year 20	Year 20 Score Increase Justification
SITE CONDITION																	
Recruitment of woody perennial species in EDL	100	25	33	100	100	100	**71.60**	71.60	**3.0**	3		5		5		5	
Native plant species richness - trees	6	4	3	7	4	4	**4.40**	73.33	**2.5**	2.5		5		5		5	
Native plant species richness - shrubs	7	1	1	5	4	3	**2.80**	40.00	**2.5**	2.5		2.5		5		5	
Native plant species richness - grasses	7	4	6	3	2	4	**3.80**	54.29	**2.5**	2.5		2.5		5		5	
Native plant species richness - forbs	13	5	6	16	7	5	**7.80**	60.00	**2.5**	2.5		2.5		5		5	
Tree canopy height (Canopy)*	21	0	0	10.0	12	12	**6.80**	32.38	3.0	3		3		3		5	
Tree canopy height (Sub-canopy)*	12	5	9	5.0	7	9	**7.00**	58.33	3.0	3		3		3		5	
							***Average tree canopy height**		**3.0**	**3.0**	Non-native plant cover to be less than 5% for the Assessment Unit	3		**3.0**		5	Canopy height to reach 70% of benchmark
Tree canopy cover (Canopy)**	64	0	0	7.5	9.5	4	**4.20**	6.56	0.0	0		2	Tree species richness to reach 90% of benchmark	2	Shrubs, grass and forb species richness to reach 90% of benchmark	5	Canopy cover to reach 50% of benchmark
Tree canopy cover (Sub-canopy)**	20	2.9	6.2	1.0	5.4	0	**3.10**	15.50	2.0	2		2	Tree canopy cover to reach 10% of benchmark	2	Shrub canopy cover to reach 50% of benchmark	5	Organic litter to reach 50% of benchmark
							****Average tree canopy cover**		**1.0**	**1.0**		2		**2.0**		5	Coarse woody debris to reach 50% of benchmark
Shrub canopy cover	6	0.9	1.7	2.5	0.5	1.4	**1.40**	23.33	**3.0**	3		3		5		5	
Native grass cover*	21	85	76.6	13.0	26	23.2	**44.76**	213.14	**5.0**	5		5		5		5	
Organic litter*	48	0	0	18.0	6	3.2	**5.44**	11.33	**3.0**	3		3		3		5	
Large trees (euc plus non-euc) (per ha)	38	0	0	0	0	0	**0.00**	0.00	**0.0**	0		0		0		5	
Coarse woody debris (per ha)	506	0.9	0	0	220	80	**60.18**	11.89	**2.0**	2		2		2		5	
Non-native plant cover	0	28	31	40	15.0	5.0	**23.80**	23.80	**5.0**	10		10		10		10	
Quality and availability of food and foraging habitat	NA	1	1	1	1	1	**1**	-	5.0	5.0		5.0		10.0		10	
Quality and availability of shelter	NA	1	1	1	1	1	**1**	-	**5.0**	5.0		5.0		10.0		10.0	
								Site Condition Score (/100)	45	50.0		55.5		75		90	
								Overall Site Condition Score - out of 3	**1.35**	1.50		1.67		2.25		2.70	
SITE CONTEXT																	
Size of patch	10	10	10	10	10	10	**10**		**10**	10		10		10		10	
Connectedness	5	2	2	2	2	2	**2**		**2**	2		2		2		2	
Context	5	2	2	2	2	2	**2**		**2**	2		2		2		2	
Ecological Corridors	6	4	4	4	4	4	**4**		**4**	4		4		4		4	Mobility capacity to be optimal with maturity to remnant habitat
Role of site location to species overall population in the state	5	5	5	5	5	5	**5**		**5**	5		5		5		5	
Threats to the species	15	7	7	7	7	7	**7**		**7**	7		7		7		7	
Species mobility capacity	10	7	7	7	7	7	**7**		**7**	7		7		7		10	
								Site Context Score (/56)	**37**	37		37		37		40	
								Overall Site Context Score - out of 3	**1.98**	1.98		1.98		1.98		2.14	
SPECIES STOCKING RATE																	
Koala Stocking Rate (utilising SSR & SSR Supplementary Table(s)	70	30	30	30	30	30	30		**30**	30		30		40	Sufficient vegetation to represent foraging/breeding habitat	40	
								Species Stocking Rate Score (/70)	**30.00**	30		30		40		40	
								Overall Species Stocking Rate Score - out of 4	**1.71**	1.71		1.71		2.29		2.29	
Overall Assessment Unit Score									**5.05**	**5.20**		**5.36**		**6.52**		**7.13**	

Species Stocking Rate (SSR)					
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5		10
		No	Yes - adjacent		Yes - on site
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15
		Not habitat	Dispersal	Foraging	Breeding
Approximate density (per ha)	Score	0	10	20	30
		0%	low	med	high
Role/importance of species population on site*	Score (*Total from supplementary table below*)	0	5	10	15
		0	5 - 15	20 - 35	40 - 45
Total SSR score (out of 70)		30			
SRR Score (out of 4)	**1.714285714**				

***SSR Supplementary Table**			
*Key source population for breeding	Score	0	10
		No	Yes/ Possibly
*Key source population for dispersal	Score	0	5
		No	Yes/ Possibly
*Necessary for maintaining genetic diversity	Score	0	15
		No	Yes/ Possibly
Near the limit of the species range	Score	0	15

Assessment Unit - Regional Ecosystem	AU 1 - Remnant Vegetation (RE12.9-10.2)																	
	RE12.9-10.2 Benchmark	Transect 2	Transect 11	BC3	BC5	BC10	BC15	Average of Transect(s)	% Benchmark	Score	Year 5	Year 5 Score Increase Justification	Year 10	Year 10 Score Increase Justification	Year 15	Year 15 Score Increase Justification	Year 20	Year 20 Score Increase Justification
SITE CONDITION																		
Recruitment of woody perennial species in EDL	100	33	75	100	100	100	100	84.66666667	84.66666667	5.0	5		5		5		5	
Native plant species richness - trees	6	3	6	4	2	12	4	5.166666667	86.11	2.5	2.5		5		5		5	
Native plant species richness - shrubs	7	1	4	5	8	8	10	6	85.71	2.5	2.5		5		5		5	
Native plant species richness - grasses	7	8	3	3	7	6	4	5.166666667	73.81	2.5	2.5		5		5		5	
Native plant species richness - forbs	13	7	8	12	8	14	4	8.833333333	67.95	2.5	2.5		2.5		5		5	
Tree canopy height (Canopy)*	21	22	20	24.0	19	30	22.0	22.83333333	108.73	5.0	5		5		5		5	
Tree canopy height (Sub-canopy)*	12	11	16	12.0	12	8	14.0	12.16666667	101.39	5.0	5		5		5		5	
								*Average tree canopy height		5.0	5.0	Non-native plant cover to be less than 5% for the Assessment Unit	5.0		5.0		5.0	
Tree canopy cover (Canopy)**	64	20.3	59.7	13.3	42.2	34	30.5	33.33333333	52.08	5.0	5		5		5		5	
Tree canopy cover (Sub-canopy)**	20	36.4	54.8	88.3	25.4	17.5	0.0	37.06666667	185.33	5.0	5		5	Tree, shrub and grass species richness to reach 90% of benchmark	5	Forbs species richness to reach 90% of benchmark Shrub canopy cover to reach 50% of benchmark	5	Large trees to reach 50% of the benchmark
								**Average tree canopy cover		5.0	5.0		5.0		5.0		5.0	
Shrub canopy cover	6	10.6	1.2	17.8	13.33	8.5	65.0	19.405	323.42	3.0	3		3		5		5	
Native grass cover*	21	49	28.4	28.0	52	22	12.6	32	152.38	5.0	5		5		5		5	
Organic litter*	48	32	52	51.0	17.6	52	45.4	41.66666667	86.81	5.0	5		5		5		5	
Large trees (euc plus non-euc) (per ha)	38	0	6	12	10	12	10	8.333333333	21.93	5.0	5		5		5		10	
Coarse woody debris (per ha)	506	51.3	15	945	560	390	230	365.2166667	72.18	5.0	5		5		5		5	
Non-native plant cover	0	20	19	2.0	10.0	12.0	2.0	10.83333333	10.83	5.0	10		10		10.0		10	
Quality and availability of food and foraging habitat	NA	10	10	10	10	10	10	10	-	10.0	10.0		10.0		10.0		10.0	
Quality and availability of shelter	NA	10	10	10	10	10	10	10	-	10.0	10.0		10.0		10.0		10.0	
									Site Condition Score (/100)	73	78		85.5		90		95	
									Overall Site Condition Score - out of 3	2.19	2.34		2.57		2.70		2.85	
SITE CONTEXT																		
Size of patch	10	10	10	10	10	10	10	10		10	10		10		10		10	
Connectedness	5	2	2	2	2	2	2	2		2	2		2		2		2	
Context	5	2	2	2	2	2	2	2		2	2		2		2		2	
Ecological Corridors	6	4	4	4	4	4	4	4		4	4		4	Mobility capacity to improve in the absence of weeds and threats	4		4	
Role of site location to species overall population in the state	5	5	5	5	5	5	5	5		5	5		5		5		5	
Threats to the species	15	7	7	7	7	7	7	7		7	7		7		7		7	
Species mobility capacity	10	7	7	7	7	7	7	7		7	7		10		10		10	
									Site Context Score (/56)	37	37		40		40		40	
									Overall Site Context Score - out of 3	1.98	1.98		2.14		2.14		2.14	
SPECIES STOCKING RATE																		
Koala Stocking Rate (utilising SSR & SSR Supplementary Table(s)	70	40	40	40	40	40	40	40		40	40		40		40		40	
									Species Stocking Rate Score (/70)	40.00	40		40		40		40	
									Overall Species Stocking Rate Score - out of 4	2.29	2.29		2.29		2.29		2.29	
Overall Assessment Unit Score										6.46	6.61		6.99		7.13		7.28	

Species Stocking Rate (SSR)					
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5		10
		No	Yes - adjacent		Yes - on site
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15
		Not habitat	Dispersal	Foraging	Breeding
Approximate density (per ha)	Score	0	10	20	30
		0%	low	med	high
Role/importance of species population on site*	Score (*Total from supplementary table below*)	0	5	10	15
		0	5 - 15	20 - 35	40 - 45
Total SSR score (out of 70)	#REF!				
SRR Score (out of 4)	**#REF!**				

*SSR Supplementary Table			
*Key source population for breeding	Score	0	10
		No	Yes/ Possibly
*Key source population for dispersal	Score	0	5
		No	Yes/ Possibly
*Necessary for maintaining genetic diversity	Score	0	15
		No	Yes/ Possibly
*Near the limit of the species range	Score	0	15
		No	Yes

Assessment Unit - Regional Ecosystem	AU 4 - Remnant Vegetation (RE12.3.7)														
	RE12.3.7 Benchmark	Transect 7	Transect 14	BC 16	Average of Transect(s)	% Benchmark	Score	Year 5	Year 5 Score Increase Justification	Year 10	Year 10 Score Increase Justification	Year 15	Year 15 Score Increase Justification	Year 20	Year 20 Score Increase Justification
SITE CONDITION															
Recruitment of woody perennial species in EDL	100	75	100	100	91.67	91.67	5.0	5		5		5		5	
Native plant species richness - trees	6	12	3	6	7.00	116.67	5.0	5		5		5		5	
Native plant species richness - shrubs	8	6	7	6	6.33	79.17	2.5	2.5		2.5		5		5	
Native plant species richness - grasses	6	5	4	4	4.33	72.22	2.5	2.5		2.5		5		5	
Native plant species richness - forbs	17	14	6	16	12.00	70.59	2.5	2.5		2.5		5		5	
Tree canopy height (Canopy)*	22	24	16	25.0	21.67	98.48	5.0	5		5		5		5	
Tree canopy height (Sub-canopy)*	12	11	5	9.0	8.33	69.44	3.0	3		5		5		5	
					*Average tree canopy height		4.0	4.0	Non-native plant cover to be less than 5% for the Assessment Unit	5.0		5.0		5.0	
Tree canopy cover (Canopy)**	31	49.8	14	28.0	30.60	98.71	5.0	5		5	Tree sub canopy to reach 70% of benchmark	5	Shrub, grass and forb species richness to reach 90% of benchmark	5	Large trees to reach 50% of benchmark
Tree canopy cover (Sub-canopy)**	23	39.6	13.9	18.0	23.83	103.62	5.0	5		5	Shrub canopy cover to reach 50% of benchmark	5	Coarse woody debris to reach 50% of benchmark	5	
					**Average tree canopy cover		5.0	5.0		5.0		5		5	
Shrub canopy cover	22	17.7	5.9	0.5	8.03	36.52	3.0	3		5		5.0		5.0	
Native grass cover*	8	29	52	0.4	27.13	339.17	5.0	5		5		5		5	
Organic litter*	27	38	35	31.0	34.67	128.40	5.0	5		5		5		5	
Large trees (euc plus non-euc) (per ha)	60	10	8	20	12.67	21.11	5.0	5		5		5		10	
Coarse woody debris (per ha)	667	58.8	330	530	306.27	45.92	2.0	2		2		5		5	
Non-native plant cover	0	35	7	5.0	15.67	15.67	5.0	10		10		10		10	
Quality and availability of food and foraging habitat	NA	10	10	10	10.00	-	10.0	10.0		10.0		10.0		10.0	
Quality and availability of shelter	NA	10	10	10	10.00	-	10.0	10.0		10.0		10.0		10.0	
						Site Condition Score (/100)	71.5	76.5		79.5		90		95	
						Overall Site Condition Score - out of 3	2.15	2.30		2.39		2.70		2.85	
SITE CONTEXT															
Size of patch	10	10	10	10	10		10	10		10		10		10	
Connectedness	5	2	2	2	2		2	2		2		2		2	
Context	5	2	2	2	2		2	2		2		2		2	
Ecological Corridors	6	4	4	4	4		4	4		4	Mobility capacity to improve in the absence of weeds and threats	4		4	
Role of site location to species overall population in the state	5	5	5	5	5		5	5		5		5		5	
Threats to the species	15	7	7	7	7		7	7		7		7		7	
Species mobility capacity	10	7	7	7	7		7	7		10		10		10	
						Site Context Score (/56)	37	37		40		40		40	
						Overall Site Context Score - out of 3	1.98	1.98		2.14		2.14		2.14	
SPECIES STOCKING RATE															
Koala Stocking Rate (utilising SSR & SSR Supplementary Table(s)	70	40	40	40	40		40	40		40		40		40	
						Species Stocking Rate Score (/70)	40.00	40		40		40		40	
						Overall Species Stocking Rate Score - out of 4	2.29	2.29		2.29		2.29		2.29	
Overall Assessment Unit Score							6.41	6.56		6.81		7.13		7.28	

Species Stocking Rate (SSR)					
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5		10
		No	Yes - adjacent		Yes - on site
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15
		Not habitat	Dispersal	Foraging	Breeding
Approximate density (per ha)	Score	0	10	20	30
		0%	low	med	high
Role/importance of species population on site*	Score (*Total from supplementary table below*)	0	5	10	15
		0	5 - 15	20 - 35	40 - 45
Total SSR score (out of 70)		40			
SRR Score (out of 4)		**2.285714286**			

*SSR Supplementary Table			
*Key source population for breeding	Score	0	10
		No	Yes/ Possibly
*Key source population for dispersal	Score	0	5
		No	Yes/ Possibly
*Necessary for maintaining genetic diversity	Score	0	15
		No	Yes/ Possibly
Near the limit of the species range	Score	0	15

Esk offset area - GHFF AU1

Assessment Unit - Regional Ecosystem	AU 1 Non-remnant patchy regrowth RE12.9-10.2																	
Site Reference	Transect 1	Transect 4	BC1	BC2	BC4	BC7	BC9	BC13	BC14	Transect 9	Transect 10	Average	AU Score	OUT OF	Year 5	Year 10	Year 15	Year 20	
	Raw Data	Raw Data								Raw Data	Raw Data	Score		(X/X)	Score	Score	Score	Score	
Vegetation Condition	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.00	5	20	5	10	10	20	
Species Richness	3.0	4.0	4.0	3.0	3.0	3.0	3.0	4.0	3.0	3.0	3.0	3.27	5	20	5	10	20	20	
Flower Score	0.613	0.560	0.448	0.368	0.345	0.453	0.560	0.590	0.230	0.613	0.63	0.4918	5	10	5	8	8	8	
Timing of Biological Shortages	10	10	10	10	10	10	10	10	10	10	10	10.00	10	10	10	10	10	10	
Quality of Foraging Habitat	2	2	2	2	1	2	2	3	1	2	2	1.91	5	20	5	5	10	10	
Non-native Plant Cover	50.00	15.00	20.00	10.00	30.00	8.00	5.00	2.00	5.00	35.00	25.00	18.64	10	20	20	20	20	20	
Site Condition Score													40	X	50	63	78	88	
MAX Site Condition Score													*100*	X	*100*	*100*	*100*	*100*	
Site Condition Score - out of 4													1.60	X	2.00	2.52	3.12	3.52	
Size of patch	10	10	10	10	10	10	10	10	10	10	10	10.00	10	10	10	10	10	10	>5,000 ha
Connectedness	3	3	3	3	3	3	3	3	3	3	3	3.00	3	10	3	3	3	3	2 GHFF roosts
Context	6	6	6	6	6	6	6	6	6	6	6	6.00	6	10	6	6	6	6	32.6% habitat
Ecological Corridors	6	6	6	6	6	6	6	6	6	6	6	6.00	6	10	6	6	6	6	adjoining a corridor
Role of site location to species overall population in the state	1	1	1	1	1	1	1	1	1	1	1	1.00	1	10	1	1	1	1	1 level 3 roost
Threats to the species	10	10	10	10	10	10	10	10	10	10	10	10.00	10	10	10	10	10	10	Currently low
Site Context Score													36	X	36	36	36	36	
MAX Site Context Score													*60*	X	*60*	*60*	*60*	*60*	
Site Context Score - out of 3													1.80	X	1.80	1.80	1.80	1.80	
GHFF Foraging Tree Density - Recorded	76	66	61	33	52	23	57	17	41	20	44	44.55							
GHFF Foraging Tree Density - per hectare	380	330	122	66	104	6	114	34	82	100	220	141.64	6	10	6	6	8	8	
Species Stocking Rate Score													*6*	X	*6*	*6*	*8*	*8*	
MAX Species Stocking Rate Score													*10*	X	*10*	*10*	*10*	*10*	
Species Stocking Rate Score - out of 3													1.80	X	1.80	1.80	2.40	2.40	
Total													5.20	X	5.60	6.12	7.32	7.72	

Esk offset area - GHFF AU2

Assessment Unit - Regional Ecosystem													
Site Reference	BC6	BC11	BC17	Transect 5	Transect 6	Average	AU Score	OUT OF	Year 5	Year 10	Year 15	Year 20	
				Raw Data	Raw Data	Score		(X/X)	Score	Score	Score	Score	
Vegetation Condition	5.0	5.0	5.0	5.0	5.0	5.00	5	20	5	10	10	20	
Species Richness	3.0	3.0	2.0	4.0	3.0	3.00	5	20	5	10	20	20	
Flower Score	0.613	0.382	0.420	0.5475	0.46	0.4846	5	10	5	8	8	8	
Timing of Biological Shortages	10	8.5	10	10	10	9.70	9.7	10	10	10	10	10	
Quality of Foraging Habitat	2	2	2	2	1	1.80	5	20	5	5	10	10	
Non-native Plant Cover	40.00	15.00	5.00	0.90	0.00	12.18	10	20	20	20	20	20	
Site Condition Score							39.7	X	50	63	78	88	
MAX Site Condition Score							100	X	100	100	100	100	
Site Condition Score - out of 4							1.59	X	2.00	2.52	3.12	3.52	
Size of patch	10	10	10	10	10	10.00	10	10	10	10	10	10	>5,000 ha
Connectedness	3	3	3	3	3	3.00	3	10	3	3	3	3	2 GHFF roosts
Context	6	6	6	6	6	6.00	6	10	6	6	6	6	32.6% habitat
Ecological Corridors	6	6	6	6	6	6.00	6	10	6	6	6	6	adjoining a corridor
Role of site location to species overall population in the state	1	1	1	1	1	1.00	1	10	1	1	1	1	1 level 3 roost
Threats to the species	10	10	10	10	10	10.00	10	10	10	10	10	10	Currently low
Site Context Score							36	X	36	36	36	36	
MAX Site Context Score							60	X	60	60	60	60	
Site Context Score - out of 3							1.80	X	1.80	1.80	1.80	1.80	
GHFF Foraging Tree Density - Recorded	24	11	5	6	4	10.00							
GHFF Foraging Tree Density - per hectare	48	22	10	30	20	26.00	4	10	4	6	8	8	
Species Stocking Rate Score							4	X	4	6	8	8	
MAX Species Stocking Rate Score							10	X	10	10	10	10	
Species Stocking Rate Score - out of 3							1.20	X	1.20	1.80	2.40	2.40	
Total							4.59	X	5.00	6.12	7.32	7.72	

Esk offset area - GHFF AU3

Assessment Unit - Regional Ecosystem	AU 3 - Regrowth/Remnant RE12.9-10.2																
Site Reference	Transect 2	BC3	BC5	BC8	BC10	BC15	Transect 11	Transect 12	Transect 13	Average	AU Score	OUT OF	Year 5	Year 10	Year 15	Year 20	
	Raw Data						Raw Data	Raw Data	Raw Data	Score		(X/X)	Score	Score	Score	Score	
Vegetation Condition	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.00	10	20	10	20	20	20	
Species Richness	3.0	4.0	4.0	5.0	4.0	5.0	5.0	3.0	4.0	4.11	10	20	10	10	20	20	
Flower Score	0.720	0.640	0.640	0.508	0.427	0.456	0.592	0.620	0.685	0.5875	8	10	8	8	8	8	
Timing of Biological Shortages	8.5	8.5	8.5	10	8.5	10	8.5	10	8.5	9.0000	9	10	10	10	10	10	
Quality of Foraging Habitat	3	3	3	3	2	4	3	2	4	3.00	5	20	5	5	10	10	
Non-native Plant Cover	20.00	2.00	10.00	4.00	12.00	2.00	14.00	5.00	6.00	8.33	10	20	20	20	20	20	
Site Condition Score											52	*X*	63	73	88	88	
MAX Site Condition Score											*100*	*X*	*100*	*100*	*100*	*100*	
Site Condition Score - out of 4											2.08	*X*	2.52	2.92	3.52	3.52	
Size of patch	10	10	10	10	10	10	10	10	10	10.00	10	10	10	10	10	10	>5,000 ha
Connectedness	3	3	3	3	3	3	3	3	3	3.00	3	10	3	3	3	3	2 GHFF roosts
Context	6	6	6	6	6	6	6	6	6	6.00	6	10	6	6	6	6	32.6% habitat
Ecological Corridors	6	6	6	6	6	6	6	6	6	6.00	6	10	6	6	6	6	adjoining a corridor
Role of site location to species overall population in the state	1	1	1	1	1	1	1	1	1	1.00	1	10	1	1	1	1	1 level 3 roost
Threats to the species	10	10	10	10	10	10	10	10	10	10.00	10	10	10	10	10	10	Currently low
Site Context Score											36	*X*	36	36	36	36	
MAX Site Context Score											*60*	*X*	*60*	*60*	*60*	*60*	
Site Context Score - out of 3											1.80	*X*	1.80	1.80	1.80	1.80	
GHFF Foraging Tree Density - Recorded	101	104	76	64	80	77	60	35	43	71.11							
GHFF Foraging Tree Density - per hectare	505	208	152	128	160	154	300	175	215	221.89	8	10	8	8	8	10	
Species Stocking Rate Score											*8*	*X*	*8*	*8*	*8*	*10*	
MAX Species Stocking Rate Score											*10*	*X*	*10*	*10*	*10*	*10*	
Species Stocking Rate Score - out of 3											2.40	*X*	2.40	2.40	2.40	3.00	
Total											6.28	*X*	6.72	7.12	7.72	8.32	

Esk offset area - GHFF AU4

Assessment Unit - Regional Ecosystem	AU 4 - Waterway Remnant RE12.3.7										
Site Reference	Transect 7	BC16	Transect 14	Average	AU Score	OUT OF	Year 5	Year 10	Year 15	Year 20	
	Raw Data		Raw Data	Score		(X/X)	Score	Score	Score	Score	
Vegetation Condition	20.0	20.0	20.0	20.00	20	20	20	20	20	20	
Species Richness	4.0	4.0	2.0	3.33	5	20	10	10	20	20	
Flower Score	0.448	0.635	0.49	0.5243	8	10	8	8	8	8	
Timing of Biological Shortages	10	10	8.5	9.50	9.5	10	10	10	10	10	
Quality of Foraging Habitat	2	3	1	2.00	5	20	10	10	10	10	
Non-native Plant Cover	35.00	5.00	7.00	15.67	10	20	20	20	20	20	
Site Condition Score					57.50	X	78	78	88	88	
MAX Site Condition Score					*100*	X	*100*	*100*	*100*	*100*	
Site Condition Score - out of 4					2.30	X	3.12	3.12	3.52	3.52	
Size of patch	10	10	10	10.00	10	10	10	10	10	10	>5,000 ha
Connectedness	3	3	3	3.00	3	10	3	3	3	3	2 GHFF roosts
Context	6	6	6	6.00	6	10	6	6	6	6	32.6% habitat
Ecological Corridors	6	6	6	6.00	6	10	6	6	6	6	adjoining a corridor
Role of site location to species overall population in the state	1	1	1	1.00	1	10	1	1	1	1	1 level 3 roost
Threats to the species	10	10	10	10.00	10	10	10	10	10	10	Currently low
Site Context Score					36	X	36	36	36	36	
MAX Site Context Score					*60*	X	*60*	*60*	*60*	*60*	
Site Context Score - out of 3					1.80	X	1.80	1.80	1.80	1.80	
GHFF Foraging Tree Density - Recorded	64	15	30	36.33							
GHFF Foraging Tree Density - per hectare	320	30	150	166.67	4	10	4	6	8	8	
Species Stocking Rate Score					*4*	X	*4*	*6*	*8*	*8*	
MAX Species Stocking Rate Score					*10*	X	*10*	*10*	*10*	*10*	
Species Stocking Rate Score - out of 3					1.20	X	1.20	1.80	2.40	2.40	
Total					5.30	X	6.12	6.72	7.72	7.72	

APPENDIX I

OAG calculation score sheets

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Matter of National Environmental Significance	
Name	Koala
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Impact calculator

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Koala	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Esk Offset AU1	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	150.1	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	12.07%	No		
									Future area without offset (adjusted hectares)	150.1	**Future area with offset (adjusted hectares)**	150.1				10.82				
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**6**	**Future quality without offset (scale of 0-10)**	**6**	**Future quality with offset (scale of 0-10)**	**7**	1.00	75%	0.75	0.72				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Matter of National Environmental Significance	
Name	Koala
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Impact calculator

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Koala	**Area**	128	Hectares	
			Quality	7	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Esk Offset AU2	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	44.8	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	7.21%	No		
									Future area without offset (adjusted hectares)	44.8	**Future area with offset (adjusted hectares)**	44.8				6.46				
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	5	**Future quality without offset (scale of 0-10)**	5	**Future quality with offset (scale of 0-10)**	7	2.00	75%	1.50	1.44				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Koala
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Koala	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Esk Offset AU3	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	75.9	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	6.20	6.92%	No		
									Future area without offset (adjusted hectares)	75.9	**Future area with offset (adjusted hectares)**	75.9								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**6**	**Future quality without offset (scale of 0-10)**	**6**	**Future quality with offset (scale of 0-10)**	**7**	1.00	85%	0.85	0.82				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Matter of National Environmental Significance	
Name	Koala
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Impact calculator

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Koala	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Esk Offset AU4	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	9.4	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	0.86%	No		
									Future area without offset (adjusted hectares)	9.4	**Future area with offset (adjusted hectares)**	9.4								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**6**	**Future quality without offset (scale of 0-10)**	**6**	**Future quality with offset (scale of 0-10)**	**7**	1.00	85%	0.85	0.82				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	GHFF
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	GHFF	**Area**	128	Hectares	
			Quality	7	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Esk Offset AU1	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	150.1	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	32.45	36.22%	No		
									Future area without offset (adjusted hectares)	150.1	**Future area with offset (adjusted hectares)**	150.1								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**5**	**Future quality without offset (scale of 0-10)**	**5**	**Future quality with offset (scale of 0-10)**	**8**	3.00	75%	2.25	2.16				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Matter of National Environmental Significance	
Name	GHFF
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	GHFF	**Area**	128	Hectares	
			Quality	7	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Esk Offset AU2	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	44.8	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	9.69	10.81%	No		
									Future area without offset (adjusted hectares)	44.8	**Future area with offset (adjusted hectares)**	44.8								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**5**	**Future quality without offset (scale of 0-10)**	**5**	**Future quality with offset (scale of 0-10)**	**8**	3.00	75%	2.25	2.16				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	GHFF
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	GHFF	**Area**	128	Hectares	
			Quality	7	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Esk Offset AU3	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	75.9	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	12.40	13.84%	No		
									Future area without offset (adjusted hectares)	75.9	**Future area with offset (adjusted hectares)**	75.9								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	6	**Future quality without offset (scale of 0-10)**	6	**Future quality with offset (scale of 0-10)**	8	2.00	85%	1.70	1.63				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Matter of National Environmental Significance	
Name	GHFF
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Impact calculator

Impact calculator	Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
	Ecological communities						
	Area of community	No		**Area**			
				Quality			
				Total quantum of impact	0.00		
	Threatened species habitat						
	Area of habitat	Yes	GHFF	**Area**	128	Hectares	
				Quality	7	Scale 0-10	
				Total quantum of impact	89.60	Adjusted hectares	
	Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
	Number of features e.g. Nest hollows, habitat trees	No					
	Condition of habitat Change in habitat condition, but no change in extent	No					
	Threatened species						
	Birth rate e.g. Change in nest success	No					
	Mortality rate e.g Change in number of road kills per year	No					
	Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Offset calculator	Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
	Ecological Communities																				
	Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
										Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
						Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
	Threatened species habitat																				
	Area of habitat	Yes	89.60	Adjusted hectares	Esk Offset AU4	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	9.4	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	2.30	2.57%	No		
										Future area without offset (adjusted hectares)	9.4	**Future area with offset (adjusted hectares)**	9.4								
						Time until ecological benefit	20	**Start quality (scale of 0-10)**	5	**Future quality without offset (scale of 0-10)**	5	**Future quality with offset (scale of 0-10)**	8	3.00	85%	2.55	2.45				
	Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
	Number of features e.g. Nest hollows, habitat trees	No																			
	Condition of habitat Change in habitat condition, but no change in extent	No																			
	Threatened species																				
	Birth rate e.g. Change in nest success	No																			
	Mortality rate e.g Change in number of road kills per year	No																			
	Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	SP
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	Swift parrot	9983		Count	
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	9983	Count	Esk	20		18953		18953		46034		27081	75%	20310.75	5448.80	54.58%	No		
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	SP
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact	Units	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	Swift parrot	9983	Count	
Condition of habitat Change in habitat condition, but no change in extent	No				
Threatened species					
Birth rate e.g. Change in nest success	No				
Mortality rate e.g Change in number of road kills per year	No				
Number of individuals e.g. Individual plants/animals	No				

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start value	Future value without offset	Future value with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	9983	Count	AU1	20	8899	8899	23407	14508	75%	10881.00	2919.06	29.24%	No		
Condition of habitat Change in habitat condition, but no change in extent	No															
Threatened species																
Birth rate e.g. Change in nest success	No															
Mortality rate e.g Change in number of road kills per year	No															
Number of individuals e.g. Individual plants/animals	No															

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	SP
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact	Units	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	Swift parrot	9983	Count	
Condition of habitat Change in habitat condition, but no change in extent	No				
Threatened species					
Birth rate e.g. Change in nest success	No				
Mortality rate e.g Change in number of road kills per year	No				
Number of individuals e.g. Individual plants/animals	No				

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start value	Future value without offset	Future value with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	9983	Count	AU2	20	523	523	11255	10732	75%	8049.00	2159.32	21.63%	No		
Condition of habitat Change in habitat condition, but no change in extent	No															
Threatened species																
Birth rate e.g. Change in nest success	No															
Mortality rate e.g Change in number of road kills per year	No															
Number of individuals e.g. Individual plants/animals	No															

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	SP
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	Swift parrot	9983		Count	
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	9983	Count	AU3	20		9108		9108		10930		1822	75%	1366.50	366.59	3.67%	No		
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	SP
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	Swift parrot	9983		Count	
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	9983	Count	AU4	20		423		423		442		19	75%	14.25	3.82	0.04%	No		
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	RHE
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	Regent honeyeater	9868		Count	
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	9868	Count	Esk	20		9375		9375		36331		26956	75%	20217.00	5423.65	54.96%	No		
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	RHE
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact	Units	Information source
Ecological communities					
Area of community	No		**Area**		
			Quality		
			Total quantum of impact 0.00		
Threatened species habitat					
Area of habitat	No		**Area**		
			Quality		
			Total quantum of impact 0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**	**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	Regent honeyeater	9868	Count	
Condition of habitat Change in habitat condition, but no change in extent	No				
Threatened species					
Birth rate e.g. Change in nest success	No				
Mortality rate e.g Change in number of road kills per year	No				
Number of individuals e.g. Individual plants/animals	No				

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start area and quality	Future area and quality without offset	Future area and quality with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																
Area of community	No				**Risk-related time horizon (max. 20 years)**	**Start area (hectares)**	**Risk of loss (%) without offset** **Future area without offset (adjusted hectares)** 0.0	**Risk of loss (%) with offset** **Future area with offset (adjusted hectares)** 0.0								
					Time until ecological benefit	**Start quality (scale of 0-10)**	**Future quality without offset (scale of 0-10)**	**Future quality with offset (scale of 0-10)**								
Threatened species habitat																
Area of habitat	No				**Time over which loss is averted (max. 20 years)**	**Start area (hectares)**	**Risk of loss (%) without offset** **Future area without offset (adjusted hectares)** 0.0	**Risk of loss (%) with offset** **Future area with offset (adjusted hectares)** 0.0								
					Time until ecological benefit	**Start quality (scale of 0-10)**	**Future quality without offset (scale of 0-10)**	**Future quality with offset (scale of 0-10)**								
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**	**Start value**	**Future value without offset**	**Future value with offset**	**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	9868	Count	AU1	20	214	214	14615	14401	75%	10800.75	2897.54	29.36%	No		
Condition of habitat Change in habitat condition, but no change in extent	No															
Threatened species																
Birth rate e.g. Change in nest success	No															
Mortality rate e.g Change in number of road kills per year	No															
Number of individuals e.g. Individual plants/animals	No															

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	RHE
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact	Units	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	Regent honeyeater	9868	Count	
Condition of habitat Change in habitat condition, but no change in extent	No				
Threatened species					
Birth rate e.g. Change in nest success	No				
Mortality rate e.g Change in number of road kills per year	No				
Number of individuals e.g. Individual plants/animals	No				

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start value	Future value without offset	Future value with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	9868	Count	AU2	20	149	149	10882	10733	75%	8049.75	2159.52	21.88%	No		
Condition of habitat Change in habitat condition, but no change in extent	No															
Threatened species																
Birth rate e.g. Change in nest success	No															
Mortality rate e.g Change in number of road kills per year	No															
Number of individuals e.g. Individual plants/animals	No															

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	RHE
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	Regent honeyeater	9868		Count	
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	9868	Count	AU3	20		8918		8918		10740		1822	75%	1366.50	366.59	3.71%	No		
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	RHE
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	Regent honeyeater	9868		Count	
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	9868	Count	AU4	20		94		94		94		0	75%	0.00	0.00	0.00%	No		
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Attachment A15

Avonvale Offset Area Management Plan, SHG 2026

ONE ENVIRONMENT

Avonvale
Offset Area Management Plan 2026

Avonvale Offset Area Management Plan 2026	Title
OEs1:v1.2(c) – June 2026	OAMP Reference
EPBC 2019/8575 (Springfield Residential Development)	EPBC Reference
Cherish Enterprises Pty Ltd	Client
26 June 2026	Date

Document Control

Document Title:	Avonvale Offset Area Management Plan 2026
Document Reference:	OEs1:v1.2(c)
Document Date:	26/06/2026
EPBC Reference:	2019/8575
Document Purpose:	This Avonvale Offset Area Management Plan 2026 (OAMP) is prepared for submission and approval by the Commonwealth Department of Climate Change, Energy the Environment and Water (DCCEEW) providing the conservation gain for Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat as compensation for a portion of the impacts being completed at the Springfield Residential Development, located in Springfield, Queensland 4300. This OAMP is submitted for inclusion in the Preliminary Documentation for EPBC 2019/8575 and prepared under commercial agreement between Cherish Enterprises Pty Ltd and Somerset Offset Solutions (Avonvale) Pty Ltd.

Document Issue

Issue	Date	Prepared by	Checked by
For AWE Submission 1.1(a)	26/10/2021	DB / HB	DJ
For DCCEEW Submission 1 1.1(b)	04/03/2024	AW / AD	AW
For DCCEEW Submission 2 1.2(a)	23/04/2025	AW	AW
For DCCEEW Submission 3 1.2(b)	01/12/2025	AW	AW
For Publication 1.2(c)	26/06/2026	AW	AW

Table of Contents

1. Introduction 1
1.1. Purpose of Offset Area Management Plan 1
1.2. Offset Area Management Plan Limitations 2
1.3. Responsible Entities for this OAMP 2
1.4. Structure of this OAMP 3
1.5. OAMP Declaration of Accuracy 6
1.6. Legally Securing the Offset Area 7
Voluntary Declaration 7
Enduring / Permanent Securement Mechanism 7
2. Impact Site (Summary) 8
3. Offset Area (Summary) 12
3.1. Offset Area Values 17
3.2. Koala Offset Values / Suitability 18
3.3. Grey-headed Flying-fox Values / Offset Suitability 20
3.4. Swift Parrot Offset Values / Suitability 22
3.5. Regent Honeyeater Offset Values / Suitability 24
3.6. General Suitability EPBC Offset Policy Criteria 26
4. Environmental Outcomes 29
4.1. Completion Criteria 29
4.2. Offset Assessment Guide – Impact Compensation 33
OAG Parameters 33
Impact compensation and scoring uplift 34
5. Baseline surveys 37
5.1. Methodology 38
Koala – Modified Habitat Quality Assessment 38
Grey-headed Flying-fox – Foraging Habitat Assessment 46
Swift Parrot – Foraging Habitat Assessment 54
Regent Honeyeater – Foraging Habitat Assessment 56
Feral animal abundance 58
Extent of weed cover 66
5.2. Results 69
Koala – Modified Habitat Quality Assessment 69
Grey-headed Flying-fox – Foraging Habitat Assessment 74
Swift Parrot – Foraging Habitat Assessment 75
Regent Honeyeater – Foraging Habitat Assessment 78
Feral animal abundance 80

Fauna observations 83
Extent of weed cover 85

6. Offset Area Design 89
6.1. Environmental Management Zones 1, 2 and 4 – Category X vegetation 91
6.2. Environmental Management Zones 3, 5 and 6 – Category B and C vegetation 92

7. Offset Land Management Actions 93
7.1. **Action 1**: Vertebrate Pest Management (Primarily Targeting Feral Dogs) 95
7.2. **Action 2**: Weeds of National Significance (Reduction & Management) 102
7.3. **Action 3**: Stock Management 108
7.4. **Action 4**: Access Management, Trespass and Neighbouring Stock Mustering Controls 112
7.5. **Action 5**: Wildfire Management 115
7.6. **Action 6**: Native Seed Collection & Propagation 120
7.7. **Action 7**: Revegetation (Habitat Creation) Activities 125
7.8. **Action 8**: Infrastructure Improvement 132

8. Risk Assessment & Management 135
8.1. Climate Risk 1 – Wildfire 135
8.2. Climate Change Risk 2 - Flooding 137
8.3. Climate Change Risk 3 - Drought 139
8.4. Climate Change Risk 4 – Climate Factors – Shifting Habitat Range 141
8.5. Planting Stock Failure 144
8.6. Pest Management (Feral Dog Populations) 145
8.7. Weed Invasion / Expansion - *Lantana* 146
8.8. Stock Management, Unlawful Access & Land Clearing (Cattle Operations Impacts) 148

9. Adaptive Management 150

10. Reporting Framework 151

11. References 153

12. Appendices 156

Figures

Figure 1: OAMP Structure Diagram 5
Figure 2: Impact Site Context 9
Figure 3: Impact Area 10
Figure 4: Offset Site Local Context 14
Figure 5: MHQA and GHFF FHA Plot Location Diagram 48
Figure 6: Feral animal management prioritisation 58
Figure 7: Example 'Mud map'. Extract from Auld (2009) – Figure 1. 67
Figure 8: Extract from Auld (2009). 68
Figure 9: Somerset Regional Council – Bushfire Hazard Area and Queensland Government State planning - Natura; Hazard Risk and Resilience Mapping 137
Figure 10: Somerset Regional Council – Modelled Flood Hazard Levels and Queensland Government State Planning – Flood Hazard Mapping 138
Figure 11: 2024 Mean Rainfall compared to the mean and median for each month 140
Figure 12: Modelled Habitat Distribution (2011 V 2070) 143
Figure 13: Adaptive Management Model (https://essa.com/approach/) 150
Figure 14: Offset Actions Reporting Structure 151

Plans

Plan 1: Offset Site Boundaries 15
Plan 2: Impact / Offset Site Context 16
Plan 3: Contextual / Site Koala Values 19
Plan 4: Grey-headed Flying-fox Habitat Values and Surrounding Camp Sites 21
Plan 5: Regional Ecosystem Habitat Mapping and Swift Parrot Records 23
Plan 6: Regional Ecosystem Habitat Mapping and Regent Honeyeater Records 25
Plan 7: Baseline MHQA Locations 44
Plan 8: Koala Context Assessment 45
Plan 9: GHFF Context Assessment 53
Plan 10: Pest Species Motion Sensor Camera 65
Plan 11: Baseline Weed Survey Coverage Results 88
Plan 12: Offset Area Design 90
Plan 13: Indicative Offset Area Fencing 111
Plan 14: Bushfire infrastructure and access tracks 119

Tables

Table 1: Impact Site (Summary Details) 11
Table 2: Offset Area (Summary Details) 17
Table 3: Winter / Spring Flowering – Fruiting Tree Species – Offset Area 20
Table 4: Offset Area (General Suitability) 26

Table 5: Completion Criteria and Performance Targets 30
Table 6: Offset Assessment Guide Parameters – Koala and Grey-headed Flying-fox 33
Table 7: Offset Assessment Guide Parameters – Swift Parrot and Regent Honeyeater 34
Table 8: Koala impact compensation and scoring uplift 34
Table 9: Grey-headed Flying-fox impact compensation and scoring uplift 35
Table 10: Swift Parrot impact compensation 35
Table 11: Regent Honeyeater impact compensation 36
Table 12: Offset area baseline field surveys methods summary 37
Table 13: Koala site condition scoring attributes (BioCondition Manual) 38
Table 14: Koala site context scoring attributes 41
Table 15: Koala Activity Level Classification (Phillips and Callaghan 2011) 42
Table 16: Koala Species Stocking Rate Scoring 43
Table 17: GHFF FHA Vegetation Condition Scoring 50
Table 18: GHFF FHA Species Richness Scoring 50
Table 19: GHFF FHA Flower Score (average) Scoring 50
Table 20: GHFF FHA Timing of Biological Shortages Scoring 50
Table 21: GHFF FHA Quality of Foraging Habitat (trees >0.65 wt p*r) Scoring 50
Table 22: GHFF FHA Non-Native Plant Cover Scoring 51
Table 23: GHFF FHA Size of Patch Scoring 51
Table 24: GHFF FHA Connectedness Scoring 51
Table 25: GHFF FHA Context Scoring 51
Table 26: GHFF FHA Ecological Corridors Scoring 51
Table 27: GHFF FHA Threats to Species Scoring 52
Table 28: GHFF FHA Role of Site Location to Species Overall Population in the State Scoring 52
Table 29: GHFF Species Stocking Rate Scoring 52
Table 30: Camera monitoring locations and timing 61
Table 31: Site condition scores for offset area assessment units 69
Table 32: Koala site context scores for offset area 70
Table 33: Baseline SAT survey results 71
Table 34: Koala species stocking rate scores within offset area assessment units 72
Table 35: Swift parrot baseline stem density (preferred foraging species) 75
Table 36: Baseline stem density (all trees) 75
Table 37: Swift parrot planting capacity analysis 77
Table 38: Regent honeyeater planting capacity analysis 79
Table 39: Baseline non-native predator survey detections and RAI 80
Table 40: Baseline non-native herbivore survey detections and RAI 81
Table 41: Fauna recorded within offset area during baseline surveys 83
Table 42: Weed patches and transects 85
Table 43: Recorded weed species within offset area during baseline surveys 86
Table 44: Weed cover (Line-transect methodology) – raw data located at Appendix I 87
Table 45: Estimated cover of WONS (hectares) 87
Table 46: Estimated cover of other weeds 87
Table 47: Environmental Management Zones 89
Table 48: Offset Area – Action 1 – Management Actions 96

Table 49: Offset Area – Action 2 – Management Actions 104
Table 50: Offset Area – Action 3 – Management Actions 109
Table 51: Offset Area – Action 4 – Management Actions 113
Table 52: Offset Area – Action 5 – Management Actions 116
Table 53: Offset Area – Action 6 – Management Actions 122
Table 54: Offset Area – Action 7 – Management Actions 126
Table 55: Offset Area – Action 8 - Management Actions 133
Table 56: Reporting Schedule 152

Glossary / Abbreviations

ACR	Annual Compliance Report
Conservation Gain	EPBC Act Policy – *maintains or increases the viability or reduces threats or damage to a protected matter*
DAF	Queensland Government Department of Agriculture and Fisheries
DAWE	Commonwealth Government Department of Agriculture, Water and the Environment (former)
DCCEEW	Commonwealth Government Department of Climate Change, Energy, the Environment and Water
DETSI	Queensland Government Department of Environment, Science, Tourism and Innovation (Qld)
DEHP	Queensland Department of Environment and Heritage (Now DETSI)
EPBC	*Environment Protection & Biodiversity Conservation Act 1999*
EPBC Act Offset Policy	*Environment Protection & Biodiversity Conservation Act 1999 – Environmental Offset Policy – October 2012 (Australian Government)*
EMZ	Environmental Management Zone
Functional Loss	Where habitat is not being directly cleared or removed, however, due to barriers, threats or fragmentation will no longer function for the use of the protected matter.
GHFF	Grey-headed Flying-fox
GHFF FHA	Grey-headed Flying-Fox Foraging Habitat Assessment – Hybrid based assessment tool for valuing GHFF foraging habitat at the impact and offset site.
GTHQ	Guide to determining Terrestrial Habitat Quality (Queensland Government – Version 1.2 April 2017)
MNES	Matters of National Environmental Significance
MHQA	Modified Habitat Quality Assessment – Tool for assessing koala habitat value based on an amalgamation of the Queensland Government & Commonwealth Government Offset Assessment Criteria.
Offset Provider	One Environment (Trading as Somerset Offset Solutions (Avonvale) Pty Ltd)
Offset Land	Avonvale Station
Offset Area	168 ha – portion within the Offset Land committed to the Offset Outcomes
Offset Period	20 years
OAMP / Offset Area Management Plan	Avonvale – Offset Area Management Plan 2025 [Ref: OEs:1.2(c) – dated 26/06/2026]
OAAR	Offset Area Annual Report
PD	Preliminary Documentation submission by the Saunders Havill Group 2025
Proponent	Cherish Enterprises Pty Ltd
SPP	State Planning Policy (Queensland Government)
The Guide	*Environment Protection & Biodiversity Conservation Act 1999 – Environmental Offset Policy – October 2012 (Australian Government) – Assessment Guide*
UQ	University of Queensland
VDEC	Voluntary Declaration
VMA	*Vegetation Management Act 1999*
WONS	Weeds of National Significance
WMZ	Weed Management Zone

1. Introduction

Cherish Enterprises Pty Ltd (Proponent) has engaged One Environment (Offset Provider) to coordinate and deliver a Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater Habitat environmental offset as compensation for significant impacts to Matters of National Environmental Significance (MNES) as required to implement the Springfield Residential Development located at Mur Boulevard, Springfield, Queensland 4300. The project proposes to cover environmental offset requirements through three separate offset solutions, located in the Somerset Regional Council and Ipswich City Council Local Government Areas. This Avonvale Offset Area Management Plan (OAMP) relates to offsets for a portion of the impacts at the proposed action site.

One Environment will deliver the overall 'conservation gain' for the species' as part of an expanded offset solutions located on the Avonvale Station Offset Property (Offset Site – Refer to PLAN 1). The offset area will expand conservation areas at the Avonvale Station Offset Property which contains the approved EPBC 2015/7530, EPBC 2015/7609, EPBC 2018/8347 and EPBC 2021/8975 offset areas. An area of approximately 168 ha will be legally secured as direct compensation for impacts resulting from the balance of impacts at the Springfield Residential Development impact site. The Offset Area is located approximately 5 km west of the Toogoolawah Township and 53 km north-west of Brisbane. The landholding is entirely based within the Local Government jurisdiction of the Somerset Regional Council (formerly the Esk Shire Council).

This Avonvale Offset Area Management Plan 2025 (Offset Area Management Plan / OAMP) outlines the existing values and proposed management actions to be completed at the Offset Area and includes a detailed analysis on the value or assessment of the actions, risks or threats at the offset land relative to the Offset Assessment Guide (The Guide). This OAMP focuses on the direct management actions aligning with the principles and structure outlined in the DCCEEW's Environmental Management Plan Guidelines (2014).

The vegetation surrounding the offset area is known to support Koalas, while the Offset Area retains a number of key existing threats and supports areas with all necessary essential habitat factors for the reinstatement and creation of new high functioning Koala habitat. It is also noted the existing and proposed species for revegetation on the land are highly ranked as food species for the Vulnerable Listed Grey-headed Flying-fox and located within 16.6 km of the Esk and 35 km of the Lowood Flying-fox camps, both of which report consistently high numbers (>3,000-4,000) of animals. With respect to the Swift Parrot and Regent Honeyeater, the extant and proposed reconstructed Regional Ecosystems in and adjoining the Offset Area include recognised foraging habitat for these highly mobile and rarely recorded species.

The portion of the offset landholding proposed as an offset in this OAMP is predominantly located within the strategically designated bioregional biodiversity corridor of the recently adopted ShapingSEQ – South East Queensland Regional Plan 2017, (State of Queensland, 2017). The corridor mapping in this document is non regulatory, however, aspirationally is included through the Offset Area to link the Deongwar State Forest, Esk National Park in the south to the Bernarking State Forest and Mount Binga National Park to the north.

The allocated Offset Area does not form part of the previously approved offset solutions and is presently maintained for cattle grazing.

1.1. Purpose of Offset Area Management Plan

The Offset Property (Avonvale Station) and Offset Area have been selected and designed to compensate for the balance of clearing impacts proposed on the Springfield Residential Development. The offset proposal is a direct land-based solution that consists entirely of establishing new habitat. Importantly, the Offset Area will combine with and expand existing approved and commenced offsets on the land to consolidate a large conservation outcome for a number of protected matters.

The purpose of this OAMP is to:

1. Provide details and timing on the legally binding mechanism to secure the Offset Area values within the Offset Area.
2. Provide baseline values for a range of key habitat quality indicators in the offset Environmental Management Zone (EMZ) for repetitive use in measuring and monitoring habitat improvement commitments.
3. Outline the specific management actions and tasks to be undertaken in the EMZ for managing threats, pests and improving Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat values.
4. Outline restrictions and operational controls on existing agricultural and grazing land uses.
5. Establish robust and scientifically driven metrics, monitoring and reporting procedures to ensure the offset delivery achieves the predicted conservation gain for the species.
6. Assign responsibilities for tasks, actions, operational controls, measuring, reporting, corrective actions and funding for all works at the offset land.
7. Identify, account for and manage risks associated with all or part of the offset outcomes not succeeding (Adaptive Management).

1.2. Offset Area Management Plan Limitations

This document is an Offset Area Management Plan (OAMP). The OAMP aligns with relevant principles and sections of the Environmental Management Plan Guidelines (2014), however, is designed for on-ground implementation and not specific value assessment against the EPBC Offset Assessment Guide. The assessment of values for Risk of Loss and Quality are included within the technical chapters of the Saunders Havill Preliminary Documentation Package. Quality value changes in this assessment are derived from specific actions listed in this OAMP and thus where applicable assessment metrics have been listed in the measurement targets of Management Action Tables included in Section 4.0.

The Springfield Residential Development offset area forms part of Avonvale Station that contains the approved EPBC 2015/7530, EPBC 2015/7609, EPBC 2018/8347 and EPBC 2021/8975 offsets. Assessment methodologies have remained consistent with these broader approved EPBC offsets. Survey methods deployed over the land incorporate standard practices from the *Guide to Determining Terrestrial Habitat Quality: A toolkit for assessing land based offsets under the Queensland Government Offsets Policy, Version 1.2, April 2017*, Queensland Government, combined with the specific stocking rate factors from the How to use the offsets assessment guide, Australian Government (combined in this OAMP to be referred to as the Modified Quality Habitat Assessment – MHQA for the Koala, Swift Parrot and Regent Honeyeater and the Grey-Headed Flying-fox Foraging Habitat Assessment GHFF FHA). All of these methods incorporate sample surveys with extrapolated results over like site features and ecosystems for the entirety of the offset land. A number of supporting surveys tools (motion sensor cameras / fauna survey traps) have been utilised to bolster survey efforts.

Commentary of existing land uses have been extracted from direct observations, aerial photography, the property sales memorandum and discussions with the landowner and farm staff. Some of these uses are seasonal (winter only) or periodical (3-year cycle) and thus site evidence is supported by anecdotal commentary from operational staff.

1.3. Responsible Entities for this OAMP

Excluding the regulatory role completed by the Commonwealth Government for the assessment and approval of the offset and the Queensland Government for registering and declaring the Voluntary Declaration for legally securing the offset the following entities retain key responsibilities for implementation of this OAMP:

1. Cherish Enterprises (Project Proponent) – Contact Mr. Kevin Lin – Development Manager / Owner

Cherish Enterprises are the owner and will be the operational developer for the project, located within the City of Springfield. Responsibilities include:

- Obtain and comply with all conditions of the EPBC approval for the project.
- Enter into a commercial agreement with the Offset Provider for the delivering of EPBC compliant offsets.
- Report on the EPBC approval in Annual Compliance Reports or as triggered within conditions.

2. One Environment (Trading as Somerset Offset Solutions (Avonvale) - Offset Provider) – Mr. Darren Jonsson

One Environment is a purpose-built environmental offset company forming a joint venture between land acquisition experts and a bushland regeneration contractor. Responsibilities include:

- All on-ground implementation of the OAMP.
- Preparation and lodgement of the Legally Binding Mechanism (VDEC) under the Queensland VMA and a secondary permanent legal securement mechanism under Queensland legislation.
- Monitoring and reporting on OAMP actions, tasks and outcomes.
- Appointment of relevant experts or experienced contractors to undertaken specified tasks within the Offset Area.
- Corrective actions for any non-compliance activities.
- Stakeholder relationships – Adjoining grazing operations, Somerset Regional Council, local school and community environmental groups.
- Review, amend and adaptively manage changes of the approved OAMP over the life of the offset.

3. Saunders Havill Group (Environmental Consultant) – Mr. Murray Saunders

Saunders Havill Group as the tertiary-trained and experienced field ecologists provide the history and technical information regarding the impact site and coordinate the application material on behalf of Cherish Enterprises.

- Compile and submit the Preliminary Documentation Package to the Department on behalf of Cherish Enterprises, inclusive of material provided by One Environment, regarding the Springfield Residential Development.
- Collection, interrogation and analysis of robust scientifically justified survey data for use as the baseline values at the offset site.
- Audit offset reports against approval conditions as part of the Approved Project's Annual Compliance Reporting requirements.

1.4. Structure of this OAMP

There are ten (10) core chapters to this OAMP as highlighted in FIGURE 1 and summarised below:

- Section 1.0 outlines background information to the OAMP setting the overall principles designed to be achieved at the Offset Site.
- Section 2.0 provides a brief context to the portion of the Springfield Residential Development impact area, relative to these offset requirements and the impacts triggering the need for compensation of Koala, Grey-headed Flying-

fox, Swift Parrot and Regent Honeyeater habitat (for additional information refer to the Preliminary Documentation Package prepared by the Saunders Havill Group).

- Section 3.0 covers the general suitability of the Offset Area for each MNES and includes an assessment against the Environmental Offsets Policy.
- Section 4.0 details the proposed Environmental Outcomes, completion criteria and impact compensation for each MNES.
- Section 5.0 contains the baseline survey methods and results used to calculate habitat quality for each MNES and provides a baseline for threats being the abundance of feral animals and extent of weed cover.
- Section 6.0 summarises the specific design of Offset Area in terms of Environmental Management Zones.
- Section 7.0 is wholly concerned with eight (8) separate management action areas itemised through a tabulated format. The management tables have been drafted as a stand-alone template that can be extracted from the broader document for direct implementation on-site.
- Section 8.0 outlines a number of key risks and threatening processes that were considered in the preparation of the management tables.
- Section 9.0 outlines the adaptive management principles adopted for corrective actions and the specific Offset Area Management Plan Reporting requirements.
- Section 10.0 summarises the proposed monitoring and reporting schedule to provide reporting against the environmental outcomes and completion criteria.
-

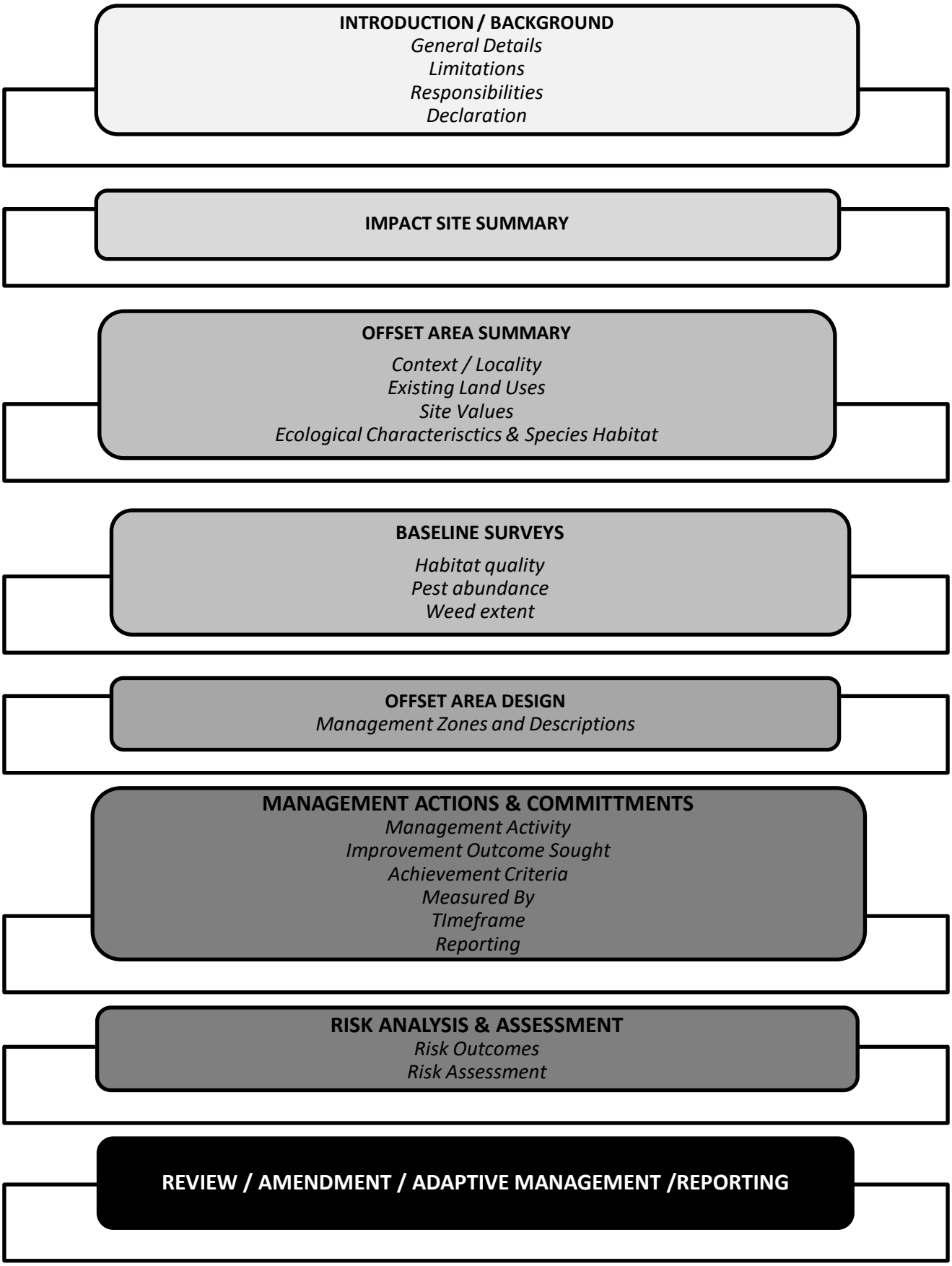


Figure 1: OAMP Structure Diagram

1.5. OAMP Declaration of Accuracy

Declaration of accuracy

In making this declaration, I am aware that section 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration and I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed _____

Full name (please print) _____

Organisation (please print) Somerset Offset Solutions (Avonvale) Pty Ltd

Date _____/_____/_____

491 Providing false or misleading information to authorised officer etc.

(1) A person is guilty of an offence if the person:

(a) provides information or a document to another person (the ***recipient***); and

(b) knows the recipient is:

(i) an authorised officer; or

(ii) the Minister; or

(iii) an employee or officer in the Department; or

(iv) a commissioner;

performing a duty or carrying out a function under this Act or the regulations; and

(c) knows the information or document is false or misleading in a material particular.

(2) The offence is punishable on conviction by imprisonment for a term not more than 1 year, a fine not more than 60 penalty units, or both.

Note: Subsection 4B(3) of the *Crimes Act 1914* lets a court fine a body corporate up to 5 times the maximum amount the court could fine a person under this subsection

1.6. Legally Securing the Offset Area

Legal certainty on the offset land and actions is provided through the direct ownership of the land by the Offset Provider. A legal agreement has been executed between the Offset Provider and the Proponent which outlines the obligations of each party in relation to funding, legally securing of the offset area, implementation of the Approved Offset Area Strategy, land access, warranties and insurances.

Voluntary Declaration

The Offset Area and its values will be legally secured in the first instance prior to clearing through a *Voluntary Declaration* (VDEC) declared under the Queensland Government's *Vegetation Management Plan 1999* (VMA). Existing VDECs have been declared on the property covering over 1200 ha of land. A VDEC protects land and values and is binding on future owners. The Queensland Government describes the benefits of the VDEC as:

One of the strengths of a declaration is that it provides greater protection to areas of land containing environmentally valuable native vegetation.

The declaration and management plan will be noted on the land title, which informs prospective buyers of current declarations and management plans and where copies are available. This information is important to the property market as future owners will be bound by the plan and declaration.
(*Queensland Government, 2017*)

The legally securing of the land will be made through declaring the areas as having High Nature Conservation Values. Based on the VMA criteria, the Offset Area will be declared as achieving items (a), (c), (d) and (f) below:

To be considered for declaration as an area of high nature conservation value, the area must be one or more of the following:
a) a wildlife refugium—an area where a species or a group of species has retreated due to a threatening process (e.g. climatic change)
b) a centre of endemism—an area containing concentrations of species that are largely restricted to the area
c) an area containing a vegetation clump or corridor that contributes to the maintenance of biodiversity
d) an area that makes a significant contribution to the conservation of biodiversity
e) an area that contributes to the conservation value of a wetland, lake or spring
f) another area that contributes to the conservation of the environment.

The VDEC will be lodged and legally secured by evidence of encumbrance on Registered Land Title prior to the commencement of any clearing works occurring at the action site. As noted, this protects the vegetation by way of purpose-built regulation on the title so all future landowners are aware of the restrictions prior to purchase.

Enduring / Permanent Securement Mechanism

Following legal securement via VDEC, the offset area will be permanently secured via a legal mechanism that is approved by the Land Holder and the Department. Draft terms of the permanent legal mechanism to be submitted for approval within 18 months of commencement of the action. Within 12 months of approval of the draft terms the offset site must be permanently secured.

2. Impact Site (Summary)

The Springfield Residential Development project area covers 161.4 ha of land centrally located north of the Springfield town centre in the suburb of Springfield, approximately 15 km south-west of the Ipswich CBD (FIGURE 2). The land is best described as a development parcel within the Greater Springfield Master Planned Development Area, where it has long standing zonings and high-level approvals primarily for residential uses.

On the 13th November 2019 a referral under the EPBC Act was made for the project to the then Commonwealth Department of Agriculture, Water and the Environment (DAWE) for a controlled action assessment. On the 9th April 2020, the project was deemed a Controlled Action requiring assessment by "Preliminary Documentation."

The Controlled Action decision was based on the determination of potential impacts on the following Matters of National Environmental Significance (MNES):

Listed threatened species and ecological communities (sections 18 & 18A) protected under Part 3 of the EPBC Act, specifically:

- Koala (*Phascolarctos cinereus* – combined populations of Qld, NSW and the ACT) listed as Vulnerable;
- Grey-headed Flying-fox (*Pteropus poliocephalus*) listed as Vulnerable; and
- Lowland Rainforest of Subtropical Australia listed as Critically Endangered.

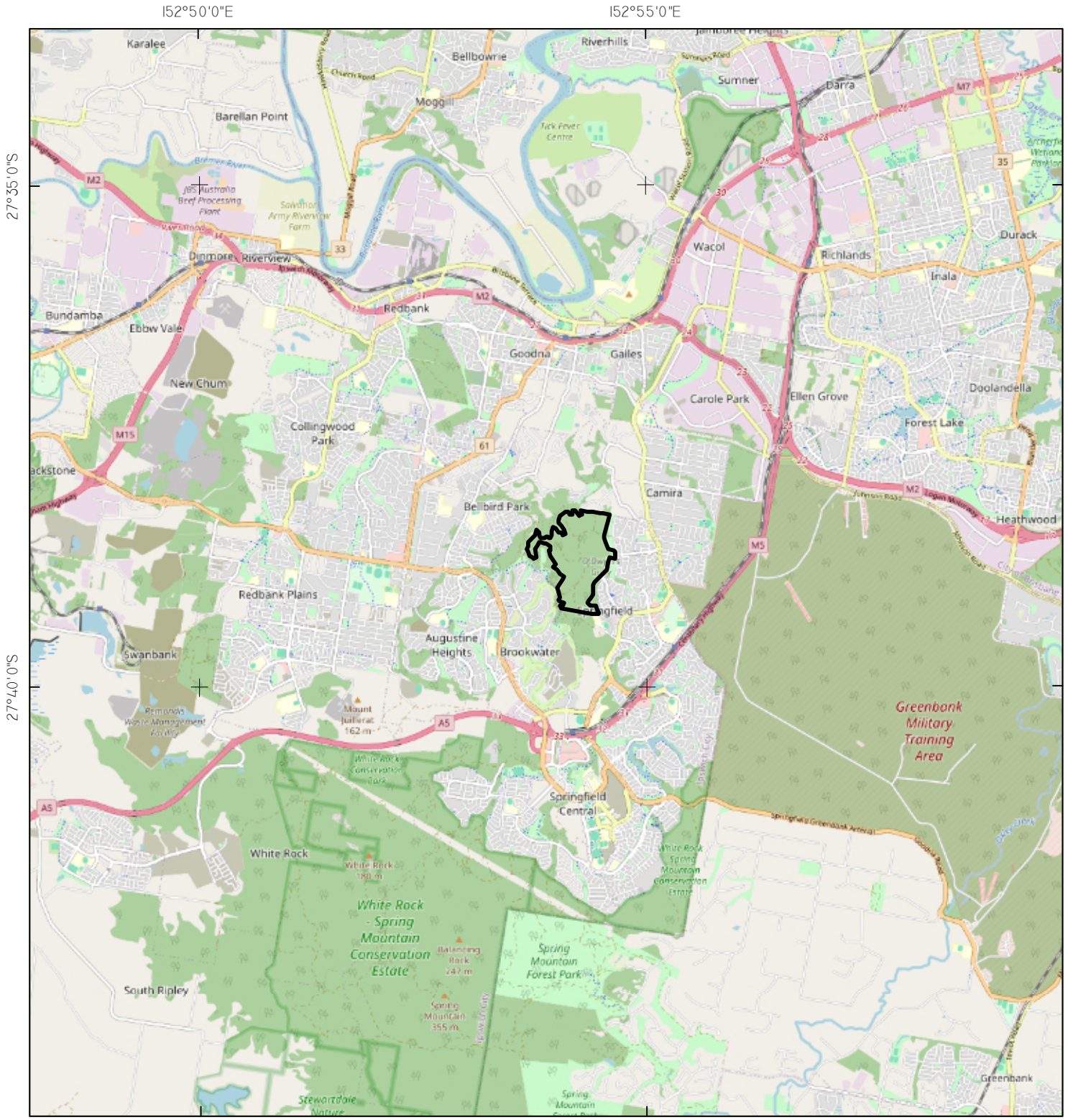
Through detailed surveys and analysis two of these matters (Koala and Grey-headed Flying-fox) have been determined as likely to be impacted and triggering EPBC Act environmental offsets. An additional two (2) species have been determined to have critical habitat impacted as per Conservation Advice and also require environmental offsets:

- Swift Parrot (*Lathamus discolor*)
- Regent Honeyeater (*Anthochaera phrygia*)

The proposed habitat impact area for MNES species being the Koala, Swift Parrot, Regent Honeyeater and Grey-headed Flying-fox is 128 ha. This offset is designed to cater for the balance of the impacts not accommodated by the Proponent offset. Refer to FIGURE 3.

TABLE 1 contains details of the Springfield Residential Development for the whole of project as provided by the Saunders Havill Group.

Figure 2 Impact Site Context



LEGEND

Referral Area

ONE ENVIRONMENT

Avonvale Station -
Offset Management Plan (OES5)

These plans have been prepared for the exclusive use of the client. One Environment Group cannot accept reponsibility for any use of or reliance upon the contents of these drawing by any third party.
Service Layer Credits © OpenStreetMap (and) contributors, CC-BY-SA

0 0.5 1 2 3 4 5 KM

N

24/11/2025 GDA94 MGA zone 56 1:100,000

References - © State of Queensland, 2025

Figure 3 Impact Site Aerial

Legend

- Qld DCDB
- Referral Area

ONE ENVIRONMENT

Avonvale Station -
Offset Management Plan (OEs5)

These plans have been prepared for the exclusive use of the client. One Environment Group cannot accept reponsibility for any use of or reliance upon the contents of these drawing by any third party.

Service Layer Credits:

0 50 100 200 300 400 500 M

N

24/11/2025 GDA94 MGA zone 56 1:12,000

References - © State of Queensland, 2025

Table 1: Impact Site (Summary Details)

Site Details	
Address	7001 Mur Boulevard, Springfield, QLD, 4300
Lot / plan	Lot 9999 on SP292760 Part of Lot 9002 on SP292760, Lot 9998 on SP236942, Lot 9995 on SP307769, Lot 9004 on SP292760, and Lot 51 on SP242316
Referral area	Total Site Area: 161.4 ha
Impact area	Total development footprint: 134.5 ha – Development extent: 123 ha – Bioretention basins: 8.2 ha – Temporary impacts for batters to be rehabilitated: 2.6 ha – External Council stormwater infrastructure 0.1 ha Note – Excluding 7.6 ha of EPBC 2014/7306 footprint intersecting the referral area results in disturbance footprint resulting from EPBC 2019/8575 as 126.3 ha. A total impact area of 128 is nominated to account for a level of unknown finishes around earthworks extents that will be resolved through operational works approvals.
Retention area	Total Retention Area: 27.5 ha
Village 2 Description	(Village 2) – Located in the eastern extent of the project area, connecting to the existing Mur Boulevard and through to Panorama Drive. The modified area post construction is approximately 52 ha and includes 853 mixed sized residential allotments, a local centre including a childcare, local parks and stormwater infrastructure.
Village 3 Description	(Village 3) – Located over the balance of the referral area adjacent to the western boundary of Village 2. The modified area post-construction is approximately 86 ha and includes 1007 mixed sized residential allotments, a sports field and associated infrastructure, linear park, rehabilitation and retained natural areas, and stormwater infrastructure.
Regional plan land use designation	Urban Footprint
Zone	Springfield community residential designation Open space designation
Local plan and precinct	Community residential Open space
Environmental planning attributes	
Vegetation Management Act 1999	Category X (non-remnant) Category B (least Concern, Of Concern, Endangered) Essential Habitat (*Phascolarctos cinereus, Adelotus brevis, Ninox strenua, Marsdenia coronata, Coleus habrophyllus*)
Existing land use	Vacant land and natural areas

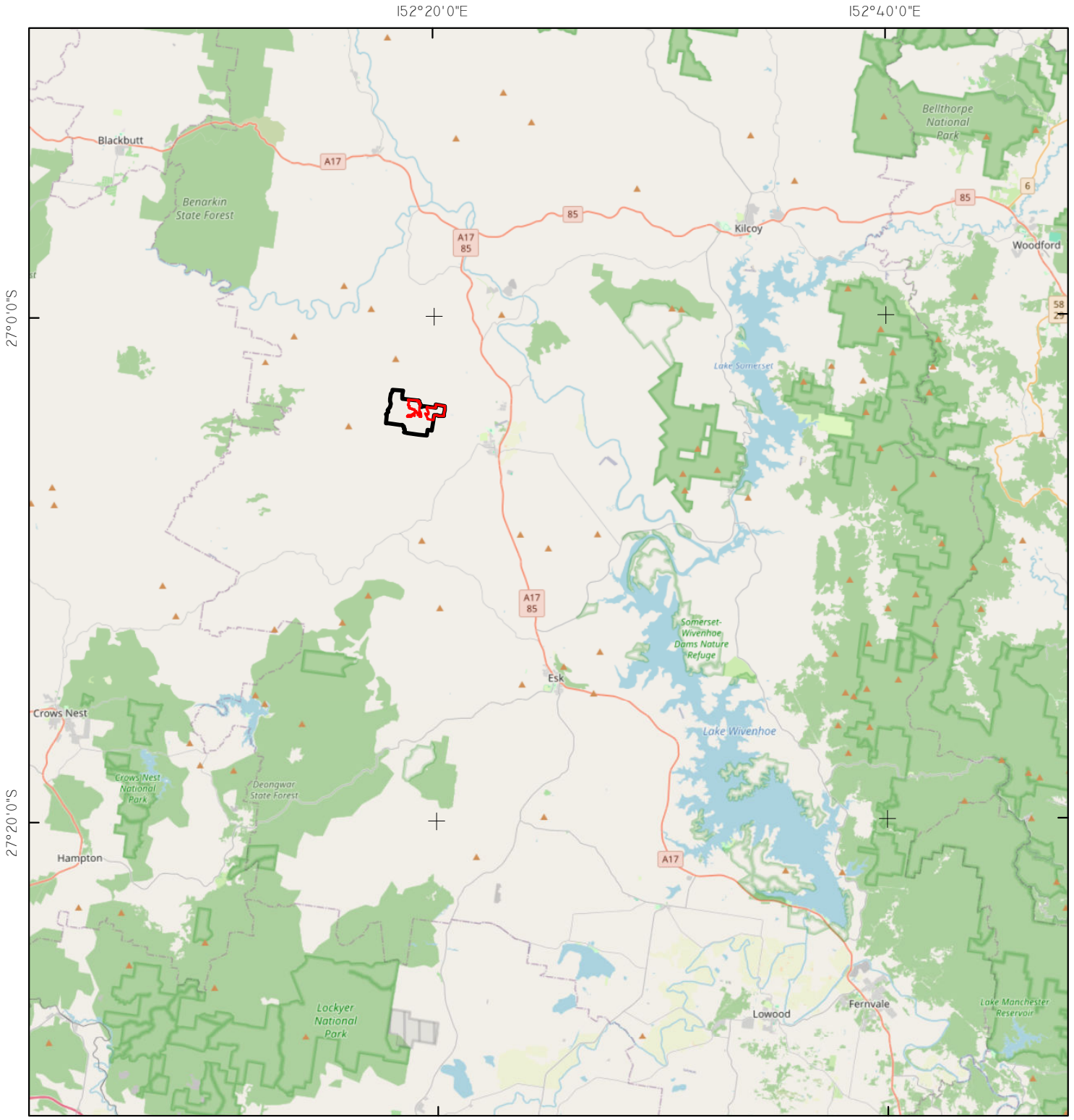
3. Offset Area (Summary)

The Offset Area forms part of the Avonvale Station located at Littles Road, Ivory Creek. The property is within the Somerset Regional Council Local Government Area and is approximately 5.8 km directly west of the Toogoolawah township. The Offset Area is located on balance land within the cadastral boundaries of the Avonvale Station and adjacent to the EPBC Act offset approved to compensate for the significant residual impacts associated with EPBC 2015/7530, EPBC 2015/7609, EPBC 2018/8347 and EPBC 2021/8975 (refer to FIGURE 4 – Offset Site Context). Refer to TABLE 2 – Offset Site Details including the cadastral allotment descriptions. The land tenure is freehold, where it retains a rural land use zoning under the Somerset Regional Council Planning Scheme. The offset site can be accessed via Littles Road from the north, which is a rural road off Ivory Creek Road. (refer to PLAN 1– Offset Site Allotments & Aerial). The Offset Area is located approximately 84.3 km north-west of the impact site (refer to PLAN 2 – Impact / Offset Site Context).

The Offset Area is utilised currently as grazing land adjoining the four existing approved offset projects on the broader landholding.

(Site Photos – Avonvale)

Figure 4 Offset Site Local Context



Legend

- Avonvale Station
- Offset Area

ONE ENVIRONMENT

Avonvale Station -
Offset Management Plan (OES5)

These plans have been prepared for the exclusive use of the client. One Environment Group cannot accept reponsibility for any use of or reliance upon the contents of these drawing by any third party.
Service Layer Credits: © OpenStreetMap (and) contributors, CC-BY-SA

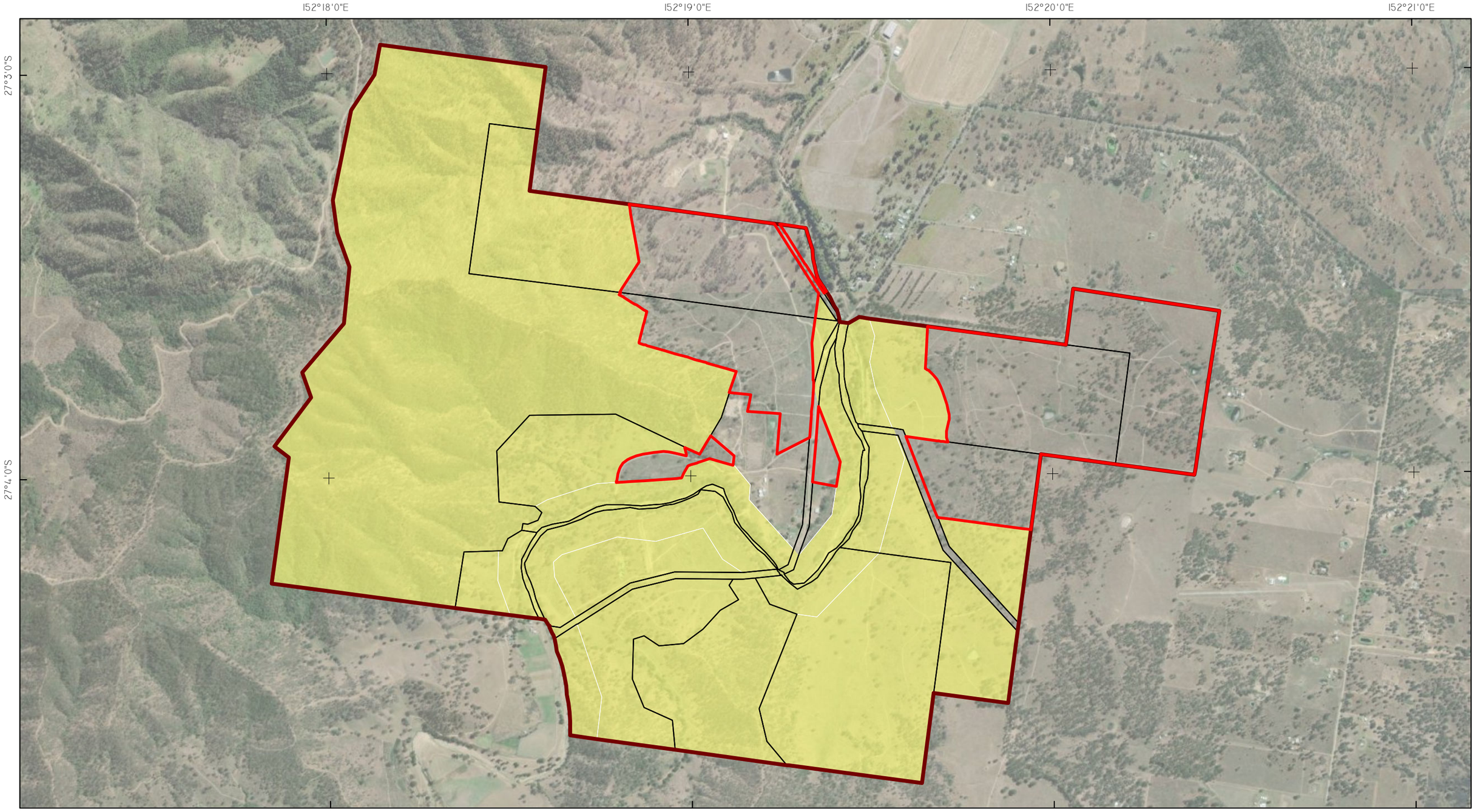
0 1 2 4 6 8 10 KM

N

9/06/2026 GDA94 MGA zone 56 1:400,000

References - © State of Queensland, 2026

Plan 1 - Site Boundaries



FILE NAME: OEs_5 PLAN 1 Site Boundaries V6
9/06/2026

Avonvale Station -
Offset Management Plan (OEs5)

N

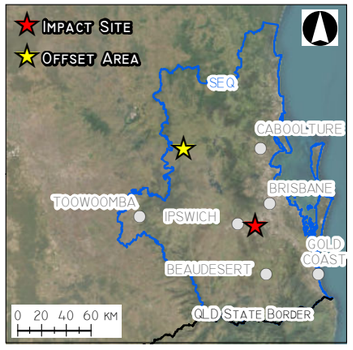
0 100 200 400 600 M

GDA94 MGA zone 56 1:17,000

THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. ONE ENVIRONMENT GROUP CANNOT ACCEPT REPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWING BY ANY THIRD PARTY.
Service Layer Credits: Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community
References - © State of Queensland, 2026

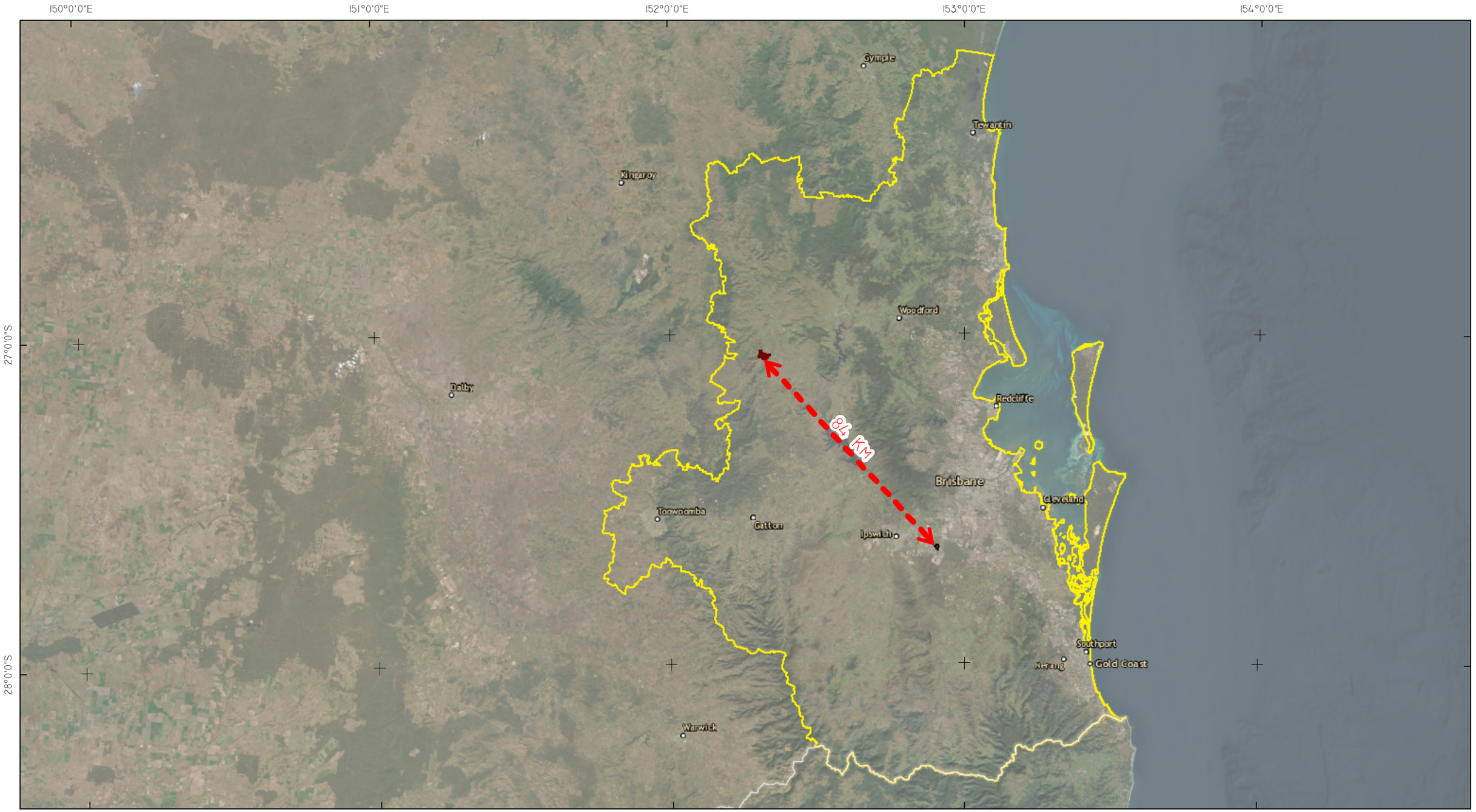
Legend

- Avonvale Station
- Offset Site Alloments
- Offset Site Easement/Strata
- EPBC 2019/8575 Offset Area
- Existing Avonvale Station Offset Areas



ONE ENVIRONMENT

Plan 2 - Impact / Offset Site Context



FILE NAME: OEs_5 PLAN 2 Impact_OffsetContext V5
24/11/2025

AVONVALE STATION-
OFFSET MANAGEMENT PLAN (OES5)

N

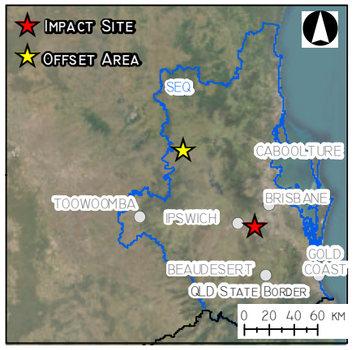
0 10 20 40 KM

GDA94 MGA ZONE 56 1:1,250,000

THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. ONE ENVIRONMENT GROUP CANNOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWING BY ANY THIRD PARTY.
SERVICE LAYER CREDITS: ESRI, HERE, GARMIN, (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY
REFERENCES - © STATE OF QUEENSLAND, 2025

LEGEND

- SOUTH EAST QUEENSLAND BOUNDARY
- AVONVALE STATION
- IMPACT SITE



ONE ENVIRONMENT

Table 2: Offset Area (Summary Details)

Attribute	Site Summary Details
EPBC Act reference	2019/8575
Locality	Suburbs of Biarra / Toogoolawah in the Somerset Regional Council Area
Lot / Plan	Multiple lots within Avonvale Station Aggregation
Proposed Offset Size	168 hectares
Mean Temperature Range (°C)	13.5 – 26 °C
Mean Annual Rainfall (mm)	987 mm
2019 Rainfall (mm)	431.6 mm (SRC was declared a drought zone in 2019)
Topography	Undulating country ranging from a floodplain adjoining Ivory Creek, rising to a steeper ridgeline along the eastern boundary.
Soils (Land Zone Classification)	Land Zone 11 – Hills and lowlands in metamorphic rocks Land Zone 3 – Alluvial river and creek flats Land Zone 9-10 – Fine grained sedimentary rocks; coarse grained sedimentary rocks
VMA Vegetation Classification	Category X (non-remnant) Category C (high value regrowth) Category B (remnant)
Broad Vegetation Group Koala Habitat Suitability (Rhodes et al. 2015)	BVG 13c. suitable (majority of offset area)
Dominant Tree Species	*Eucalyptus crebra* (Narrow-leaved Ironbark), *Eucalyptus tereticornis* (Forest red Gum) and *Corymbia erythrophloia* (Variable-barked Bloodwood)

3.1. Offset Area Values

The offset land vegetation at Avonvale is comprised of open grazing, non-remnant grass lands. The non-remnant vegetation consists of cleared grazing land and sapling regrowth patches and individuals. Direct and indirect evidence of feral dogs was recorded throughout the offset site. The 168 ha site consists predominantly of open grazing country with areas of remnant and regrowth vegetation values. This Offset Area expands on large offset areas already approved by the Commonwealth Government.

Where scattered juvenile regrowth canopy trees were observed, the species consist of *Eucalyptus crebra* (Narrow-leaved Ironbark), *Corymbia erythrophloia* (Variable-barked Bloodwood) and *Eucalyptus tereticornis* (Forest Red Gum). Given the sparse, juvenile nature of the scattered canopy species, the vegetation does not meet the Queensland Government's definition of 'remnant' or 'high-value regrowth'. Where observed, the species within this vegetation community are representative of 'Of Concern' RE12.11.14, with small areas of 'Endangered' RE12.3.3. Further, cross-reference with the pre-clear Regional Ecosystem mapping indicating that the dominant Regional Ecosystems across the non-remnant vegetation area is 'Of Concern' RE12.11.14 and 'Of Concern' RE12.9-10.7.

The area has been divided into six (6) Assessment Units based on differing vegetation communities and structure being:

- AU1 – Non-remnant open paddock RE12.11.14 (Category X)
- AU2 – Non-remnant open paddock RE12.3.3 (Category X)
- AU3 – Remnant Waterway RE12.3.7 (Category B)
- AU4 – Non-remnant open paddock with scattered trees RE12.9-10.7 (Category X)
- AU5 – Regrowth RE12.9-10.7 (Category C)
- AU6 – Remnant RE12.11.14 (Category B)

3.2. Koala Offset Values / Suitability

The Offset Area is located within South East Queensland and in the same Bioregional Zone as the impact site. By comparison, the Offset Area includes substantially more areas containing Land Zones, Broad Vegetation Groups and species mix listed as "Highly Suitable" for the Koala (Rhodes et al. 2015). The broader Avonvale Station is known to be utilised by Koalas, with several observation confirmed over the Offset Property and Offset Area. Additionally, direct observations of Koalas were recorded during the most recent surveys completed in February 2024 as well as evidence of usage in the form of scats throughout the offset area.

The Somerset Regional Council, particularly the sub area reflected by the former Esk Shire Council, is known to support a sizable and healthy Koala population. The University of Queensland (UQ) Koala Research Unit has been conducting various bodies of research since 2013 into the region's Koala population, with particular interest in its capacity to resist disease and thrive by comparison to most other locations in South East Queensland. Ecological researcher and known Koala expert Dr Bill Ellis is quoted in relation to the Somerset Koala Research findings as saying:

"Finding, identifying and protecting these kinds of populations is probably a key to making sure that we do have koalas in south-east Queensland in the long term" (Wilson, 2013).

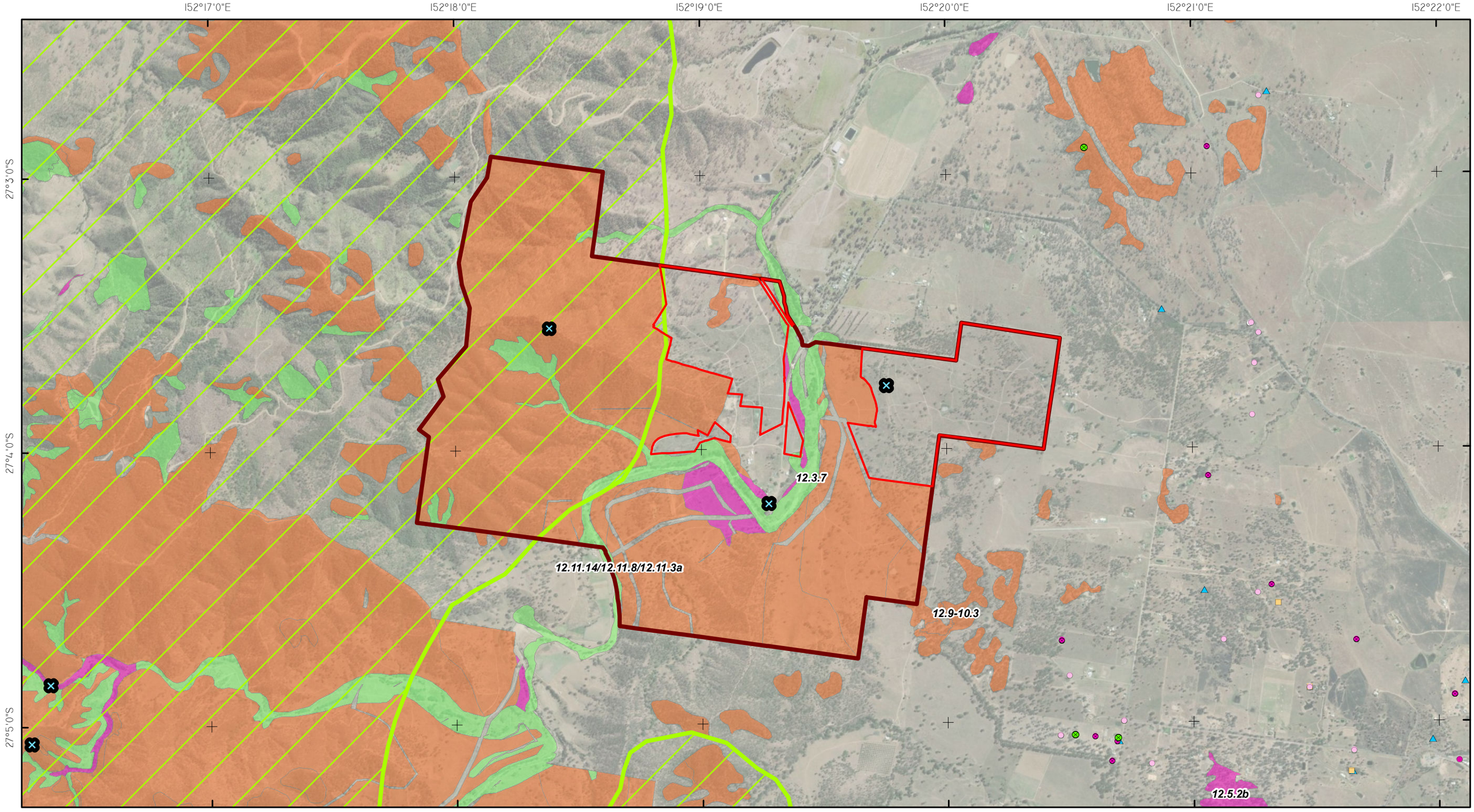
The immediate Township of Toogoolawah (approximately 5 km from the Offset Site) has taken a local interest in the future of the region's Koala population and using a combination of Government and Private land holder's land tenures designated and planted out a new Koala corridor on the edge of town. All works and the ongoing maintenance of the corridor is through volunteers including the Local State High School [A.R.R.O.W. (2018)]. One positive result of this level of community interest is the active recording and reporting of Koala sightings in the locality. There is a total of 23 records (27 including site records) in close proximity to the Offset Area, which is extremely high for a rural context.

More broadly the Offset Site and particularly the component committed as the Offset Area is predominantly located within and adjoining the State-Wide Regional Terrestrial Corridor #29 mapped in the ShapingSEQ - South East Queensland Regional Plan 2017, (State of Queensland, 2017). The State-Wide Regional Terrestrial Corridor #29 extends south from Emu Creek to Mount Lawson capturing Deongwar State Forest, Ravensbourne National Park and Lockyer National Park (DEHP 2016). There are no regulatory provisions controlling or achieving this regional biodiversity corridor with the State Government yet to develop a program to incentivise ecological stewardship on large privately-owned farm holdings. This Offset Site provides a major opportunity to establish this strategic outcome.

Refer to PLAN 3 – Showing Contextual and Site Koala Values:

- Location of Bioregional Corridor Extent
- Suitable Habitat and Revegetation Locations for Koalas
- Local and Site Collected Records for the Koala

Plan 3 - Contextual / Site Koala Values



FILE NAME: OES_5 PLAN 3 CONTEXTUAL SITE KOALA VALUES V6
10/06/2026

AVONVALE STATION -
OFFSET MANAGEMENT PLAN (OES5)

0 500 1,000 M

GDA94 MGA ZONE 56 1:25,000

N

THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. ONE ENVIRONMENT GROUP CANNOT ACCEPT REPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWING BY ANY THIRD PARTY.
SERVICE LAYER CREDITS: SOURCE: ESRI, VANTOR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY

REFERENCES - © STATE OF QUEENSLAND, 2026

LEGEND

- SEQ REGIONAL PLAN - BIODIVERSITY CORRIDORS
- AVONVALE STATION
- EPBC 2019/8575 OFFSET AREA

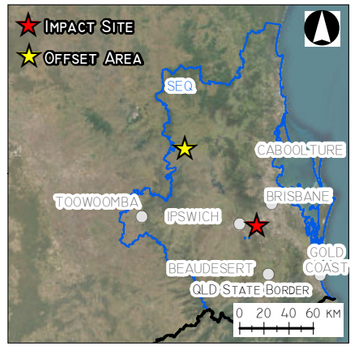
VM REGIONAL ECOSYSTEMS MAP (REMNANT VEGETATION)

- CATEGORY A OR B AREA CONTAINING ENDANGERED REGIONAL ECOSYSTEMS
- CATEGORY A OR B AREA CONTAINING OF CONCERN REGIONAL ECOSYSTEMS
- CATEGORY A OR B AREA THAT IS A LEAST CONCERN REGIONAL ECOSYSTEM

- KOALA RECORDS (ALA, 2025)
- KOALA RECORDS (DES, 2025)
- KOALA FIELD SURVEY RECORD

QLD KOALA HOSPITAL RECORDS

- INJURED
- SICK AND/OR WASTED
- DECEASED



ONE ENVIRONMENT

3.3. Grey-headed Flying-fox Values / Offset Suitability

By comparison to research and precedence with the Koala, less is known on both impacts and offsets for Grey-headed Flying-fox, particularly when camps or roosting sites are not directly affected. Research notes scarcity of food sources particularly in the Winter and Spring periods as resulting in animal weight loss and seasonal movement of camp numbers (Eby & Law, 2008). Tree species known to provide nectar, flower or fruit resources for the Grey-headed Flying-fox within 50 km of a known population (Camp site) are considered to achieve the definition of *Foraging habitat critical to the survival* of the species.

A number of the dominant tree species existing and proposed to be planted on the Offset Area provide flower and fruit during the Winter and Spring periods (TABLE 3).

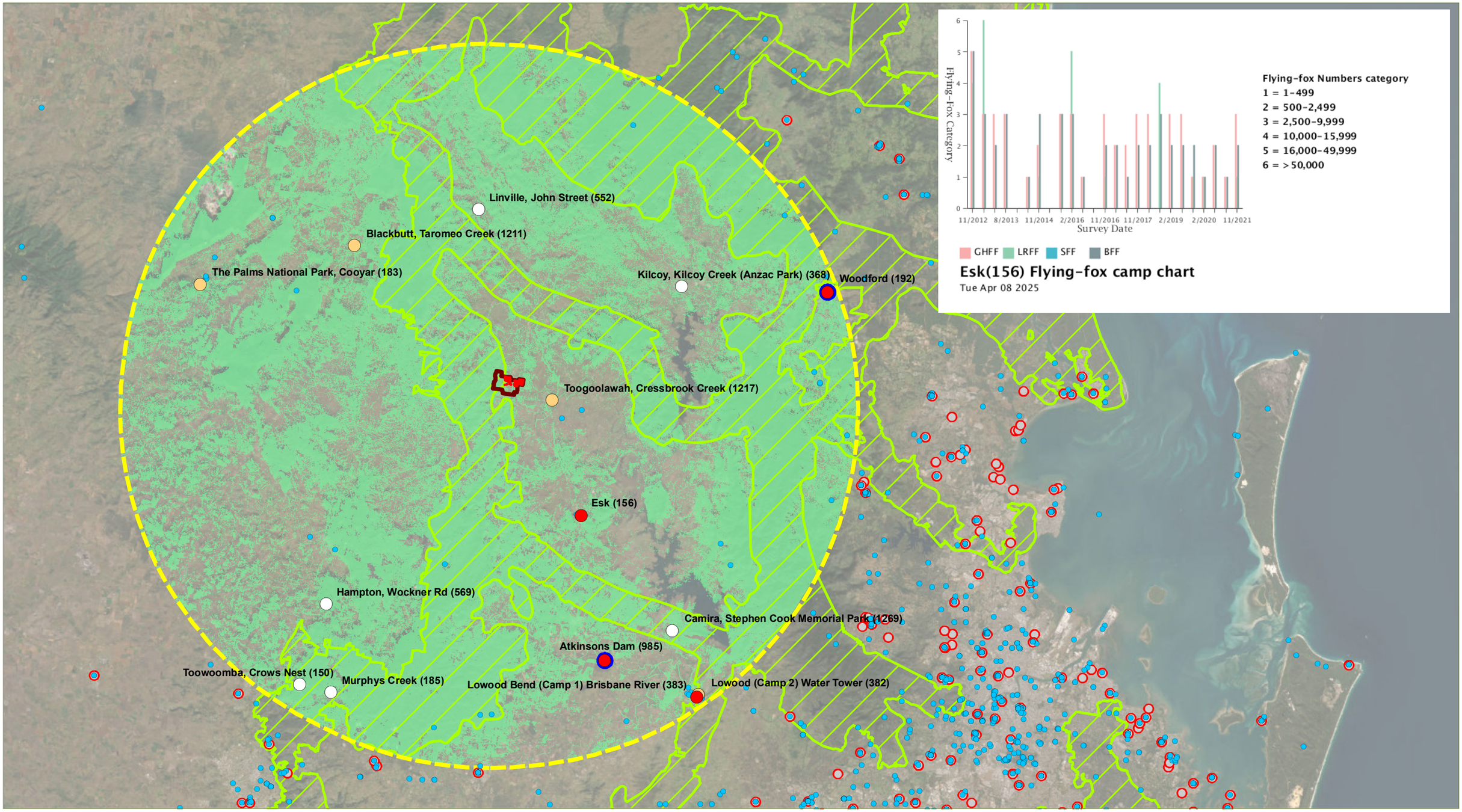
Table 3: Winter / Spring Flowering – Fruiting Tree Species – Offset Area

Offset Area Tree Species	**FLOWERING PERIOD**	**SPRING**	**WINTER**
Eucalyptus crebra (narrow-leaved ironbark)	Throughout Year	yes	yes
Eucalyptus tereticornis (forest red gum)	June- Nov	yes	yes
*Eucalyptus melanophloia (*silver-leaved ironbark)	Oct-Mar	yes	-
Lophostemon confertus (brush box)	Sept- Feb	yes	-
Corymbia erythrophloia (variable-barked bloodwood)	Feb-April	-	-
Corymbia tessellaris (moreton bay ash)	Nov-Jan	yes	-
Corymbia citriodora (spotted gum)	April- Nov	yes	yes
Angophora subvelutina (broad leaved apple)	Nov-Dec	-	-
Eucalyptus siderophloia (ironbark)	May-Sept	yes	yes

The Offset Area is located 5 km north-west of Toogoolawah (1217) Camp Site and 16.6 km from the Esk (156) Camp Site, which on the DCCEEW's National Flying Fox Monitoring Viewer retains one of the larger and consistently recorded colonies of Grey-headed Flying-fox in South East Queensland. The Avonvale Offset Area will result in the legally securing of large tracts of foraging habitat listed as habitat critical to the survival within close proximity to a major known camp site. Additionally, the site already provides winter and spring flowering trees, which will be increased and expanded through rehabilitation and revegetation works. As noted under the Koala values, the offset site also occurs contextually amongst a large bioregional corridor where existing tracts of like habitat have been mapped.

Refer to PLAN 4 for Grey-headed Flying-fox Regional Ecosystems, the Esk (156) Camp site and corridor mapping around the Offset site.

Plan 4 - Grey-headed Flying-fox Values / Camp Sites



FILE NAME: OES_5 PLAN 4 GHFF VALUES CAMP SITE V6
10/06/2026

AVONVALE STATION - OFFSET MANAGEMENT PLAN (OES5)

0 5 10 20 KM

GDA94 MGA ZONE 56 1:525,000

N

THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. ONE ENVIRONMENT GROUP CANNOT ACCEPT REPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWING BY ANY THIRD PARTY.
SERVICE LAYER CREDITS: SOURCE: ESRI, VANTOR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY

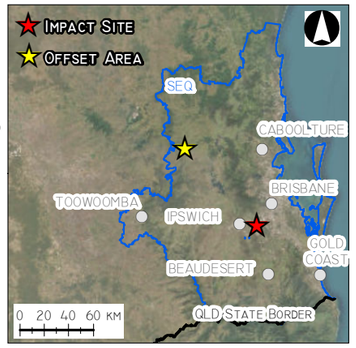
REFERENCES - © STATE OF QUEENSLAND, FEDERAL GOVERNMENT, 2026

LEGEND

- SEQ Regional Plan - Biodiversity Corridors
- Avonvale Station
- EPBC 2019/8575 Offset Area

Grey-headed Flying-fox Camp locations (Fed. Gov., 2025)

- Grey-headed Flying Fox roost inactive within recent surveys [6]
- Grey-headed Flying Fox roost active within recent surveys [4]
- Grey-headed Flying Fox roost active within recent surveys with a population level of 3 or above [2]
- Nationally significant Grey-headed Flying Fox roost active within recent surveys [0]
- Nationally significant Grey-headed Flying Fox roost active within recent surveys with a population level of 3 or above [2]
- Grey-headed Flying-fox Camp locations outside 50KM offset site buffer
- Grey-headed Flying-fox Observations (ALA, 2025)
- Potential Grey-headed Flying-fox habitat - Remnant & Regrowth
- 50km offset site buffer



ONE ENVIRONMENT

3.4. Swift Parrot Offset Values / Suitability

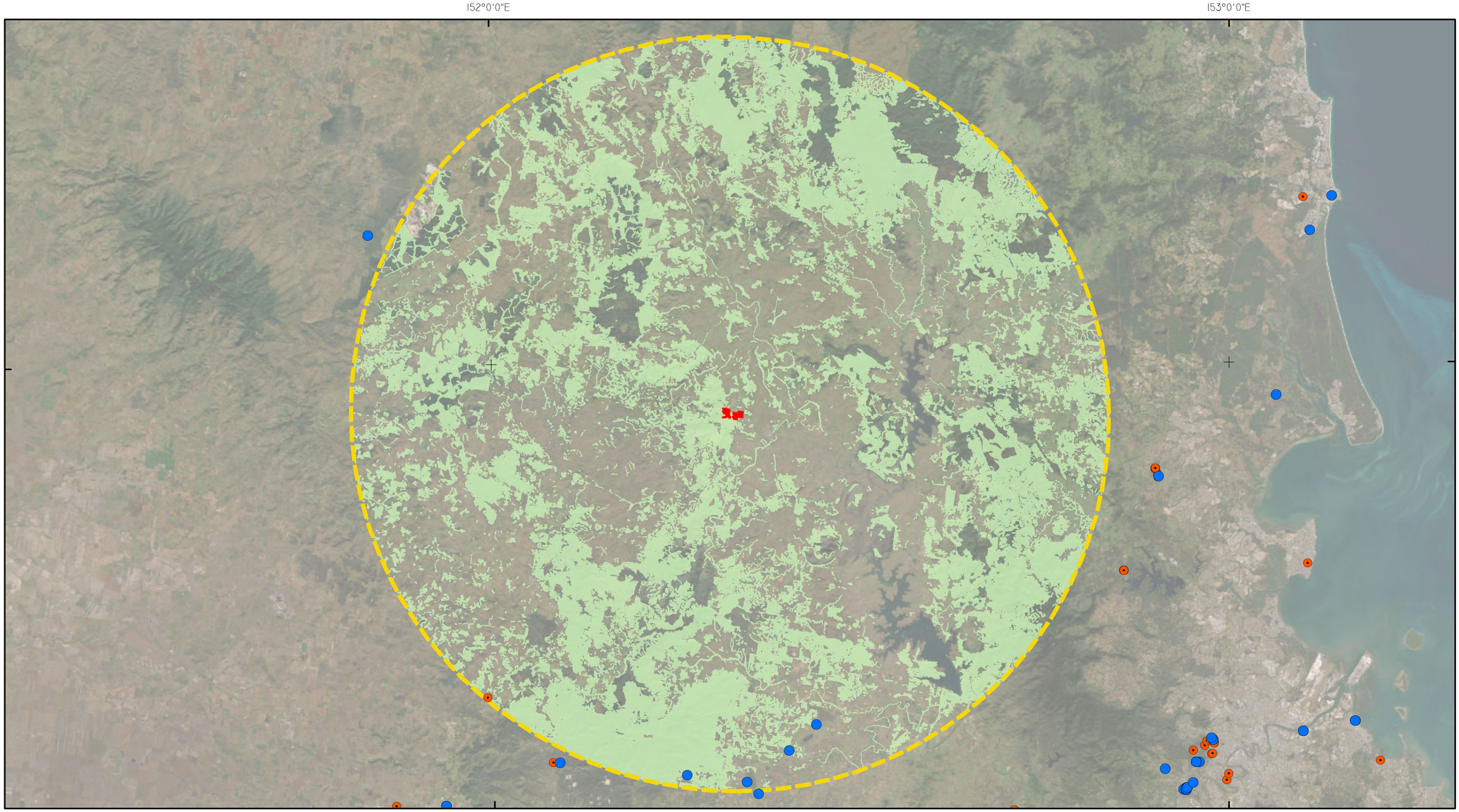
Swift Parrots are usually seen in small parties of up to 30 birds, or occasionally in flagger flocks (of several hundred birds) around sources of abundant food. Swift Parrots breed in Tasmania and then move to mainland Australia in Autumn for the non-breeding season. They feed preferentially in the largest trees available (Kennedy and Overs, 2001) and on psyllid lerps, seeds and fruit (Kennedy and Tzaros, 2005). Commonly used lerp infested trees include Inland Grey Box (*E. macrocarpa*), Grey Box (*E. moluccana*), Blackbutt (*E. pilularis*), and Yellow Box (*E. melliodora*). Preferred foraging tree species include winter flowering species such as Swamp Mahogany (*Eucalyptus robusta*), Spotted Gum (*Corymbia maculata* or *C. citriodora*), Red Bloodwood (*C. gummifera*), Forest Red Gum (*E. tereticornis*), Mugga Ironbark (*E. sideroxylon*), and White Box (*E. albens*) (DCCEEW, 2024).

The Regional Ecosystems containing preferred Swift Parrot forage tree species have been mapped and overlaid for the recorded areas of Swift Parrots in Queensland. A review of State vegetation mapping indicates that the pre-clear Regional Ecosystems mapped for the Offset Area (PLAN 5) include commonly used foraging species for the Swift Parrot, including *Eucalyptus tereticornis*. Due to historical clearing for agriculture activities, mature eucalypts are currently sparse within the Category X (non-remnant) vegetation areas located within the offset area.

No Swift Parrot populations or individuals have been recorded within 10 km of the offset area. A search of the Queensland Government WildNet and Atlas of Living Australia using a 10 km search radius from the referral area returned no records for the species. A review of Queensland Government WildNet records for the species identified four (4) records for the species within 50 km of the offset area. A habitat analysis combining potential habitat and records of this species is provided in PLAN 5.

Field surveys identified one preferred foraging species, *Eucalyptus tereticornis* (Forest Red Gum), scattered within the current open paddock offset area. Given the proposed reconstruction of Regional Ecosystems that support foraging species, and the highly mobile nature of the winter foraging Swift Parrot with records in the vicinity, the proposed offset is considered suitable to support the matter.

PLAN 5 - REGIONAL ECOSYSTEM HABITAT MAPPING AND SWIFT PARROT RECORDS



FILE NAME: OES_5 PLAN 5 SP CONTEXT V6
10/06/2026

AVONVALE STATION-
OFFSET MANAGEMENT PLAN (OES5)

0 1 2 4 6 8 10 12 14 16 18 20 KM

GDA94 MGA ZONE 56 1:500,000

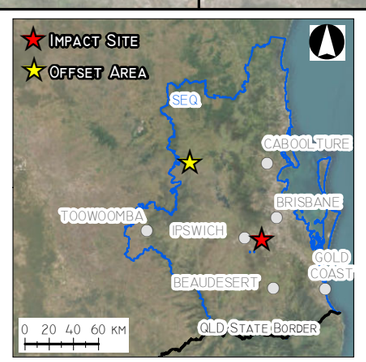
N

THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. ONE ENVIRONMENT GROUP CANNOT ACCEPT REPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWING BY ANY THIRD PARTY.
SERVICE LAYER CREDITS: SOURCE: ESRI, VANTOR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY

REFERENCES - © STATE OF QUEENSLAND, 2026

LEGEND

- EPBC 2019/8575 OFFSET AREA
- 50KM BUFFER FROM OFFSET SITE
- SWIFT PARROT - QLD WILDNET RECORDS, 2025 [4 WITHIN 50KM]
- SWIFT PARROT - ALA RECORDS, 2025 [6 WITHIN 50KM]
- SWIFT PARROT RE HABITAT



ONE ENVIRONMENT

3.5. Regent Honeyeater Offset Values / Suitability

The Regent Honeyeater is endemic to mainland south-eastern Australia. It has a patchy distribution which extends from south-east Queensland, through New South Wales and the Australian Capital Territory, to central Victoria. Records are widely distributed across its range, however, is only found regularly at a few localities in NSW and Victoria where most of the sightings have been recorded. There are four known key breeding areas, three in New South Wales and one in Victoria.

The species mostly inhabits inland slopes of the Great Dividing Range, in areas of low to moderate relief with moist, fertile soils. It is most commonly associated with box-ironbark eucalypt woodland and dry sclerophyll forest, but also inhabits riparian vegetation such as sheoak (*Casuarina* sp.) where it feeds on needle-leaved mistletoe and sometimes breeds. It sometimes utilises lowland coastal forest, which may act as a refuge when its usual habitat is affected by drought. It also uses a range of other habitats including remnant patches in farmland and urban areas, roadside reserves and travelling stock routes.

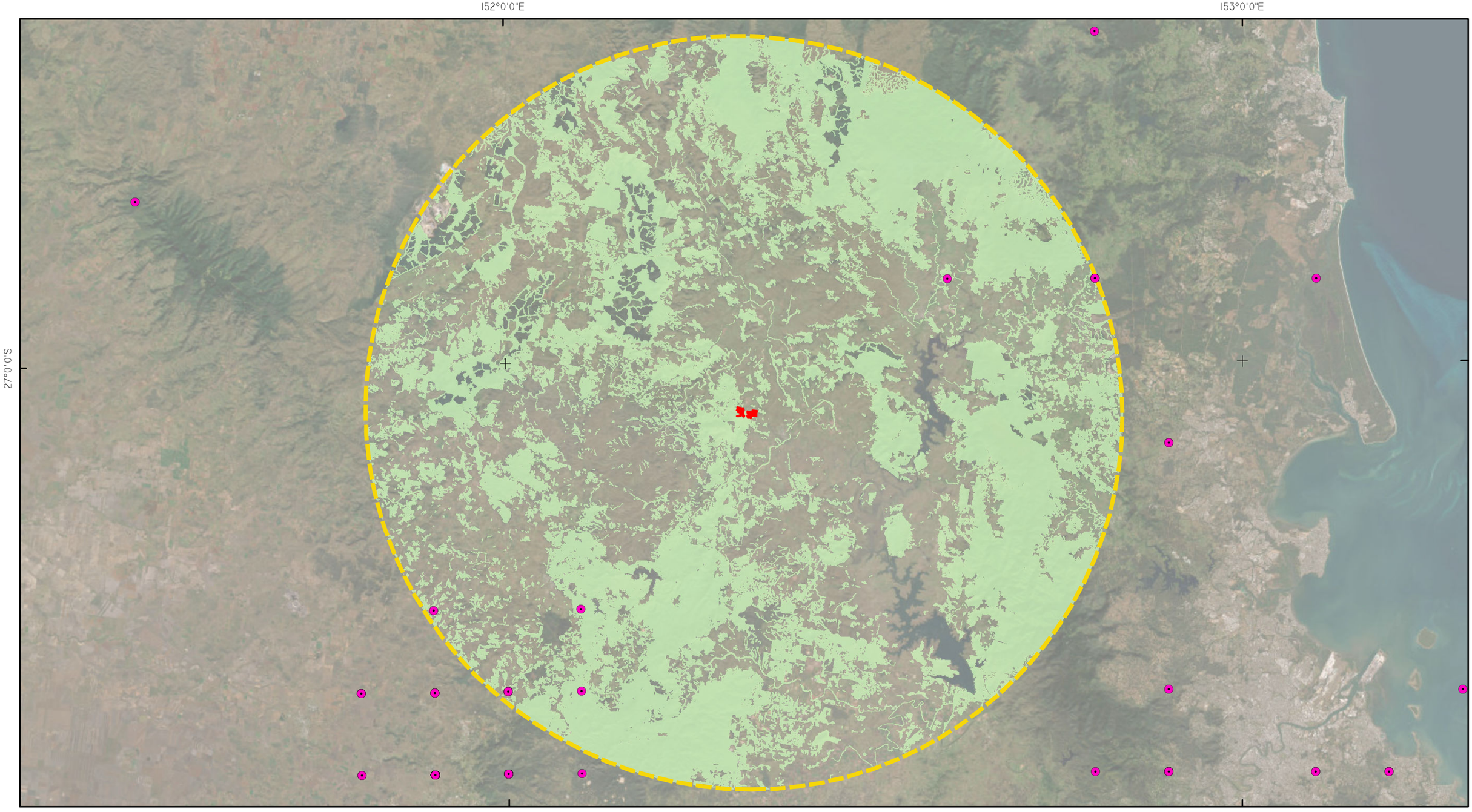
Like other species of honeyeater, the Regent Honeyeater utilises a variety of food resources. Its diet primarily consists of nectar, but also includes invertebrates (mostly insects) and their exudates (e.g. lerps and honeydew), and occasionally fruit. Its time spent foraging for nectar ranges from 10% to 90% depending on availability. Nectar is obtained chiefly from eucalypts and mistletoe, and Regent Honeyeaters appear reliant on select species which provide reliable nectar flows. Regent Honeyeaters prefer taller and larger diameter trees for foraging, as these typically produce more nectar (Franklin et al., 1989; Webster & Menkhorst 1992; Menkhorst et al., 1999; Oliver 2000). Preferred foraging tree species for the Regent Honeyeater include *Eucalyptus sideroxylon, Eucalyptus melliodora, Eucalyptus albens, Eucalyptus leucoxylon, Corymbia maculata/citriodora, Eucalyptus robusta*. Mistletoe species important for foraging include *Amyema cambagei*, *A. miquelii* and *Dendropthoe vitellina*.

A review of State vegetation mapping indicates that the pre-clear Regional Ecosystems mapped for the Offset Area (PLAN 6) include a wide variety of eucalypt foraging species that could be utilised by the Regent Honeyeater and also support their preferred Mistletoe foraging species including RE12.3.7. Due to historical clearing for agriculture activities, mature eucalypts are currently sparse within the Category X (non-remnant) vegetation areas located within the offset area.

No Regent Honeyeater populations or individuals have been recorded within 10 km of the offset area. A search of the Queensland Government WildNet and Atlas of Living Australia using a 10 km search radius from the offset area returned no records for the species. A review of Queensland Government WildNet records for the species identified four (4) records for the species within 50 km of the offset area indicating broader foraging patterns. A habitat analysis combining potential habitat and records of this species is provided in PLAN 6.

Given the proposed reconstruction of Regional Ecosystems that support foraging species, and the highly mobile nature of the winter foraging Regent Honeyeater with records in the vicinity, the proposed offset is considered suitable to support the matter.

PLAN 6 - REGIONAL ECOSYSTEM HABITAT MAPPING AND REGENT HONEY-EATER RECORDS



FILE NAME: OES_5 PLAN 6 RHE CONTEXT V6
10/06/2026

AVONVALE STATION-
OFFSET MANAGEMENT PLAN (OES5)

N

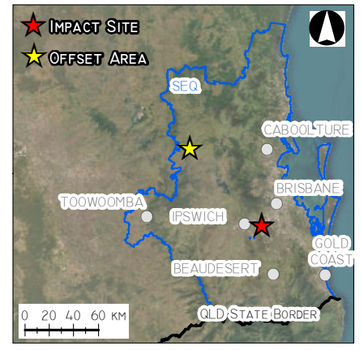
0 1 2 4 6 8 10 12 14 16 18 20 KM

GDA94 MGA ZONE 56 1:500,000

THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. ONE ENVIRONMENT GROUP CANNOT ACCEPT REPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWING BY ANY THIRD PARTY.
SERVICE LAYER CREDITS: SOURCE: ESRI, VANTOR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY
REFERENCES - © STATE OF QUEENSLAND, 2026

LEGEND

- EPBC 2019/8575 OFFSET AREA
- 50KM BUFFER FROM OFFSET SITE
- REGENT HONEY-EATER - QLD WILDNET RECORDS [0]*
  *RECORDS NOT PUBLISHED
- REGENT HONEY-EATER - ALA RECORDS, 2025 [7]**
  **RECORDS GENERALISED TO 10X10KM GRID
- REGENT HONEY-EATER RE HABITAT



ONE ENVIRONMENT

3.6. General Suitability EPBC Offset Policy Criteria

The following Table outlines the general suitability of the offset site relative to EPBC Act Offset Policy criteria.

Table 4: Offset Area (General Suitability)

No.	Offset Suitability Criteria	Avonvale Offset Area
1	*Deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed action*	The Offset Area delivers a conservation gain for the Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater through: a) The creation of new habitat for both protected matters through the revegetation of 168 ha. The revegetation is to consist of a variety of foraging species known to be utilised by the targeted species including preferred foraging tree species for the Swift Parrot and Regent Honeyeater (*Eucalyptus tereticornis* and *Eucalyptus sideroxylon*), along with other endemic species occurring on-site and consistent with the pre-clear Regional Ecosystem. Combined with the adjoining approved offset area on the landholding to form a total conservation area of 1,359.30 ha of land. b) Providing new connectivity with surrounding habitat for the protected matters. c) Providing new connectivity to the approved EPBC 2015/7530, EPBC 2015/7609, EPBC 2018/8347 and EPBC 2021/8975 offsets. d) Introducing, funding and continually improving Offset Area Management Actions to reduce and manage threats (non-native feral animals, weeds) in protected and created habitat areas. e) Averting the direct and indirect losses via legally securing the land via a suitable mechanism being a Voluntary Declaration area under the *Vegetation Management Act 1999* and a permanent legal securement mechanism approved by the Land Holder and the Department. This removes future wholesale and selective clearing opportunities and through the management plan removes ongoing impacts caused by livestock intrusion into habitat areas. f) Provides a 168 ha environmental offset within a regional mapped biodiversity conservation corridor. Through the achievement of the above, the proposed offset meets the conservation gains listed in the relevant conservation advices and recovery plans for each MNES.
2	*be built around direct offsets but may include other compensatory measures*	The Offset Area includes legally securing the land area and undertaking necessary improvements to achieve the balance offset requirements calculated for the Springfield Residential Development. This offset relates to impacts to the Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater habitat. This portion of the project's Offset Area is wholly achieved through direct delivery to land.
3	*be in proportion to the level of statutory protection that applies to the protected matter*	At the time of the EPBC referral, the Koala and Grey-headed Flying-fox were listed under the EPBC Act as 'Vulnerable.' Under the International Union for Conservation of Nature data the probability of annual extinction is 0.2. The Swift Parrot and regent Honeyeater are listed under the EPBC Act as 'Critically Endangered.' Under the International Union for Conservation of Nature data the

No.	Offset Suitability Criteria	Avonvale Offset Area
		probability of annual extinction is 0.2 for Vulnerable species and 6.8 for Critically Endangered species. These factors apply through the meta data of the Offset Guide assessment calculation sheets for which each species has been assessed as achieving the balance offset.
4	*be of a size and scale proportionate to the residual impacts on the protected matter*	Direct and indirect impacts for the protected matters have been calculated at the impacts site using the Modified Habitat Quality Assessment (MHQA) for the Koala and the Foraging Habitat Assessment (FHA) methods for Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater. Within the Assessment Guide calculator the Quantum Impact for each species is listed as: – Koala (89.60 QI ha) – Grey-headed Flying-fox (89.60 QI ha) – Swift Parrot (9,983 habitat features impacted) – Regent Honeyeater (9,868 habitat features impacted) To achieve the balance offset required for these impacts, the Offset Area provides a direct land-based outcome over 168 ha entirely through habitat recreation activities on historically cleared land devoid of native vegetation. The percentage of the impacts acquitted through this offset is: – Koala – 31.27% – Grey-headed Flying-fox – 60.59% – Swift Parrot – 53.49% – Regent Honeyeater – 12.07%
5	*effectively account for and manage the risks of the offset not succeeding*	The Offset Area forms part of the balance land of the approved EPBC 2015/7530, EPBC 2015/7609, EPBC 2018/8347 and EPBC 2021/8975 offset solutions, which comprises a direct large singular land-based outcome in a strategic location known to support habitat for animals from the impacted protected matters. This Offset Area Management Plan identifies 8 key risks to some or all of the offset principles and outcomes not being achieved. Each of these risks have influenced the specific management actions proposed in the relevant Environmental Management Zone where the risk may occur and more importantly the monitoring, measuring of success and adaptive management for the offset succeeding. Further, the offset provider has engaged third party, suitably qualified professionals to ensure that the management outcomes of the offset land are achieved and risk of the offset not succeeding is mitigated. Repetitive monitoring and survey replication is a feature of the Offset Area Management Plan to ensure adaptive management changes are made as soon as identified and throughout the life of the offset.
6	*be additional to what is already required, determined by law or planning regulations or agreed*	The Springfield Residential Development is located within the Springfield Structure Plan area declared by the State Government as a priority area for development therefore offsets under the Queensland Government's Environmental Offset Act 2014 are not applicable.

No.	Offset Suitability Criteria	Avonvale Offset Area
	to under other schemes or programs	Therefore, without the triggering of the EPBC Act and subsequent requirement to obtain approval, the offset as proposed in the Offset Area Management Plan is not required for any of the protected matters under State or Local legislation. Additionally, the offset area would not be protected in perpetuity for conservation purposes.
7	*be efficient, effective, timely, transparent, scientifically*	The commercial agreement between the Proponent and Offset Provider ensures the offset area will be legally secured prior to the commencement of any clearing on the Impact site. The Offset Area will be legally secured through a suitable mechanism being a Voluntary Declaration (VDEC) under the Queensland *Vegetation Management Act 1999* and a permanent legal securement mechanism approved by the Land Holder and the Department. The means of legally securing the land protects the land and values and is binding on future owners. The declaration and management plan will be noted on the land title, which informs prospective buyers of current declarations and management plans and where copies are available. This information is important to the property market as future owners will be bound by the plan and declaration. The legally securing of the land will be made through declaring the area as having High Nature Conservation Values. The VDEC will be lodged with evidence of encumbrance on Registered Land Title obtained prior to the commencement of any clearing works at the proposed action site. Four offset areas secured via a VDEC are already existing within the broader offset landholding attributed to the approved EPBC offsets, and are searchable on title and through the Queensland Government's spatial databases. The OAMP schedules a list of existing or specifically designed scientific methodologies for the measuring of base line and improved outcomes for the protected matters. Detailed baseline studies have occurred over the approved offset area and are used to inform the outcomes of this version of the OAMP. The OAMP also requires the use of tertiary trained and experienced experts along with appropriately certified and experienced contractors for the implementation of a host of actions.
8	*have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced*	The Offset Area is owned by the Offset Provider and while small areas are currently retained for cattle grazing the majority of the landholding is transitioning to habitat offsets and conservation outcomes. Clearly articulated goals are set within this Offset Area Management Plan for each proposed action within each Assessment Unit or Environmental Management Zone. Collectively, these goals link directly to the achievement of the overall conservation gain for the protected matters as designed, assessed and calculated through the selection and delivery of the Offset Area. The Offset Land Management Actions located at Section 7.0 of the OAMP are designed to be measured, monitored, audited and enforced year upon year during the life of the offset.

4. Environmental Outcomes

This OAMP identifies outcomes focused management actions pursuant the EPBC Act, for the provision of Koala (*Phascolarctos cinereus*), Grey-headed Flying-fox (*Pteropus poliocephalus*), Swift Parrot (*Lathamus discolor*) and Regent Honeyeater (*Anthochaera phrygia*) habitat offset. The management objectives for the offset area, in alignment with the Environmental Offsets Policy (EOP) will:

- Deliver an overall conservation outcome that improves the viability of habitat for the Koala, GHFF, Swift Parrot and Regent Honeyeater.
- Provide a direct offset that is in proportion to the level of statutory protection that applies to Koala, GHFF, Swift Parrot and Regent Honeyeater.
- Be of a size and scale proportionate to the residual impacts on Koala, GHFF, Swift Parrot and Regent Honeyeater.
- Effectively account for and manage the risks of the offset not being successful within the required management timeframe.
- Provide a conservation gain additional to what is already required by a duty of care or to any environmental planning laws at any level of Government.
- Be efficient, effective, timely, transparent, scientifically robust and reasonable with appropriate transparent governance arrangements in place for measuring, monitoring, auditing and enforcing the management of the offset area.

The MHQA baseline scores and proposed Environmental Outcomes including interim milestone targets for each MNES over the 20-year offset period are provided at APPENDIX A for Koala and Grey-headed Flying-fox, and TABLES 10 and 11 for Swift Parrot and Regent Honeyeater.

4.1. Completion Criteria

The management framework designed to achieve the proposed environmental outcomes summarised above are detailed in SECTION 7 of this OAMP.

A summary of the management actions and their completion criteria required to achieve the environmental outcomes are provided in TABLE 5. The management actions will result in a net gain of the overall habitat quality for koala, grey-headed flying-fox, swift parrot and regent honeyeater over the period of effect of the offset through active management, maintenance, monitoring and reporting.

This OAMP includes completion criteria and performance targets that evidence protection or improvement of koala and grey-headed flying-fox habitat. For the purpose of the plan:

a) **completion criteria** are longer term time-bound values, specified for measurable parameters, that if attained and maintained ensure the plan's environmental outcomes are achieved; and

b) **performance targets** are time-bound short- and medium-term targets guided by prescribed management measures, for management interventions and environmental condition, that are used to monitor, evaluate, review and improve the effectiveness of the plan to offset impacts.

Tracking of progress against the environmental outcomes will be measured at milestone monitoring years using the baseline survey methodologies detailed in SECTION 5. A schedule of monitoring and reporting is provided in SECTION **ERROR! REFERENCE SOURCE NOT FOUND.**.

Table 5: Completion Criteria and Performance Targets

Management Action	OAMP Section	Performance Targets	Completion criteria
N/A **Legally Secure Offset Area**	1.6	– The offset area is legally secured via the Voluntary Declaration (VDEC) process administered under the Queensland *Vegetation Management Act 1999* prior to any clearing occurring at the impact site.	– The offset area will be permanently secured via a legal mechanism that is approved by the Land Holder and the Department. Draft terms of the permanent legal mechanism to be submitted for approval within 18 months of commencement of the action. Within 12 months of approval of the draft terms the offset site must be permanently secured.
Management Action 1 – Vertebrate Pest Management	7.1	– Implementation of a property wide feral animal management program and adaptive management specifying techniques (trapping, baiting, shooting) and ongoing monitoring methods (including datasheets) to be utilised from the legal securement of the Offset Area. – A suitably qualified pest management contractor is engaged to manage pests within the offset area for the life of the offset (20 years).	– Injury or death of MNES from non-native predator attacks within the offset area is reduced where possible. – Non-native vertebrate pests and evidence of pests are suppressed within the offset area for the life of the offset (20 years).
Management Action 2 –Weeds of National Significance Management	7.2	– All WONS will receive initial treatment within Year 1 of the offset to allow for planting works to commence. – Follow-up treatment of WONS will occur annually or as needed, determined by the suitably qualified regeneration contractor.	– The management actions must reduce the extent of or maintain WONS weed cover below 5% of the offset area by the end of Year 10 and be maintained for the life of the offset (20 years).

Management Action	OAMP Section	Performance Targets	Completion criteria
Management Action 3 – Stock Management	7.3	– Fencing in accordance with the Indicative Offset Area Fencing Plan will be completed by end of Year 1.	– Nil stock breaches into offset area from years 2-20 (post completion of all fencing). – No reporting of stock impacts as justification for not achieving environmental outcomes and interim milestone targets.
Management Action 4 – Access Management	7.4	– Fencing in accordance with the Indicative Offset Area Fencing Plan will be completed by end of Year 1. – Access gates and signage to be installed by end of Year 1.	– Nil stock breaches into offset area from years 2-20 (post completion of all fencing). – No reporting of stock impacts as justification for not achieving environmental outcomes and interim milestone targets.
Management Action 5 – Wildlife Management	7.5	– Firebreak infrastructure is installed and maintained during Year 1. – Develop Offset Area Wildfire Management Plan by end of Year 4 once revegetation has progressed and implement for the life of the offset (20 years).	– No record of high intensity fires in the offset area. – No record of MNES injury or death from fire. – Vegetation composition and restoration regime is not negatively affected by prescribed fire regimes.
Management Action 6 – Native Seed Collection and Propagation	7.6	– Establish on-site seed propagation nursery during Year 1.	– Complete seed collection program and propagation by the end of Year 2.
Management Action 7 – Habitat Creation and Regeneration	7.7	– Complete site preparation works and set up photo monitoring locations in Years 1-2. – Offset area planting commence in Year 2 and completed by the end of Year 3 of the offset. – The RMP will be implemented (APPENDIX G).	– Rehabilitated areas are established, regenerated and mapped as remnant vegetation under Queensland's VMA successor legislation by year 20 which requires 70% of canopy height and 50% of expected cover according to the relevant Regional Ecosystem benchmark to be reached.

Management Action	OAMP Section	Performance Targets	Completion criteria
			– Site condition metrics for Koala and Grey-headed Flying-fox improves in accordance with environmental outcomes (see TABLES 8 to 11 and APPENDIX A). – Planting density of non-juvenile preferred foraging trees for Swift Parrot and Regent Honeyeater proposed in SECTION 5.2 are achieved by Year 20.
Management Action 8 – Infrastructure Improvement	7.8	– Fauna friendly boundary fencing is installed and retrofitted by the end of Year 1 of the offset and maintained for the life of the offset (20 years). – Unnecessary internal barbed wire fencing is removed by the end of Year 1.	– There are no mortalities or injury to Koala or Grey-headed Flying-fox recorded as a result of barbed-wire fencing.

4.2. Offset Assessment Guide – Impact Compensation

OAG Parameters

The habitat scores derived for the offset area have been used to assess whether the proposed offset property could be viewed as suitable in respect to meeting the offset obligation for the proposed action, using the Commonwealth's Offset Assessment Guide calculator. Values for the other parameters used in the calculator for Koala and Grey-headed Flying-fox are summarised in TABLE 6 and TABLE 7 for the Swift Parrot and Regent Honeyeater.

Table 6: Offset Assessment Guide Parameters – Koala and Grey-headed Flying-fox

Parameter	Rationale
Quantum of Impact (Area)	89.60 ha for Koala and 89.60 ha for Grey-headed Flying-Fox.
Quantum of Impact (Quality)	A score of 7 for Koala and 7 for Grey-headed Flying-fox.
Risk Related Time Horizon	The proposed offset area will be legally secured in perpetuity; hence, the maximum score of 20 years.
Time Until Ecological Benefit	Measures prescribed in this Offset Area Management Plan are expected to achieve the predicted increase in habitat quality over a period of 20 years.
Start Area	168 ha
Start Quality	Refer **Table 8** and **Table 9.**
Risk of Loss without Offset	It is understood risk of loss is to be set at 0% without any comprehensive evidence to the contrary.
Risk of Loss with Offset	It is understood risk of loss is to be set at 0% without any comprehensive evidence to the contrary.
Confidence in Result (Risk of Loss)	As risk of loss is set at 0%, a high score of 90% is used for confidence in result.
Future Quality without Offset	Existing habitat quality is expected to be maintained if the current land use / management regime is continued, Under management for grazing over 20 years and without the offset, current habitat quality for Koala and Grey-headed Flying-fox is unlikely to improve, and some attributes may deteriorate where regrowth is subject to periodic clearing for cattle grazing and/or maintenance/fire regimes that are not compatible with ecosystem improvement are employed. Refer **Table 8** and **Table 9.**
Future Quality with Offset	Refer **Table 8** and **Table 9.**
Confidence in Result (Future Quality)	75% for non-remnant AUs (1 and 2) and 85% for remnant and regrowth AUs (3, 4 and 5).

Table 7: Offset Assessment Guide Parameters – Swift Parrot and Regent Honeyeater

Parameter	Rationale
Quantum of Impact	9,983 habitat features for Swift Parrot and 9,868 habitat features for Regent Honeyeater
Risk Related Time Horizon	The proposed offset area will be legally secured in perpetuity; hence, the maximum score of 20 years.
Start Value	Refer **Table 10** and **Table 11.**
Future Value Without Offset	Existing habitat quality is expected to be maintained if the current land use / management regime is continued. Under management for grazing over 20 years and without the offset, current habitat quality for Swift Parrot and Regent Honeyeater is unlikely to improve, and some attributes may deteriorate where regrowth is subject to periodic clearing for cattle grazing and/or maintenance/fire regimes that are not compatible with ecosystem improvement are employed. Refer **Table 10** and **Table 11.**
Future Value With Offset	Refer **Table 10** and **Table 11**
Confidence in Result (Future Quality)	75% across all AUs.

Impact compensation and scoring uplift

A summary of proposed habitat quality uplift and the EPBC Act offset assessment guide impact compensation are included in TABLE 8 to TABLE 11, below. This is considered additional to the Proponent offset areas (Mount Walker West offset area and Esk Landholding offset area). The completed EPBC Act offset assessment guide calculator sheets are included at APPENDIX B.

Table 8: Koala impact compensation and scoring uplift

Assessment Unit	Area (ha)	Habitat Quality Score		Offset Acquittal
		Baseline (rounded score)	Future (rounded score)	
AU1	46.6	4.33 (4)	7.16 (7)	11.9%
AU2	17.9	3.30 (3)	6.95 (7)	5.76%
AU3	2	5.70 (6)	7.16 (7)	0.18%
AU4	86.8	4.96 (5)	7.16 (7)	13.96%
AU5	11	6.79 (7)	7.31 (7)	0%
AU6	3.7	6.17 (6)	7.16 (7)	0.34
Total	**168**			**32.14%**

Table 9: Grey-headed Flying-fox impact compensation and scoring uplift

Assessment Unit	Area (ha)	Habitat Quality Score		Offset Acquittal
		Baseline (rounded score)	Future (rounded score)	
AU1	46.6	3.27 (3)	7.32 (7)	14.99%
AU2	17.9	2.52 (3)	7.12 (7)	7.20%
AU3	2	4.10 (4)	6.32 (6)	0.36%
AU4	86.8	3.20 (3)	7.52 (8)	34.91%
AU5	11	4.60 (5)	7.52 (8)	3.01%
AU6	3.7	6.32 (6)	7.32 (7)	0.34%
Total	**168**			**60.81%**

Table 10: Swift Parrot impact compensation

Assessment Unit	Area (ha)	Start value	Future value without offset	Future value with offset	Impact compensation
AU1	46.6	0	0	9,320	18.78%
AU2	17.9	0	0	7,160	14.43%
AU3	2	30	30	34	0.01%
AU4	86.8	109	109	10,441	20.82%
AU5	11	0	0	264	0.53%
AU6	3.7	0	0	7	0.01
Total	**168**				**54.57%**

Note:
Start value inputted as the existing number of non-juvenile preferred foraging trees
Future value without offset inputted as the existing number of non-juvenile preferred foraging trees
Future value with offset inputted as net total of preferred foraging trees (*i.e.,* number to be planted + number of existing) inclusive of an 80% survival rate of preferred foraging trees planted

Table 11: Regent Honeyeater impact compensation

Assessment Unit	Area (ha)	Start value	Future value without offset	Future value with offset	Impact compensation
AU1	46.6	0	0	5,596	11.41%
AU2	17.9	0	0	0	0%
AU3	2	0	0	0	0%
AU4	86.8	0	0	0	0%
AU5	11	0	0	0	0%
AU6	3.7	0	0	4	0.01%
Total	**168**				**11.42%**

Note:
Start value inputted as the existing number of non-juvenile preferred foraging trees
Future value without offset inputted as the existing number of non-juvenile preferred foraging trees
Future value with offset inputted as net total of preferred foraging trees (*i.e.,* number to be planted + number of existing) inclusive of an 80% survival rate of preferred foraging trees planted

5. Baseline surveys

Baseline surveys including habitat quality, seasonal abundance of feral animals and extent of weed cover were completed across the Offset Area. Baseline data incorporates data across the broader offset property where available. The methodology and results are included in the following subsections. Baseline surveys were completed by suitably qualified professionals (refer APPENDIX C for CVs).

Refer to TABLE 12 and the subsections below for specific details on survey dates for each method applied.

Table 12: Offset area baseline field surveys methods summary

Date	Temperature	Rainfall	Methods implemented
12 February 2023	17.4°C min – 40.8°C max	0 mm	Tranche 1 cameras – installation
27 February 2023	16.2°C min – 34.0°C max	0 mm	Tranche 1 cameras – collection
8 June 2023	9.3°C min – 22.1°C max	0 mm	Tranche 2 cameras – installation
3 July 2023	10.6°C min – 20.3°C max	0 mm	Tranche 2 cameras – collection
18 July 2023	10.6°C min – 20.9°C max	0 mm	Tranche 3 cameras – installation
26 September 2023	6.9°C min – 28.7°C max	0 mm	Tranche 3 cameras – collection
4 October 2023	13.7°C min – 31.1°C max	0 mm	Tranche 4 cameras – installation
3 December 2023	17.4°C min – 34.1°C max	0 mm (day preceding was 18 mm)	Tranche 4 cameras – collection
22 February 2024	19.9°C min – 32.7°C max	0 mm	MHQA transects, SAT surveys
23 February 2024	21.4°C min – 34.0°C max	0 mm	MHQA transects, SAT surveys
27 February 2024	22.2°C min – 32.0°C max	0 mm	Tree plot of large trees
28 February 2024	19.3°C min – 31.6°C max	0 mm	Tree plot of large trees
14 June 2024	2.0°C min – 22.0°C max	0 mm	Tranche 5 cameras – installation
19 June 2024	4.9°C min – 21.6°C max	0 mm	Tranche 5 cameras – collection
20 June 2024	5.1°C min – 21.2°C max	0 mm	Tranche 6 cameras – installation
17 September 2024	4.7°C min – 24.9°C max	0 mm	Tranche 6 cameras – collection
4 December 2024	20.6°C min – 30.7°C max	0 mm	Tranche 7 cameras – installation, MHQA transects, weed mapping,
5 December 2024	23.3°C min – 31.9°C max	0 mm	MHQA transects, weed mapping
10 January 2025	20.2°C min – 28.1°C max	22.0 mm	Tranche 7 cameras – collection

Source: Bureau of Meteorology station 040082 University of Queensland Gatton (Temperature) and 040823 Rosentreters Bridge TM (Rainfall).

5.1. Methodology

Baseline surveys were completed to assess the quality of habitat for each of the MNES required to be offset by the action, including the Koala, Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater.

Koala – Modified Habitat Quality Assessment

To determine the quantum impact and quality of the habitat suitable for koala on-site, vegetation / habitat quality was derived from the Modified Habitat Quality Assessment (MHQA) tool. This assessment approach utilises the Queensland *Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy* (version 1.2) and Queensland *BioCondition Assessment* method combined with site context and species stocking rate assessments to determine the habitat quality of the referral area.

A total of fourteen (14) MHQA transects were completed across the offset area within the delineated assessment units (refer PLAN 7).

The following section details the methodology utilised to assess the site condition, site context and species stocking rate under the MHQA.

Site Condition (30 %)

Assessing site condition is an integral step in determining specific quantification of impacts, while also determining whether an offset site is suitable to establish a desired capacity to support the prescribed environmental matters being offset. The on-site condition is a key element of habitat quality and has a direct influence on the biodiversity it supports. Site condition is assessed using a suite of attributes to describe the structure and function of the vegetation community and is benchmarked against the expected range for a relatively undisturbed community.

The site condition assessment under the MHQA is assessed using 15 condition characteristics. Each condition characteristic and the relevant scoring and benchmark percentage is provided in TABLE 13.

Table 13: Koala site condition scoring attributes (BioCondition Manual)

Site condition attribute	Scoring and benchmark percentage				
(1) Recruitment of woody perennial species in ecologically dominant layer in EDL*	Score	0	3		5
	Benchmark	<20%	≥20-75%		≥75%
(2) Native plant species richness – trees	Score	0	2.5		5
	Benchmark	<25%	≥25-90%		≥90%
(3) Native plant species richness – shrubs	Score	0	2.5		5
	Benchmark	<25%	≥25-90%		≥90%
(4) Native plant species richness – grasses	Score	0	2.5		5
	Benchmark	<25%	≥25-90%		≥90%
(5) Native plant species richness – forbs	Score	0	2.5		5
	Benchmark	<25%	≥25-90%		≥90%
(6) Tree canopy height	Score	0	3		5
	Benchmark	<25%	≥25-70%		≥70%
(7) Tree canopy cover	Score	0	2	3	5
	Benchmark	<10%	≥10%-<50%	≥200%	≥50-200%
(8) Shrub canopy cover	Score	0	3		5
	Benchmark	<10%	≥10%-<50% or ≥200%		≥50-<200%

Site condition attribute	Scoring and benchmark percentage				
(9) Native perennial grass cover	Score	0	1	3	5
	Benchmark	<10%	≥10-50%	≥50-90%	≥90%
(10) Organic litter	Score	0	3		5
	Benchmark	<10%	≥10%-50% or ≥200%		≥50-<200%
(11) Large trees	Score	0	5	10	15
	Benchmark	0%	0-50%	≥50-100%	≥100%
(12) Coarse woody debris	Score	0	2		5
	Benchmark	<10%	<50% or ≥200%		≥50% or <200%
(13) Non-native plant cover	Score	0	3	5	10
	Benchmark	>50%	≥25-50%	≥5-25%	<5%
(14) Quality and availability of food and foraging habitat	Score	1	5		10
	Benchmark	<33%	33-66%		>66%
(15) Quality and availability of shelter	Score	1	5		10
	Benchmark	<33%	33-66%		>66%

Assessment methodology of the above condition characteristics mostly do not differ from the traditional terrestrial habitat quality assessment. In developing the MHQA to better incorporate MNES, two (2) species habitat index characteristics, being (1) 'quality and availability of food and foraging habitat', and (2) 'quality and availability of shelter', have been added to the site condition indicator.

The two Koala habitat index attributes are based on relevant site condition attributes that are considered to contribute to quality and availability of food and foraging habitat and quality and availability and shelter. The following six site condition attributes are utilised

- (1) Recruitment of woody perennial species in ecologically dominant layer in EDL
- (2) Native plant species richness – trees
- (6) Tree canopy height
- (7) Tree canopy cover
- (8) Shrub canopy cover
- (11) Large trees

For vegetation communities considered as Koala habitat (*i.e.,* those containing *Eucalyptus*, *Corymbia*, *Angophora*, *Melaleuca*, or *Lophostemon* as part of the EDL), these attributes are all considered relevant to this scoring metric as each attribute contributes directly to the availability of foraging and shelter habitat.

Under the Habitat Quality Guideline from which these attributes are derived, each attribute is weighted equally, out of a score of 5, with the exception of 'large trees' which contributes a maximum score of 15. For the purpose of scoring the quality and availability of food and foraging habitat and quality and availability of shelter, the above attributes are proposed to be weighted equally based on relative value to the Koala. The widely used minimum threshold for a Koala foraging tree is a 'non-juvenile' tree (*i.e.,* ≥100mm DBH). As non-juvenile Koala foraging trees are considered a foraging resource, large trees relative to the benchmark are not necessarily considered to provide greater habitat value than attributes such as 'canopy height' and 'native plant species richness – trees.' Therefore, an equal weighting has been applied to all six attributes as there is considered lack of evidence to suggest a higher weighting of any attribute relative to the value it provides for Koala specifically.

A total weighted score out of 100 is achieved utilising an equally weighted score of the above attributes. Based on the overall weighted score, a score for 'quality and availability of food and foraging habitat' and 'quality and availability and shelter' is then scored as follows:

- <33 = 1
- 33 – 66 = 5
- >66 = 10

Site Context (30 %)

The site context assessment considers the landscape characteristics adjoining the site. Site context is measured using a suite of attributes to describe the location of the habitat within the surrounding landscape and the influence of its associated threats. This assessment also considers the influence of adjacent vegetated areas and ecological corridors. Under the MHQA, site context is measured using seven characteristics. In developing the MHQA, three species habitat index characteristics were nominated to form part of the site context characteristics: role of site location to overall species population in the state, threats to the species, and species mobility capacity. The seven characteristics are listed below with details of how each are measured in accordance with the *Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy* (version 1.2).

- Size of patch – measured as the area of vegetation in which the assessment unit(s) is contained, and add on all other directly connecting areas of koala habitat (refer PLAN 8).
- Connectedness – measured as the length koala habitat along the boundary of the site, calculated as a percentage (refer PLAN 8).
- Context – measured as the percentage of koala habitat within a 1 km radius of the site (refer PLAN 8
- Ecological corridors – determine the proximity of the site to state, bioregional, regional or sub-regional corridors (terrestrial or riparian). An 'ecological corridor' is represented as any 'Riparian' or 'Terrestrial' feature within the 'CORR_TYPE' attribute table of the 'Queensland biodiversity and vegetation offsets special features' map (refer PLAN 3).
- Role of site location to species overall population in the state – scored as the observed role of the site in relation to the overall population of the species considering the effect that damage to or removal of the site would have to the likelihood of overall population survival.
- Threats to the species – scored based on the number and severity of threatening processes observed at or adjacent to the site which may include clearing associated with development, creation of a barrier to movement, introduction or spread of disease or pathogens, risk of high-intensity fires, degradation of habitat from hydrological change and introducing or increasing mortality attributed to vehicle strike or dog attacks.
- Species mobility capacity – scored based on the presence and severity of factors that would contribute to a reduction in the mobility of the species such as barriers that would result in a long-term reduction in genetic fitness or access to important resources.

Unlike the traditional habitat quality assessment methodology where site connectedness is assessed against the surrounding remnant vegetation only, the MHQA size of patch, site connectedness and site context is assessed against identified koala habitat.

Koala habitat within the landscape is based on the mapping of Category B (remnant) and Category C (high value regrowth) vegetation containing suitable regional ecosystems to support the koala identified by the Queensland Herbarium. While remnant and regrowth eucalypt forest vegetation is critical habitat for koala, koalas are capable of utilising areas containing non-remnant vegetation or high value regrowth vegetation that does not yet achieve remnant status. Areas of Category X (non-remnant) areas identified as dispersal habitat are also included in the koala habitat mapping which are mapped using GIS. Therefore, site context under the MHQA accounts for broad koala habitat values rather only remnant vegetation as

traditionally applied under the *Guide to determining terrestrial habitat quality*. Scoring attributes extracted from the Habitat Quality Guideline are provided in TABLE 14.

Table 14: Koala site context scoring attributes

Site context attribute	Scoring and benchmark percentage				
Size of patch	0	2	5	7	10
	<5 ha	5-25 ha	26-100 ha	101-200 ha	>200 ha
Connectedness	0	2	4		5
	0-10%	>10-<50%	50-75%		>75% or >500 ha
Context	0	2	4		5
	<10% habitat	>10-30% habitat	>30-75% habitat		>75% habitat
Ecological corridors	0	4	6		
	Not within	Sharing a common boundary	Within (whole or part)		
Role of the site location to species overall population in the state	1	4	5		
	Not or unlikely to be critical to survival of the koala	Likely to be critical to survival of the koala	Critical to the survival of the koala		
Threats to the species	1	7	15		
	High threat level	Moderate threat level	Low threat level		
Species mobility capacity	1	4	7	10	
	Severely restricted (76-100% reduction)	High restricted (51-75% reduction)	Moderately restricted (26-50% reduction)	Minor restriction (0-25% reduction)	

Species Stocking Rate (40 %)

The MHQA incorporates species stocking rate as an attribute not discussed under the traditional terrestrial habitat assessment methodology. Species stocking rates are estimates of the koala carrying capacity of the site at the time of undertaking the survey. Given the discreet nature of the koala and limited to no published literature on habitat carrying capacity of the species, the species stocking rate scoring methodology has been derived through the collation of site-specific surveys and surrounding contextual habitat analysis. Species stocking rate is calculated using the following parameters:

- Species presence on or adjacent to the site – whether or not evidence of koala has been recorded within or adjoining the site. Evidence may be direct in the form of observation of koalas, or indirect via the presence of scats.
- Species usage of the site (habitat type and evidenced usage) – the type of habitat includes vegetation structure such as whether it contains remnant, regrowth or non-remnant vegetation values, and evidenced usage is the confirmed presence or use of the species within the habitat. Both factors are used to inform the species usage of the site. Depending on the level of variability in vegetation and usage patterns across the site, this characteristic may be scored differently for assessment units.
- Approximate density of the species on the site – measured through the use of Spot Assessment Technique (SAT) (Phillips *et al.* 2011) and targeted searches with a high probability of detection, including UAV drone surveys. The

combination of methods produces a higher reliability of data when extrapolating koala density. The SAT method is an industry recognised technique for identifying presence/absence of koala and measuring activity. SAT survey results are interpreted using the broad population categories provided in the Australian Koala Foundation Koala activity level classification table to infer an activity level or approximate density. These categories being 'East Coast (low)', 'East Coast (med-high)' and 'Western (med-high)' are shown in TABLE 15. Depending on the population category applied, koala activity is described as 'low', 'moderate', or 'high'.

- Role/importance of species population on site – the extent to which the site is considered a key source population for breeding, dispersal, is necessary for maintaining genetic diversity or near the limit of the species range.

Table 15: Koala Activity Level Classification (Phillips and Callaghan 2011)

Activity	East Coast (low)	East Coast (med-high)	Western (med-high)
Low	<3.33%	<22.5%	<35.8
Moderate	3.33-12.6%	22.5-32.8%	35.8-46.7
High	>12.6%	>32.8	>46.7

For subjective criteria where it is unclear whether a particular attribute score is achieved, the precautionary approach is applied to favour the higher score. TABLE 16 outlines the attributes utilised to assess species stocking rate.

Table 16: Koala Species Stocking Rate Scoring

Attribute	Scoring and criteria				
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score (/10)	0	5	10	
		No	Yes – adjacent to site	Yes – on-site	
Species usage of the site (habitat type and evidenced usage)	Score (/15)	0	5	10	15
		Not habitat	Dispersal habitat	Foraging habitat	Breeding habitat
Approximate density (per ha)	Score (/30)	0	10	20	30
		0%	Low	Medium	High
Role/importance of species population on site*	Score (/15)	0	5	10	15
		0	5-15	20-35	40-45
Total SSR	/70				
SSR Score	/4				

*Species Stocking Rate supplementary table – Total supplementary score 0 = 0, 5-15 = 5, 20-35 = 10, 40-45 = 15			
Key source population for breeding	Score (/10)	0	10
		No	Yes/Possibly
Key source population for dispersal	Score (/5)	0	5
		No	Yes/Possibly
Necessary for maintaining genetic diversity	Score (/15)	0	15
		No	Yes/Possibly
Near the limit of the species range	Score (/15)	0	15
		No	Yes

Scoring Weight Justification

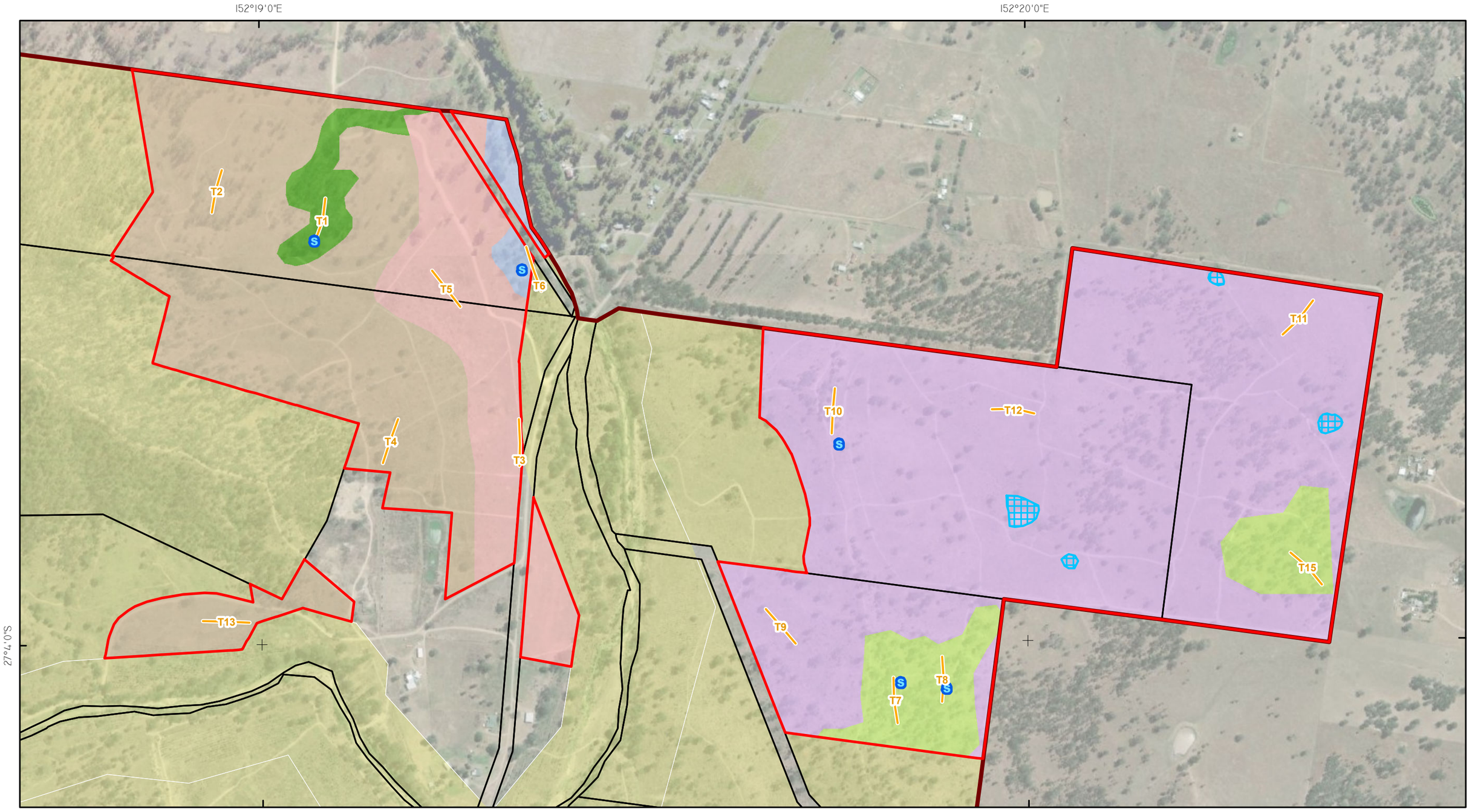
Site condition was given a weighted score out of 3, site context was given a weighted score out of 3, while species stocking rate was given a weighted score out of 4. The species stocking rate is an important component when assessing the overall habitat quality of a site as it indicates species usage and the capacity of a given area to support the Koala therefore was weighted more heavily.

Site condition was weighted with a score out of 3. The koala is known to occupy a variety of habitats, ranging from non-remnant regrowth eucalypt forest / woodland through to old growth remnant forest / woodland. However, the site condition of the habitat is considered to directly influence the long-term koala carrying capacity.

Site context was weighted with a score out of 3. Site context is considered an important component when assessing the koala as it directly relates to the long-term survival rate of the species. The proximity of the site to other areas of suitable habitat, the movement pattern through the landscape of the koala (and / or barriers inhibiting movement), and threats to the species are important attributes to assess when considering the overall functionality of the site.

It is considered that the provision of this weighted scoring most accurately quantifies the ecological requirements of the koala, which will then assist in determining whether an offset site is suitable to establish a desired capacity to support the prescribed environmental matters being offset.

PLAN 7 - BASELINE MHQA LOCATIONS



FILE NAME: OES_5 PLAN 7 BASELINE MHQA V6
10/06/2026

AVONVALE STATION-
OFFSET MANAGEMENT PLAN (OES5)

N

0 50 100 200 300 M

GDA94 MGA ZONE 56 1:8,000

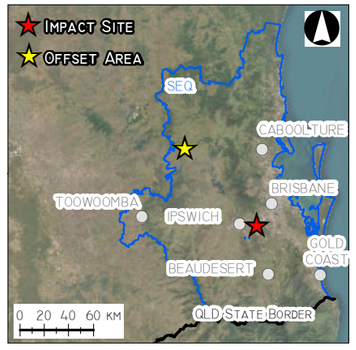
THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. ONE ENVIRONMENT GROUP CANNOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWING BY ANY THIRD PARTY.
SERVICE LAYER CREDITS: SOURCE: ESRI, VANTOR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY
REFERENCES - © STATE OF QUEENSLAND, 2026

LEGEND

- AVONVALE STATION
- OFFSET SITE ALLOMENTS
- OFFSET SITE EASEMENT/STRATA
- EPBC 2019/8575 OFFSET AREA
- WATERBODIES
- EXISTING AVONVALE STATION OFFSET AREAS
- MHQA TRANSECTS
- SAT SURVEY LOCATIONS

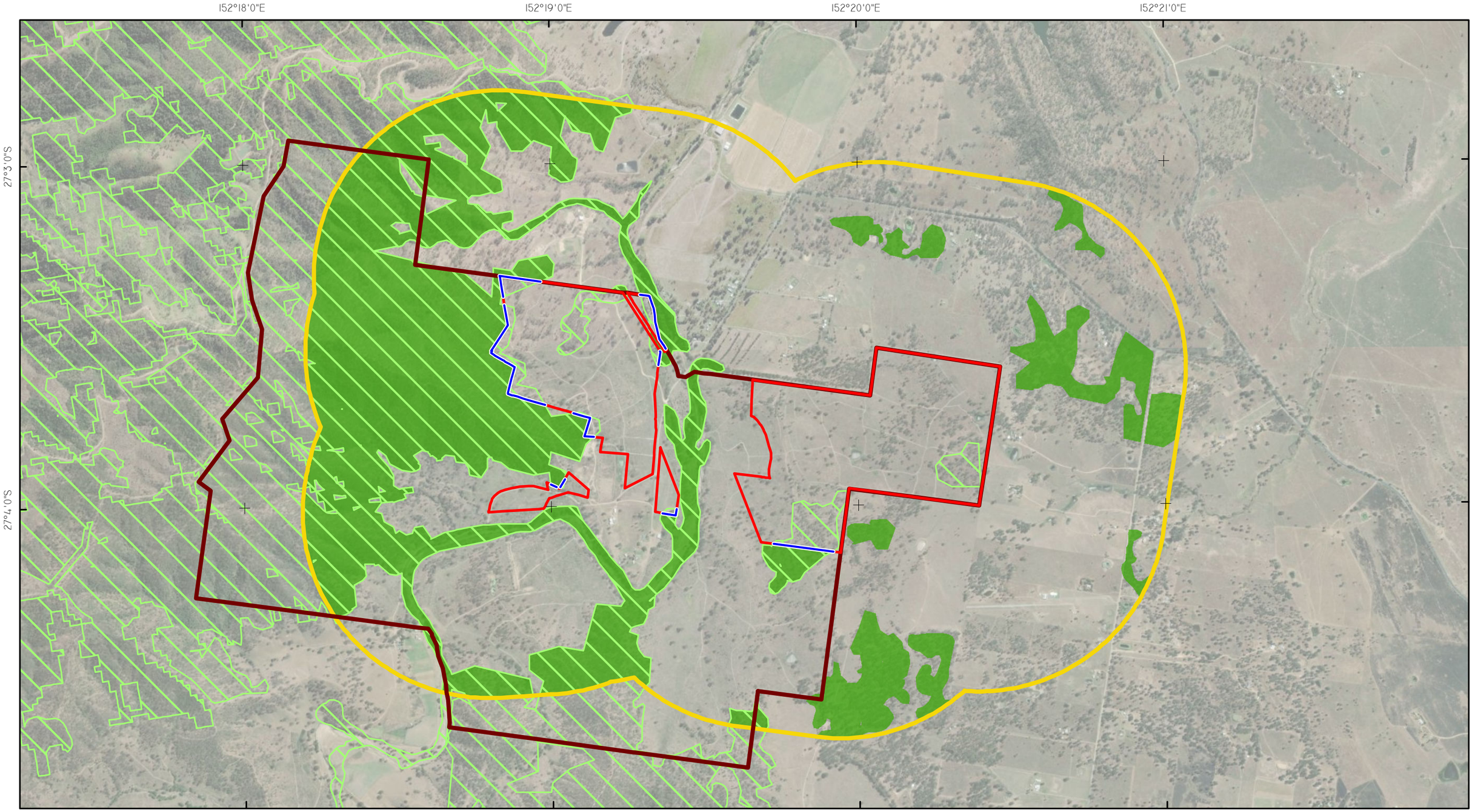
ASSESSMENT UNITS

- ASSESSMENT UNIT 1 (AU1) NON-REMNANT PADDOCK: RE 12.11.14 [46.6 HA]
- ASSESSMENT UNIT 2 (AU2) NON-REMNANT PADDOCK: RE 12.3.3 [17.9 HA]
- ASSESSMENT UNIT 3 (AU3) REMNANT: RE 12.3.7 [2 HA]
- ASSESSMENT UNIT 4 (AU4) NON-REMNANT PADDOCK WITH SCATTERED TREES: RE 12.9-10.7 [86.8 HA]
- ASSESSMENT UNIT 5 (AU5) REGROWTH: RE 12.9-10.7 [11 HA]
- ASSESSMENT UNIT 6 (AU6) REMNANT: RE 12.11.14 [3.7 HA]



ONE ENVIRONMENT

PLAN 8 - KOALA CONTEXT ASSESSMENT



FILE NAME: OES_5 PLAN 8 KOALA CONTEXT ASSESSMENT V6
10/06/2026

AVONVALE STATION-
OFFSET MANAGEMENT PLAN (OES5)

0 100 200 400 600 M

GDA94 MGA ZONE 56 1:20,000

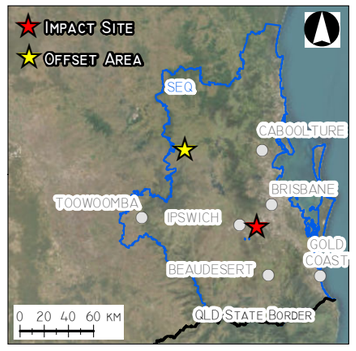
N

THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. ONE ENVIRONMENT GROUP CANNOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWING BY ANY THIRD PARTY.
SERVICE LAYER CREDITS: SOURCE: ESRI, VANTOR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY

REFERENCES - © STATE OF QUEENSLAND, 2026

LEGEND

- AVONVALE STATION
- EPBC 2019/8575 OFFSET AREA
- 1KM BUFFER
- PERCENTAGE OF OFFSET SITE BOUNDARY LENGTH SUPPORTING A CONNECTION OFF AND ON SITE TO KOALA CRITICAL HABITAT - 20%
- PERCENTAGE OF KOALA CRITICAL HABITAT WITHIN 1KM OF OFFSET SITE (32%)
- SIZE OF KOALA CRITICAL HABITAT PATCH THE OFFSET SITE IS LOCATED WITHIN - >5,000 HA



ONE ENVIRONMENT

Grey-headed Flying-fox – Foraging Habitat Assessment

The habitat quality of the Offset Area for GHFF was assessed the GHFF Foraging Habitat Assessment (GHFF FHA) tool developed by the Saunders Havill Group (2019) which adopts characteristics of the Habitat Quality Guideline, while also integrating published scientific literature on GHFF foraging habitat.

The traditional terrestrial habitat quality assessment assesses three (3) core indicators—site condition, site context and species habitat index.

The GHFF FHA tool combines the aspects of the three (3) core indicators and published scientific literature into two (2) (site condition and site context) with site condition being weighted with 40% and site context weighted at 30% of the final score. The balance of the weighting (30%) has been attributed to the third indicator which is independent of the traditional habitat quality assessment, being species stocking rate. The species stocking rate assessment incorporated in the GHFF FHA tool is focussed on 'foraging habitat' for GHFF rather than GHFF stocking rates (presence/absence of the species). This assessment of 'foraging habitat' for species stocking rate has been incorporated in the GHFF FHA tool as grey-headed flying-fox roosting camp or species presence was not observed on-site, however, suitable foraging habitat for the species was evident. Therefore, the density of foraging habitat available on-site is considered an appropriate assessment benchmark for species stocking rate.

The following section details the methodology utilised to assess the site condition, site context and species stocking rate under the GHFF FHA.

Site Condition (40%)

Assessing site condition is an integral step in determining specific quantification of impacts, while also determining whether an offset property is suitable to establish a desired capacity to support the prescribed environmental matters being offset. The on-site condition is a key element of habitat quality and has a direct influence on the biodiversity it supports. Site condition is assessed using a suite of attributes to describe the structure and function of the vegetation community and is benchmarked against the expected range for a relatively undisturbed community.

The site condition assessment under the GHFF FHA is assessed using six (6) condition characteristics being:

- Vegetation condition;
- Species richness (canopy trees);
- Flower scores (average);
- Timing of biological shortages;
- Quality of foraging habitat (trees >0.65 wt p*r); and
- Non-native plant cover.

Site condition under the GHFF FHA was assessed at the habitat quality transect locations within the impact assessment units summarised in TABLE 17.

Assessment methodology of the above condition characteristics is outlined below:

- Vegetation condition – This condition characteristic is assessed using the Queensland *Vegetation Management Act 1999* vegetation community status definition, being Category B (remnant), Category C (high-value regrowth) and Category X (non-remnant). This characteristic is scored from a desktop mapping perspective and verified on-ground during assessment. Refer to TABLE 17.
- Species richness (canopy trees) – This condition characteristic is assessed using a 100 m X 20 m plot following the contour of the land when possible. Within the plot, all canopy tree and subcanopy tree specimens are recorded. It should be noted that non-GHFF foraging species are also documented. Refer to TABLE 18.
- Flower scores (average) – This condition characteristic is assessed by analysing and cross-referencing the species recorded in the 'species richness (canopy trees)' characteristic with the published literature, specifically the

information within *Ranking the feeding habitat of Grey-headed flying foxes for conservation management* (Eby and Law 2008) and the *National Recovery Plan for the Grey-headed Flying-fox* (DAWE, 2021) and determining the flower score of the recorded canopy species. The individual score for each flowering GHFF foraging tree is then divided by the number of species recorded (GHFF foraging and non-GHFF foraging trees) to produce an average. The benchmark values for this condition characteristic have been derived from the findings published by Eby and Law (2008) (Ranking the feeding habitat of Grey-headed flying foxes for conservation management). Refer to TABLE 19.

- Timing of biological shortages – This condition characteristic is assessed by analysing and cross referencing the species recorded in the 'species richness (canopy trees)' characteristic with the published literature, specifically the information within Ranking the feeding habitat of Grey-headed flying foxes for conservation management (Eby and Law 2008) and the *National Recovery Plan for the Grey-headed flying-fox* (DAWE, 2021) and determining the ability of the canopy species in the vegetation community to produce foraging habitat during biological shortages (food shortages, pregnancy and birthing, lactation, mating and conception, migration paths and fruit industries). It should be noted that this condition characteristic is weighted and 'food shortages' has been weighted heavier than the balance of the characteristics which are equal, as 'food shortages' is recognised as a major issue. Refer to TABLE 20.
- Quality of foraging habitat – This condition characteristic is assessed by analysing and cross-referencing the species recorded in the 'species richness (canopy trees)' characteristic with the published literature, specifically the information within Ranking the feeding habitat of Grey-headed flying foxes for conservation management (Eby and Law 2008) and the *National Recovery Plan for the Grey-headed flying-fox* (DAWE, 2021) and determining which canopy species recorded contain a flower score greater than 0.65 wt p*r and is recognised as a significant food plant by Eby and Law (2008). It should be noted that species recorded that are not prescribed a value by Eby and Law (2008) but are recognised as GHFF foraging trees, have been given an average weighted value of related species or, in the case of *Eucalyptus crebra* (Narrow-leaved Ironbark) been prescribed a value of 0.65 and classified as a significant food plant given its importance as a winter flowering species as acknowledged in the *National Recovery Plan for the Grey-headed Flying-fox* (DAWE, 2021). Refer to TABLE 21.
- Non-native plant cover – This condition characteristic is assessed using a 100 m X 20 m plot following the contour of the land when possible. All non-native plant cover was assessed by estimating the cover of exotic species over the 100 m X 20 m plot. Refer to TABLE 22.

It should be noted that for on-ground assessment purposes, the 100 m X 20 m plot utilised for the GHFF FHA overlaps with the on-ground condition characteristics of the Koala MHQA. Refer to FIGURE 5 below for location of the GHFF FHA within the MHQA Plot.

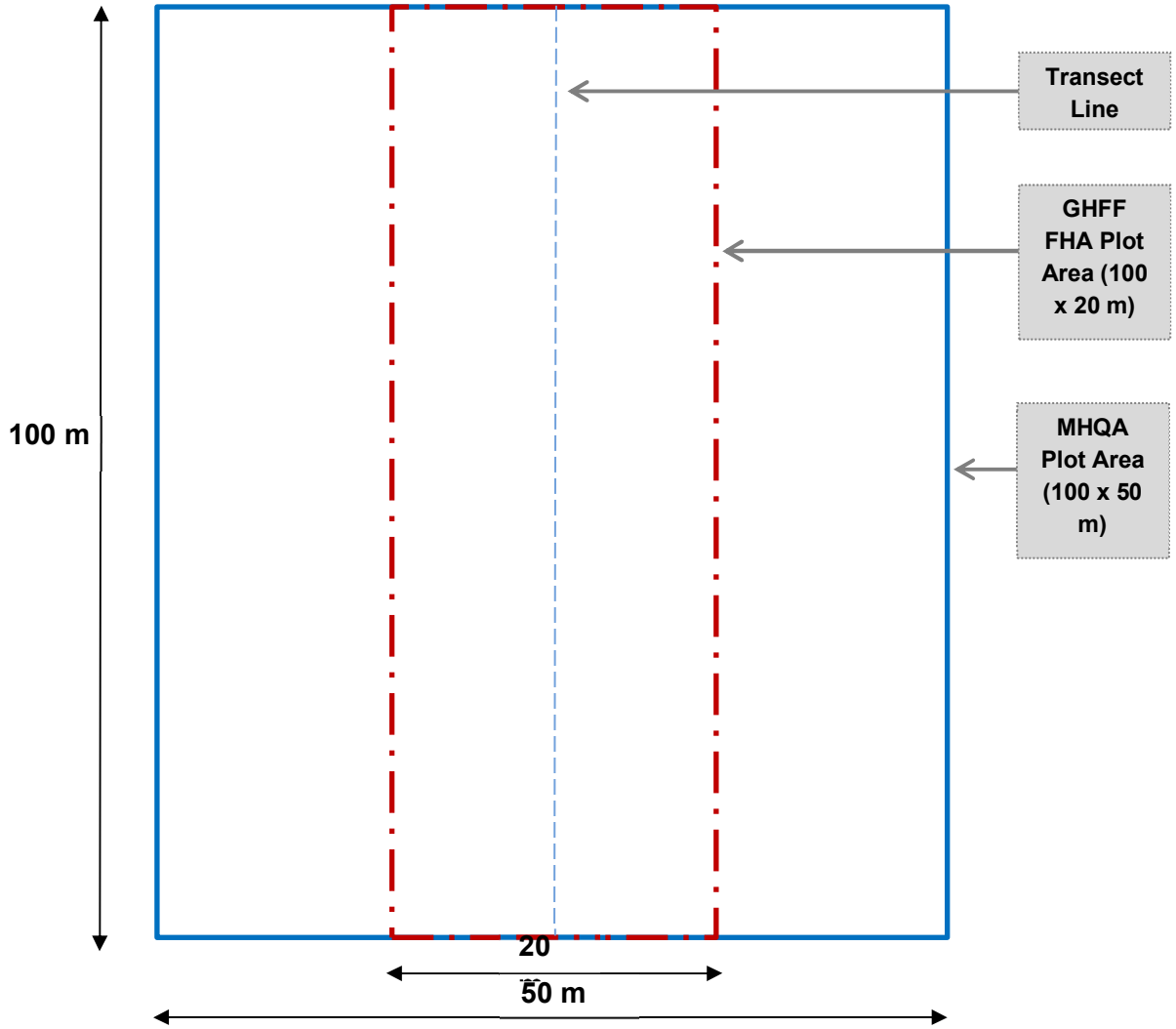


Figure 5: ***MHQA and GHFF FHA Plot Location Diagram***

Site Context (30%)

The site context assessment deals with the site and its adjacent surroundings. Site context is measured using a suite of attributes to describe the location of the habitat within the surrounding landscape and the influence of its associated threats. This assessment also considers the influence of adjacent vegetated areas and ecological corridors. Under the GHFF FHA, site context is measured using the following six (6) characteristics:

- Size of patch (refer PLAN 9);
- Connectedness (active GHFF roost camps in a 20 km radius) (refer PLAN 9);
- Context (percentage of GHFF foraging habitat in a 20 km radius) (refer PLAN 9);
- Ecological corridors (refer PLAN 4);
- Role of site location to species overall population in the state (active GHFF 'level 3' roost camps in a 20 km radius as shown on the CSIRO Data Access Portal (McKeown and Vanderduys, 2024) (refer PLAN 9); and
- Threats to the species.

The assessment methodology of the above context characteristics is outlined below:

- Size of patch – This context characteristic is assessed using a modified version of the traditional habitat quality assessment with the directly connected patch of GHFF foraging habitat to site measured. This context characteristic is measured using GIS. The benchmark values for this context characteristic are those used in the traditional habitat quality assessment. Refer to TABLE 23.
- Connectedness – This context characteristic is assessed by analysing the number of active GHFF roost camps (over the past year of monitoring (8/22 – 8/23)) within a 20 km radius of the site. For consistency purposes this assessment is to utilise the data provided on the national flying-fox monitoring viewer (Australian Government). Refer to TABLE 24.
- Context – This context characteristic is assessed using a modified version of the traditional habitat quality assessment with the percentage of GHFF foraging habitat within a twenty (20) kilometre buffer of the site measured. This context characteristic is measured using GIS. Refer to TABLE 25.
- Ecological corridors – This context characteristic is assessed using the traditional habitat quality assessment methodology which involves determining the proximity of the site to state, bioregional, regional or sub-regional corridors. Refer to TABLE 26.
- Threats to species – This context characteristic is assessed by analysing the published scientific literature regarding threats to GHFF and determining the number and severity of the threatening processes observed at or adjacent to the site. Refer to TABLE 27.
- Role of site location to species overall population in the state (active GHFF national flying-fox monitoring viewer 'level 3' roost camps in a 20 km radius) – This context characteristic is assessed by analysing the number of active GHFF roost camps level 3 or greater (over the past year of monitoring (8/22 – 8/23)) within a 20 km radius of the site. For consistency purposes this assessment is to utilise the data provided on the national flying-fox monitoring viewer (Australian Government). Refer to TABLE 28.

Species Stocking Rate (30%)

The GHFF FHA incorporates species stocking rate as an attribute not discussed under the traditional terrestrial habitat assessment methodology. As discussed above, species stocking rate for GHFF associated with this proposed action is related to the density of GHFF foraging habitat at the site at the time of undertaking the survey.

Baseline GHFF foraging tree surveys were undertaken by utilising the stem count methodology provided in the Methodology for surveying and mapping regional ecosystems and vegetation communities in Queensland (version 5.0) (Neldner et al. 2019).

This methodology involves assigning the strata for canopy (T1) and subcanopy (T2) and then counting the number of individual tree specimens within the 100 m X 20 m plot. A tree that branches into two or more stems above 30 cm above the ground is counted as one individual. The stem density of canopy species recorded within the 0.2 ha plot is multiplied by five (5) to produce a stem density per ha. This number is then compared to the benchmark stem density per ha based on the sum of the T1 and T2 stem density taken from the relevant regional ecosystem technical description as per the Technical Descriptions of Regional Ecosystems of Southeast Queensland (Queensland Herbarium, 2018). Refer to TABLE 29 for benchmark scoring values for species stocking rate.

Table 17: GHFF FHA Vegetation Condition Scoring

Score	Description
5	Category X / non-remnant
10	Category C / regrowth
20	Category B / remnant

Table 18: GHFF FHA Species Richness Scoring

Score	Description
0	0 GHFF foraging species
5	1 – 3 GHFF foraging species
10	4 – 6 GHFF foraging species
20	> 6 GHFF foraging species

Table 19: GHFF FHA Flower Score (average) Scoring

Score	Description
2	0.01 – 0.25
5	0.26 – 0.50
8	0.51 – 0.75
10	0.76 – 1.00

Table 20: GHFF FHA Timing of Biological Shortages Scoring

Score	Description
2.5	Food shortages
1.5	Pregnancy and birthing
1.5	Lactation
1.5	Mating and conception
1.5	Migration paths
1.5	Fruit industries
Total (/10)	Combine total of above

Table 21: GHFF FHA Quality of Foraging Habitat (trees >0.65 wt p*r) Scoring

Score	Description
0	0 significant GHFF foraging tree species
5	1 – 3 significant GHFF foraging tree species
10	4 – 6 significant GHFF foraging tree species
20	> 6 significant GHFF foraging tree species

Table 22: GHFF FHA Non-Native Plant Cover Scoring

Score	Description
1	> 50 % non-native plant cover
5	25 – 50 % non-native plant cover
10	5 – 25 % non-native plant cover
20	< 5 % non-native plant cover

Table 23: GHFF FHA Size of Patch Scoring

Score	Description
0	< 5 hectares
2	5 – 25 hectares
5	26 – 100 hectares
7	101 – 200 hectares
10	> 200 hectares

Table 24: GHFF FHA Connectedness Scoring

Score	Description
0	< 1 active Grey-headed flying-fox camp within a 20 km radius
3	1 – 3 active Grey-headed flying-fox camp within a 20 km radius
6	4 – 6 active Grey-headed flying-fox camp within a 20 km radius
10	> 6 active Grey-headed flying-fox camp within a 20 km radius

Table 25: GHFF FHA Context Scoring

Score	Description
0	< 10 % Grey-headed flying-fox foraging habitat within a 20 km radius
3	10 – 30 % Grey-headed flying-fox foraging habitat within a 20 km radius
6	31 – 75 % Grey-headed flying-fox foraging habitat within a 20 km radius
10	> 75 % Grey-headed flying-fox foraging habitat within a 20 km radius

Table 26: GHFF FHA Ecological Corridors Scoring

Score	Description
0	Not within an ecological corridor
6	Sharing a common boundary with an ecological corridor
10	Within an ecological corridor

Table 27: GHFF FHA Threats to Species Scoring

Score	Description
1	High level threat to the species
5	Moderate level threat to the species
10	Low level threat to the species

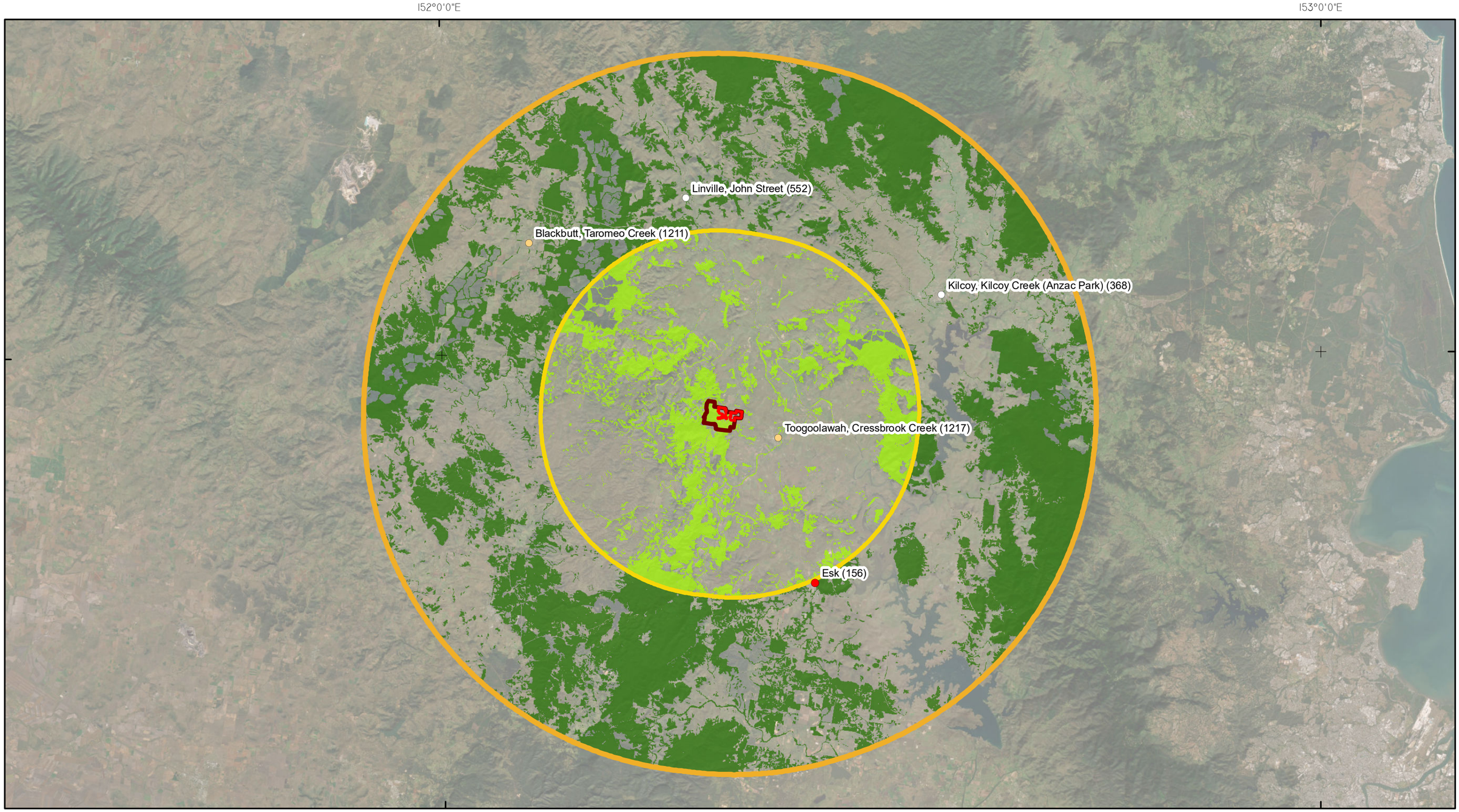
Table 28: GHFF FHA Role of Site Location to Species Overall Population in the State Scoring

Score	Description
0	<1 active level 3 Grey-headed flying-fox camp within a 20 km radius
1	1 – 2 active level 3 Grey-headed flying-fox camp within a 20 km radius
6	3 – 4 active level 3 Grey-headed flying-fox camp within a 20 km radius
10	≥ 5 active level 3 Grey-headed flying-fox camp within a 20 km radius

Table 29: GHFF Species Stocking Rate Scoring

	Stem density per hectare			
Score	**RE12.11.14**	**RE12.3.3**	**RE12.3.7**	**RE12.9-10.7**
2	0-64	0-64	0-51	0-110
4	65-140	65-127	52-147	111-220
6	141-220	128-200	148-256	221-330
8	221-320	201-260	257-375	331-440
10	321-364	261-289	376-440	441-500
8	365-460	290-360	441-520	501-580
6	461-540	361-420	521-600	581-660
4	541-620	421-480	601-680	661-740
2	>620	>480	>680	>740

PLAN 9 - GREY-HEADED FLYING-FOX CONTEXT ASSESSMENT



FILE NAME: OES_5 PLAN 9 GHFF CONTEXT ASSESSMENT V6
10/06/2026

AVONVALE STATION-
OFFSET MANAGEMENT PLAN (OES5)

0 4 8 12 KM

GDA94 MGA ZONE 56 1:420,000

N

THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. ONE ENVIRONMENT GROUP CANNOT ACCEPT REPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWING BY ANY THIRD PARTY.
SERVICE LAYER CREDITS: SOURCE: ESRI, VANTOR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY

REFERENCES - © STATE OF QUEENSLAND, 2026

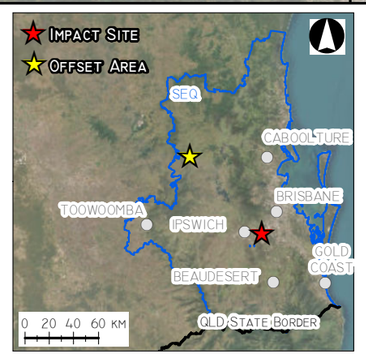
LEGEND

- AVONVALE STATION
- EPBC 2019/8575 OFFSET AREA
- 20KM BUFFER
- 40KM BUFFER

- PERCENTAGE OF POTENTIAL AND KNOWN GREY-HEADED FLYING-FOX HABITAT WITHIN 20KM OF OFFSET SITE - 26%
- POTENTIAL AND KNOWN GREY-HEADED FLYING-FOX HABITAT WITHIN 40KM OF OFFSET SITE

GREY-HEADED FLYING-FOX ROOSTS (FED. GOV. 2025)

- GREY-HEADED FLYING FOX ROOST INACTIVE WITHIN RECENT SURVEYS [2]
- GREY-HEADED FLYING FOX ROOST ACTIVE WITHIN RECENT SURVEYS [2]
- GREY-HEADED FLYING FOX ROOST ACTIVE WITHIN RECENT SURVEYS WITH A POPULATION LEVEL OF 3 OR ABOVE [1]
- NATIONALLY SIGNIFICANT GREY-HEADED FLYING FOX ROOST ACTIVE WITHIN RECENT SURVEYS [0]
- NATIONALLY SIGNIFICANT GREY-HEADED FLYING FOX ROOST ACTIVE WITHIN RECENT SURVEYS WITH A POPULATION LEVEL OF 3 OR ABOVE [0]



ONE ENVIRONMENT

Swift Parrot – Foraging Habitat Assessment

To quantify baseline habitat and future value for the Swift Parrot, a feature-based assessment method was utilised. The method involves calculating the number of individual habitat features located within the offset area and the number that will be reinstated as part of the offset.

A habitat feature for the Swift Parrot is defined as a non-juvenile tree (*i.e.,* ≥100 mm DBH) which is a preferred foraging tree species identified under the *National Recovery Plan for the Swift Parrot* (DCCEEW, 2024). Listed preferred foraging tree species include:

- *Eucalyptus leucoxylon* (yellow gum)
- *Eucalyptus tricarpa* (red ironbark)
- *Eucalyptus sideroxylon* (mugga ironbark)
- *Eucalyptus macrocarpa* (grey box)
- *Eucalyptus albens* (white box)
- *Eucalyptus melliodora* (yellow box)
- *Eucalyptus robusta* (swamp mahogany)
- *Eucalyptus tereticornis* (forest red gum)
- *Eucalyptus pilularis* (blackbutt)
- *Corymbia maculata* (spotted gum). It is noted that in Queensland *Corymbia citriodora* is recognised synonymously with *Corymbia maculata*.

The methodology, comprising four (4) steps is described below with details as to how the calculations have been used to inform the OAG and rehabilitation program.

1. Baseline tree density

In order to understand the existing foraging habitat value for the Swift Parrot and the planting capacity of the offset area, the existing density of trees is required to be calculated and extrapolated.

The density of all trees including preferred foraging trees was extrapolated from stem density data collected at fourteen (14) MHQA transects (refer PLAN 7). The six (6) AUs and associated transect site numbers are as follows:

- AU1 represents non-remnant paddock RE12.11.14 habitat (Transects 2, 4 and 13).
- AU2 represents non-remnant paddock RE 12.3.3 habitat (Transects 3 and 5).
- AU3 represents remnant RE12.3.7 habitat (Transect 6).
- AU4 represents non-remnant paddock RE12.9-10.7 (Transects 9, 10, 11 and 12).
- AU5 represents regrowth RE12.9-10.7 (Transects 7, 8 and 15).
- AU6 represents remnant RE12.11.14 habitat (Transect 1).

Stem density data at each MHQA transect was collected in accordance with the stem count methodology provided in the *Methodology for surveying and mapping regional ecosystems and vegetation communities in Queensland (version 5.0)* (Neldner *et al*. 2019). The methodology detailed in Neldner et al. (2019) uses a plot area of 50 X 10 m. For the purposes of this assessment, the area was modified to 100 X 20 m to align with the MHQA plot, however, the actual count assessment method remains the same.

This methodology involves counting the number of individual non-juvenile tree specimens within each 100 m X 20 m plot (0.2 ha) including those that are listed as preferred foraging species for the Swift Parrot. A tree that branches into two or more stems 30 cm above the ground is counted as one individual.

For each AU, the number of non-juvenile trees and separately, of non-juvenile preferred foraging trees, was averaged across all habitat quality transects within the corresponding AU to produce the mean number of trees and preferred foraging trees within a 100 X 20 m plot area (0.2 ha). The average stem density of non-juvenile trees and non-juvenile preferred foraging trees recorded within the 0.2 ha plot was multiplied by five (5) to produce an estimate of the number of trees and preferred foraging trees per ha. This was then multiplied by the area of the AU to determine an estimate of non-juvenile trees and non-juvenile preferred foraging trees within each AU.

2. Planting capacity

The planting capacity or number of trees (all species) that can be supported within each AU was determined based on the following planting densities proposed in accordance with the South East Queensland Ecological Restoration Framework (SEQERF) (Chenoweth EPLA, 2012):

- 1 tree per 10 m^2 or 1000 trees per hectare for non-remnant paddock
- 1 per 50 m^2 or 200 tree per hectare for sparse regrowth
- 1 per 100 m^2 or 100 trees per hectare for dense regrowth
- 1 per 1000 m^2 or 10 trees per hectare for remnant

The proposed density rate was multiplied by the size of the AU (excluding waterbodies) to determine the overall planting capacity.

Each AU is assigned a planting palette of tree species developed based on the pre-clear regional ecosystem mapping and local availability of seed stock. Each planting palette comprises a mix of preferred foraging species for the Swift Parrot, other eucalypt trees and pioneer species such as *Acacia* sp. Preferred foraging tree species comprise a percentage of the total planting palette where it is suitable for the pre-clear RE and/or consistent with the local seed stock.

3. Preferred foraging species planting

The number of preferred foraging trees that will be planted per AU is calculated as the planting capacity multiplied by the percentage of preferred foraging trees. Where there are multiple species of preferred foraging tree species, these are added together to produce a total number of preferred foraging tree species to be planted.

An 80% survival rate is applied to both the on-ground planting value and the adjusted value to receive the total number of preferred foraging species proposed to be successfully delivered as a result of the offset. A Rehabilitation Plan (RP) (APPENDIX G) has been prepared which includes details on the proposed planting methodology and planting palette.

4. Net total of preferred foraging trees

The final step is to determine the net total of preferred foraging trees that will be located within each AU combining the proposed offset and baseline data. This is calculated as the total count of preferred foraging trees to be planted inclusive of an 80% survival rate, plus the baseline count of non-juvenile preferred foraging trees.

For the purposes of the OAG calculator, the net total of preferred foraging trees inclusive of an 80% survival rate of planted trees is inputted as the 'Future value with offset.'

Regent Honeyeater – Foraging Habitat Assessment

To quantify baseline and future habitat value for the Regent Honeyeater, a feature-based assessment method was utilised. The method involves calculating the number of individual habitat features located within the offset area and the number that will be reinstated as part of the offset.

A habitat feature for the Regent Honeyeater is defined as a non-juvenile tree (*i.e.,* ≥100 mm DBH) which is a preferred foraging tree species identified under the *National Recovery Plan for the Regent Honeyeater* (DoE, 2016). Listed preferred foraging tree species include:

- *Eucalyptus leucoxylon* (yellow gum)
- *Eucalyptus sideroxylon* (mugga ironbark)
- *Eucalyptus albens* (white box)
- *Eucalyptus melliodora* (yellow box)
- *Eucalyptus robusta* (swamp mahogany)
- *Corymbia maculata* (spotted gum). It is noted that in Queensland *Corymbia citriodora* is recognised synonymously with *Corymbia maculata*.

The methodology, comprising four (4) steps is described below with details as to how the calculations have been used to inform the OAG and rehabilitation program.

1. Baseline tree density

In order to understand the existing foraging habitat value for the Regent Honeyeater and the planting capacity of the offset area, the existing density of trees is required to be calculated and extrapolated.

The density of all trees including preferred foraging trees was extrapolated from stem density data collected at fourteen (14) MHQA transects (refer PLAN 7). The six (6) AUs and associated transect site numbers are as follows:

- AU1 represents non-remnant paddock RE12.11.14 habitat (Transects 2, 4 and 13).
- AU2 represents non-remnant paddock RE 12.3.3 habitat (Transects 3 and 5).
- AU3 represents remnant RE12.3.7 habitat (Transect 6).
- AU4 represents non-remnant paddock RE12.9-10.7 (Transects 9, 10, 11 and 12).
- AU5 represents regrowth RE12.9-10.7 (Transects 7, 8 and 15).
- AU6 represents remnant RE12.11.14 habitat (Transect 1).

Stem density data at each MHQA transect was collected in accordance with the stem count methodology provided in the *Methodology for surveying and mapping regional ecosystems and vegetation communities in Queensland (version 5.0)* (Neldner *et al*. 2019). The methodology detailed in Neldner et al. (2019) uses a plot area of 50 X 10 m. For the purposes of this assessment, the area was modified to 100 X 20 m to align with the MHQA plot, however, the actual count assessment method remains the same.

This methodology involves counting the number of individual non-juvenile tree specimens within each 100 m X 20 m plot (0.2 ha) including those that are listed as preferred foraging species for the regent honeyeater. A tree that branches into two or more stems 30 cm above the ground is counted as one individual.

For each AU, the number of non-juvenile trees and separately, of non-juvenile preferred foraging trees, was averaged across all habitat quality transects within the corresponding AU to produce the mean number of trees and preferred foraging trees within a 100 X 20 m plot area (0.2 ha). The average stem density of non-juvenile trees and non-juvenile preferred foraging

trees recorded within the 0.2 ha plot was multiplied by five (5) to produce an estimate of the number of trees and preferred foraging trees per ha. This was then multiplied by the area of the AU to determine an estimate of non-juvenile trees and non-juvenile preferred foraging trees within each AU.

2. Planting capacity

The planting capacity or number of trees (all species) that can be supported within each AU was determined based on the following planting densities proposed in accordance with the South East Queensland Ecological Restoration Framework (SEQERF) (Chenoweth EPLA, 2012):

- 1 tree per 10 m^2 or 1000 trees per hectare for non-remnant paddock
- 1 per 50 m^2 or 200 tree per hectare for sparse regrowth
- 1 per 100 m^2 or 100 trees per hectare for dense regrowth
- 1 per 1000 m^2 or 10 trees per hectare for remnant

The proposed density rate was multiplied by the size of the AU (excluding waterbodies) to determine the overall planting capacity.

Each AU is assigned a planting palette of tree species developed based on the pre-clear regional ecosystem mapping and local availability of seed stock. Each planting palette comprises a mix of preferred foraging species for the Regent Honeyeater, other eucalypt trees and pioneer species such as *Acacia* sp. Preferred foraging tree species comprise a percentage of the total planting palette where it is suitable for the pre-clear RE and/or consistent with the local seed stock.

3. Preferred foraging species planting

The number of preferred foraging trees that will be planted per AU is calculated as the planting capacity multiplied by the percentage of preferred foraging trees. Where there are multiple species of preferred foraging tree species, these are added together to produce a total number of preferred foraging tree species to be planted.

An 80% survival rate is applied to both the on-ground planting value and the adjusted value to receive the total number of preferred foraging species proposed to be successfully delivered as a result of the offset. A Rehabilitation Plan (RP) (APPENDIX G) has been prepared which includes details on the proposed planting methodology and planting palette.

4. Net total of preferred foraging trees

The final step is to determine the net total of preferred foraging trees that will be located within each AU combining the proposed offset and baseline data. This is calculated as the total count of preferred foraging trees to be planted inclusive of an 80% survival rate, plus the baseline count of non-juvenile preferred foraging trees.

For the purposes of the OAG calculator, the net total of preferred foraging trees inclusive of an 80% survival rate of planted trees is inputted as the 'Future value with offset.'

Feral animal abundance

Background

From a combination of survey data, observations, and anecdotal discussions with prior landowners and farm staff, feral or pest animal species known to frequent or exist at the offset property include:

- Dingo (*Canis lupis dingo*)
- Wild dog (*Canis lupis familiaris*)
- European red fox (*Vulpes vulpes*)
- Wild pig (*Sus scrofa*)
- Red deer (*Cervus elaphus*)
- Spotted deer (*Axis axis*)

Of these animals, dogs and dingoes, and to a lesser extent foxes, are noted to predate on and form a major threat Koalas. A deceased Koala carcass was recorded within the Cherry Gully Station located to the south of the Avonvale Station indicating threats to Koala from predators. While the precise cause of death is not confirmed, the remains of the animal had clearly been mutilated by wild dogs or similar.

While the EPBC approval requires information only on feral animals known to predate on the Koala, the relative abundance of non-native herbivores has also been provided in this OAMP. Wild pigs and red deer indirectly impact Koala through destruction of Koala habitat which may interfere with the conditioned outcomes of the environmental offset. This includes feeding on or trampling new seedlings as part of revegetation. Additionally, red deer which frequent the site have been observed feeding on the fresh berry of Lantana bushes, making them a source of seed dispersal. Refer to FIGURE 6 for non-native feral animals requiring prioritisation.

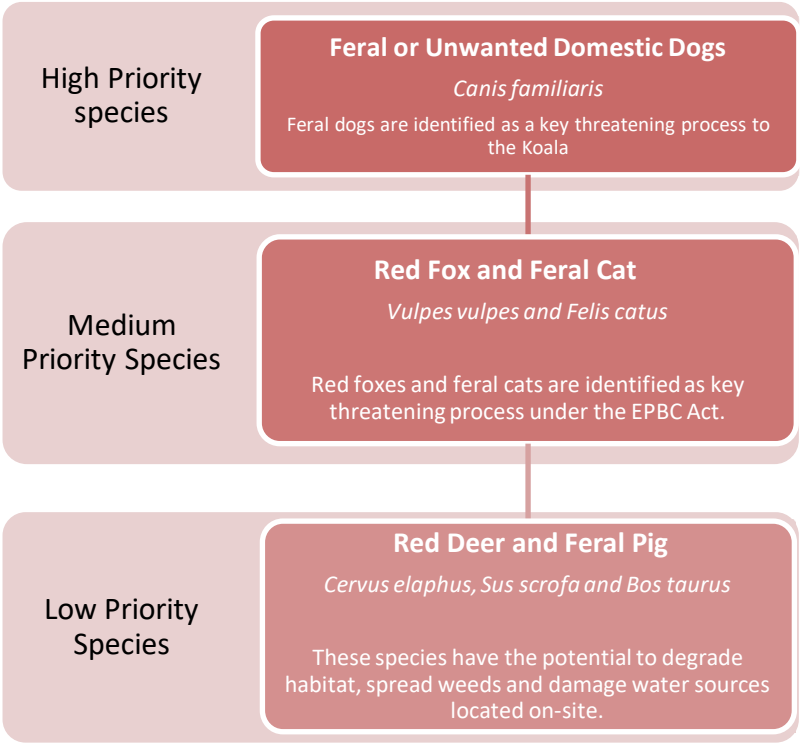


Figure 6: Feral animal management prioritisation

Guidelines for tracking feral animal abundance

At present, DCCEEW does not have a published guideline for detecting feral animals. However, there are State guidelines available for the implementation of feral animal monitoring focusing on wild dogs including the Guide for camera trapping wild dogs, foxes and feral cats (Department of Primary Industries, NSW Government 2018).

For successful monitoring of feral animal abundance, camera trapping is frequently utilised and remains the industry standard. Camera traps have the advantage of obtaining a wide range of significant information based on the set up. Automatic camera systems are triggered by an animal passing in front of a sensor that detects movement, changes in ambient light, or a thermal differential (Moen & Lindquist 2004). Cameras allow for the detection of species that are difficult to study due to their elusive or nocturnal habits (Mace *et al.* 1994). Camera deployment is less time consuming, less costly, and less invasive than long-term direct observation of animals. They are also beneficial in studying animals in inaccessible or difficult to access locations such as dens and nest cavities, or in rugged terrain (Mace *et al.* 1994). In addition, they enable the collection of valuable information about multiple species within any given community (Rosellini *et al*. 2008) and provide data that is more permanent and less disputable than data gathered by direct observation. Furthermore, camera trapping allows consistent and repeatable surveys to be completed by placing the same cameras in the same locations using the same settings for the same length of time and set with the same bait. The repeatability of motion sensor camera trapping means it is an appropriate method to monitor changes of the abundance of feral animals over time.

Methodology

Offset site-specific baseline camera trap and observational surveys were conducted by suitably qualified ecologist David Havill and pest management contractors as part of a combined survey effort across the Avonvale and Cherry Gully Stations between July 2020 and January 2025. CVs of the suitably qualified field ecologists are included in APPENDIX C. Surveys were completed in conjunction with baseline field effort for EPBC 2015/7530, EPBC 2015/7609, EPBC 2018/8347 and EPBC 2021/8975 to provide property-wide baseline data for Avonvale and Cherry Gully Station which are managed concurrently by the Offset Provider. Property-wide baseline data allows for feral animal abundance and trends to be ascertained at the broader landscape scale and allow for management actions to be targeted over the broader property.

Baseline surveys including the use of baited camera trapping and trail cameras (non-baited) targeting wild dogs and pest herbivore species such as wild pigs and deer, were completed over multiple years and seasons. Ongoing work including feral animal hunts and incidental observations undertaken by engaged pest management professionals within the broader Avonvale and Cherry Gully Station properties confirm additional sightings outside of means of camera trapping.

Camera trapping involves setting up a fixed digital camera to capture images or video of animals that pass in front of a camera with an infrared trigger. This survey technique identifies fauna activity beyond the scope of direct observational studies and with the absence of potential observer impacts. Cameras were attached 30-100 cm from the ground on a tree or post and directed towards landscape features or a trail for non-baited cameras or towards a bait station placed approximately 1.5 to 2 m from the mounted camera. Heavy, loose vegetation was avoided as this can cause false triggering, and the camera was aimed to avoid sun shining directly onto the lens. Refer to PHOTO 1 for example of set-up.

Photo 1: Example baited camera trap set-up.

Camera monitoring locations and timing

Baseline surveys to determine the relative abundance of feral animals (including pest predators and herbivores) across multiple seasons have been completed across the broader Avonvale Station and Cherry Gully Station properties from 2020 to 2025. Baseline data detailed below has been extracted from camera monitoring undertaken across 2023 to 2025. Cameras were located across the Avonvale and Cherry Gully Stations and spaced at least 100 metres apart to allow for a high level of coverage across the properties. Cameras were placed within the gully lines of Oak Gully and Ivory Creek and Land Zone 11 open grazing country which are the predominant vegetation and hydrological forms within the offset area. Gully lines are typically used by fauna for landscape movement and evidence of wild dogs in the form of prints have been detected in these environments.

The deployment of cameras within the Offset Area and at the property-wide scale is considered to allow for greater flexibility in targeting areas which are considered to increase the probability of detection, including near watercourses and established tracks. Monitoring within the specific Offset Area alone is unlikely to be representative of feral animal movements and abundance within the landscape. This approach is considered suitable to support the implementation of pest management actions which are coordinated at the broader property scale.

While it is noted in the approval conditions define seasonal monitoring requirements across summer, winter, autumn and spring, broadscale camera trapping has been completed over the majority of 2023 and part of 2024 which is considered to cover the life cycle of the target species being wild dog. This period encompasses part of the wild dog breeding season which occurs typically from April to June (Queensland Government, 2024). Year-round presence of pests across the offset property has also been supplemented by anecdotal evidence from suitably qualified pest management contractors undertaking ongoing management of feral animals across the property between 2020 and 2024 (refer to APPENDIX F for recorded sightings).

A summary of baseline camera monitoring with details of periods of deployment, coordinates, seasonal timing, and bait if applicable, is provided in TABLE 30. The locations of the camera traps are shown on PLAN 10.

Table 30: Camera monitoring locations and timing

Camera no.	Camera period	Season	No. days	Latitude	Longitude	Bait
1	12/02/2023 – 27/02/2023	Summer '23	15	-27.095	152.293603	Yes – chicken necks
2	12/02/2023 – 27/02/2023	Summer '23	15	-27.080433	152.273667	Yes – chicken necks
3	12/02/2023 – 27/02/2023	Summer '23	15	-27.071275	152.321556	Yes – chicken necks
4	12/02/2023 – 27/02/2023	Summer '23	15	-27.071959	152.312249	Yes – chicken necks
5	8/06/2023 – 03/07/2023	Winter 23'	78	-27.094976	152.293932	Nil – trail camera
6	18/07/2023 – 26/09/2023	Winter-Spring 23'	71	-27.072427	152.327405	Nil – trail camera
7	4/10/2023 – 03/12/2023	Summer 23'	63	-27.094976	152.293932	Nil – trail camera
8	14/06/2024 – 19/06/2024	Winter 24'	6	-27.081748	152.286569	Nil – trail camera
9	20/06/2024 – 17/09/2024	Winter-Spring 24'	90	-27.049809	152.18118	Nil – trail camera
10	16/12/2024 – 10/01/2025	Summer 24'-25'	26	-27.06296	152.33967	Nil – trail camera
11	16/12/2024 – 10/01/2025	Summer 24'-25'	26	-27.06382	152.3332	Nil – trail camera
12	16/12/2024 – 10/01/2025	Summer 24'-25'	26	-27.66352	152.31876	Nil – trail camera
13	16/12/2024 – 10/01/2025	Summer 24'-25'	26	-27.05786	152.31782	Nil – trail camera

Photo 2: Remnant RE12.3.7 – Oak Gully

Cameras 4, 8, and 9 were placed in the creek line vegetation area within Oak Gully, tributary of Ivory Creek (PHOTO 2). The vegetation within the creek is mapped as remnant Regional Ecosystem 12.3.7 described as *Eucalyptus tereticornis, Casuarina cunninghamiana subsp. cunninghamiana +/- Melaleuca spp. fringing woodland.*

Photo 3: Remnant RE12.3.7 – Ivory Creek

Camera 2 was placed in the lower flats of the creek line vegetation area of Ivory Creek. The vegetation within the creek is mapped as remnant RE 12.3.7 and dominated by *Casuarina cunninghamiana* with scattered *Eucalyptus tereticornis* (PHOTO 3). Dog prints were recorded within the gully line.

Photo 4: Open grazing land with scattered trees (northern part of offset area).

Cameras 1 and 6 were placed in the northern part of the offset area and adjoining the offset area to the east within open grazing land on Land Zone 11. Vegetation consists of pastural grasses and scattered eucalypt trees (PHOTO 4).

Cameras 3, 5 and 7 were placed in open grazing land in the southern part of the offset area adjoining established vehicle access tracks, north of the gully line of Ivory Creek (PHOTO 5). The cameras in this location were active during different years and seasons.

Photo 5: Open grazing land facing south towards meandering creek line of Ivory Creek (southern part of offset area)

Cameras 10, 11, 12 and 13 were installed as part of the final tranche of baseline field surveys. Camera 10 was placed at the large dam in the central part of the Offset Area. Camera 11 was placed near a smaller dam near the eastern property fence line. Camera 12 was placed within the disturbed quarry area. Camera 14 was placed on a small hummock/rocky atoll in the south-western portion of the Offset Area (PHOTOS 6 to 9).

Photo 6: Camera 10 near large farm dam (non-remnant RE12.9-10.7).

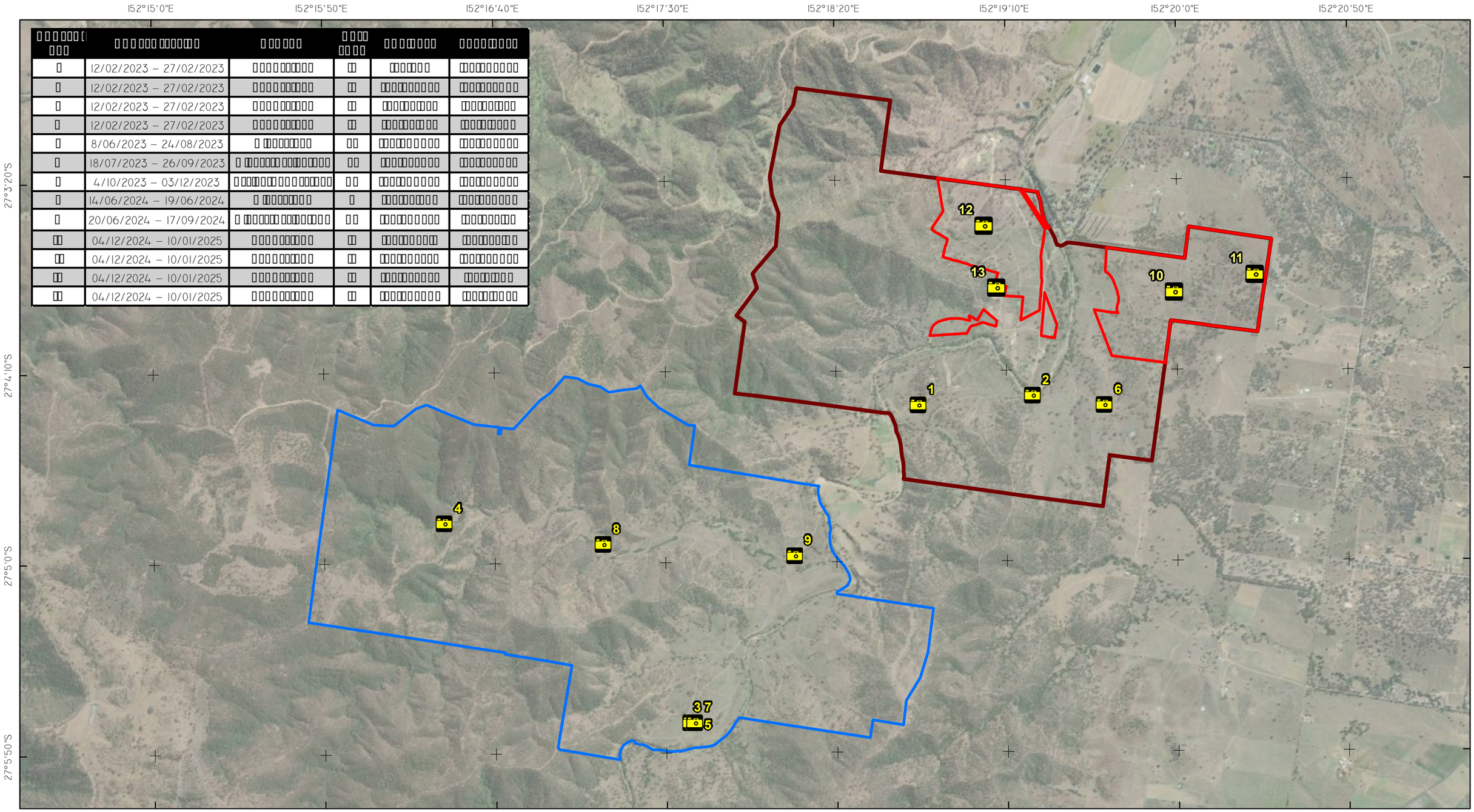
Photo 7: Camera 11 adjoining small farm dam adjoining eastern fence line (non-remnant RE12.9-10.7).

Photo 8: Camera 12 within disturbed quarry area (non-remnant RE12.11.14).

Photo 9: Camera 13 in rocky atoll in stand of trees within non-remnant RE12.11.14.

Plan 10 - Pest Species Motion Sensor Camera

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	12/02/2023 – 27/02/2023	[illegible]	[illegible]	[illegible]
[illegible]	12/02/2023 – 27/02/2023	[illegible]	[illegible]	[illegible]
[illegible]	12/02/2023 – 27/02/2023	[illegible]	[illegible]	[illegible]
[illegible]	12/02/2023 – 27/02/2023	[illegible]	[illegible]	[illegible]
[illegible]	8/06/2023 – 24/08/2023	[illegible]	[illegible]	[illegible]
[illegible]	18/07/2023 – 26/09/2023	[illegible]	[illegible]	[illegible]
[illegible]	4/10/2023 – 03/12/2023	[illegible]	[illegible]	[illegible]
[illegible]	14/06/2024 – 19/06/2024	[illegible]	[illegible]	[illegible]
[illegible]	20/06/2024 – 17/09/2024	[illegible]	[illegible]	[illegible]
[illegible]	04/12/2024 – 10/01/2025	[illegible]	[illegible]	[illegible]
[illegible]	04/12/2024 – 10/01/2025	[illegible]	[illegible]	[illegible]
[illegible]	04/12/2024 – 10/01/2025	[illegible]	[illegible]	[illegible]
[illegible]	04/12/2024 – 10/01/2025	[illegible]	[illegible]	[illegible]



FILE NAME: OES_5 PLAN 10 PEST SPECIES CAMERA V6
9/06/2026

AVONVALE STATION -
OFFSET MANAGEMENT PLAN (OES5)

0 100 200 400 600 800 1,000 M

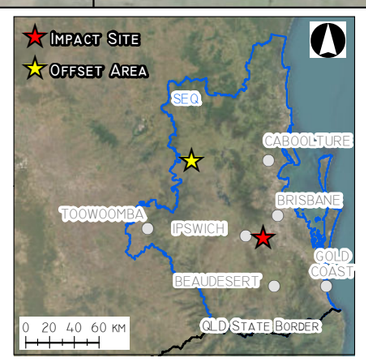
GDA94 MGA ZONE 56 1:30,000

N

THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. ONE ENVIRONMENT GROUP CANNOT ACCEPT REPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWING BY ANY THIRD PARTY.
SERVICE LAYER CREDITS SOURCE: ESRI, VANTOR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY
REFERENCES - © STATE OF QUEENSLAND, 2026

LEGEND

- AVONVALE STATION
- CHERRY GULLY STATION
- EPBC 2019/8575 OFFSET AREA
- MOTION DETECTION CAMERA LOCATION



ONE ENVIRONMENT

Extent of weed cover

Under the National Weeds Strategy, thirty-two (32) introduced plants were identified as WONS. This list of 32 WONS was developed based on the following key criteria:

- invasive tendencies
- impacts
- potential for spread
- socioeconomic and environmental values.

National management strategies and manuals have been published for all of these species.

The strategies aim to:

- prevent spread and new infestations,
- reduce adverse impacts of existing infestations,
- establish and maintain national commitment,
- coordinate management at a national level
- increase community awareness.

The *Biosecurity Act 2014*, which commenced on 1 July 2016, establishes a framework to regulate and control invasive plants and animals. Under the *Biosecurity Act 2014*, landowners are responsible for taking all reasonable and practical steps to minimise the risks associated with invasive plants and animals under their control. This is known as the general biosecurity obligation (GBO).

The *Biosecurity Act 2014* categorises restricted matters (restricted plants and animals) into the following:

- Category 1: must be reported to an inspector within 24 hours (includes Red Imported Fire Ants, amongst others).
- Category 2: must be reported within 24 hours Biosecurity Queensland on 13 25 23.
- Category 3: must not be distributed either by sale or gift, or released into the environment.
- Category 4: must not be moved.
- Category 5: must not be kept.
- Category 6: must not be fed (animals).
- Category 7: must be euthanised (animals).

Methodology

Surveys were required to quantify vegetation value as it pertains to suitable habitat for MNES species. This assessment ultilised the Modified Habitat Quality Assessment (MHQA) method as described under the BioCondition Assessment Manual (2015). A component of this assessment estimates the total non-native plant cover within transect areas which contributes to the overall habitat score.

For the purposes of this assessment, the MHQA methodology is not considered the most appropriate assessment to measure cover of specific weeds in a baseline methodology. The MHQA methodology is used to estimate total weed cover but does not provide the opportunity to calculate the percentage cover of separate weed species. Therefore, a more robust and targeted assessment was proposed for this assessment to capture more detail on weed cover.

Two ecologists assessed weed cover within the Offset Area on 5 December 2024, focusing on WONS such as *Lantana camara* (Lantana) and *Opuntia tomentosa* (Velvety Tree-pear). The extent of weed cover was quantified in a two-step process which involved mapping broad areas of weeds on-ground and completing targeted line-transects to estimate the percentage cover.

Step 1: Delineating Weed Patches

Using an antenna-based GPS system, the spatial extent or patches of WONS and other weeds within the offset area were mapped on-ground as polygons to produce a 'mud map' of the site (FIGURE 7). This step is completed to define patches of

weeds and subsequently guide the placement of targeted weed transects as a means of estimating percentage cover within a given patch.

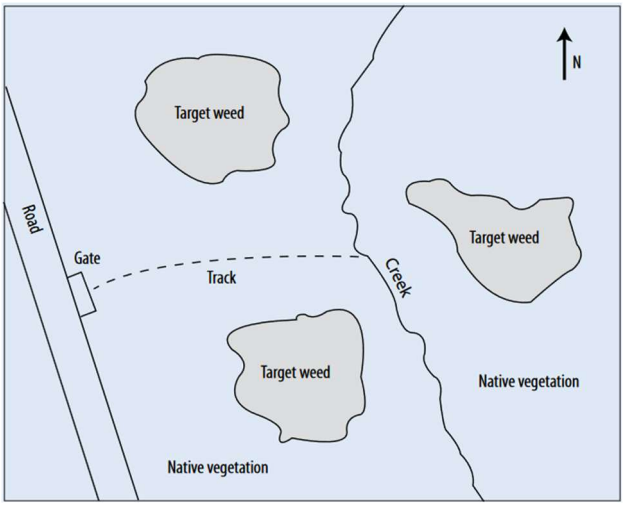


Figure 7:Example 'Mud map'. Extract from Auld (2009) – Figure 1.

Step 2: Line-Transect Method

In order to quantify the percentage cover within each mapped area, the line-transect methodology presented in the *Guidelines for Monitoring Weed Control and recovery of native vegetation* (Auld 2009) was implemented to estimate weed cover percentage.

In this methodology, the ground cover of a weed is a measure of the perpendicular projection of aerial parts of plants to the ground, shown in FIGURE 8. This method minimises user variability as cover calculations are not reliant on estimations, cover is instead accurately measured against the tape, typically standardised at 100 metres in length. With this technique, the percentage cover of all weed species (WONS and non-WONS) along the line-transect is recorded. Because shrubs may overlap plants growing closer to the ground, the total percentage cover of vegetation over an area may be greater than 100%. The data is recorded in metres, however, can be interpreted as a percentage.

Seven (7) 100 m transects were established across the offset area within a *Lantana camara* dominated polygon, a pasture weeds dominated polygon and an area representing the balance of the site. Auld (2009) does not prescribe a minimum number of line-transects which is a feature of other transect methods such as that prescribed in the BioCondition Assessment Manual. Due to the relatively small area of the offset area, the location of transects are considered adequate to represent the general condition of the offset area. Refer to PLAN 11 for the location of transects including specific coordinates and extent of mapped weed polygons.

At the 50 m centre point location, photos were taken documenting vegetation to the north, south, east and west. The locations of surveys completed in baseline surveys are permanent and will be repeated as part of future survey rounds at prescribed milestone years. Additional transects may be added if the area of polygons change. It is noted that the measurements are estimates of the whole rather than a precise and complete record.

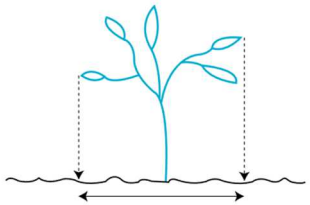


Figure 5. Ground cover of a plant indicated by the horizontal arrowed line.

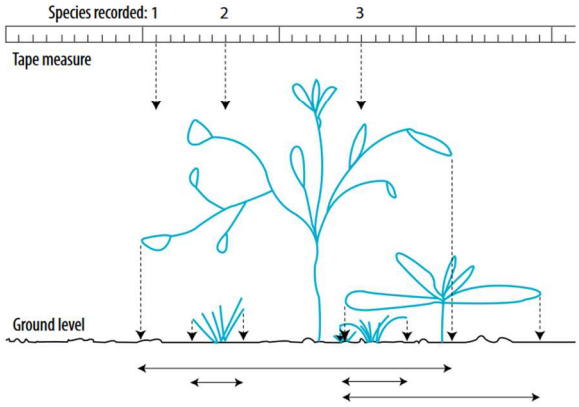


Figure 6. Overlapping vegetation means that total ground cover is often more than 100%. Three different sampling points indicated on the tape measure, used as a line-transect, will record either one, two or three plants.

Figure 8:Extract from Auld (2009).

Calculating weed cover in hectares

Following the completion of line-transects to estimate the percentage cover of weeds, the estimated cover in hectares of WONS and other weeds across the offset area can be calculated. Where there are multiple transects in a given patch, the percentage cover of WONS and other weeds is first averaged across transects to produce an average percentage cover for the given patch.

Due to the design of the offset area and location and size of weed patches during baseline assessments, only one transect was required to be completed within each patch, therefore the data was not required to be averaged, except for within WMZ 1. However, the above is provided where additional transects may be required to be completed as part of future milestone surveys.

The cover of WONS and other weeds in hectares is then calculated for each patch as the proportion of the percentage and/or average percentage cover multiplied by the size of the patch in hectares.

The hectares of WONS, and separately for other weeds, is then summed for all patches to produce a total cover of WONS for the offset area.

5.2. Results

Koala – Modified Habitat Quality Assessment

Site Condition (30%)

The site condition scoring for the offset area is summarised in TABLE 31. Refer to APPENDIX D for detailed baseline koala MHQA scoring and APPENDIX E for the raw transect data.

Table 31: Site condition scores for offset area assessment units

	AU1	AU2	AU3	AU4	AU5	AU6
Regional Ecosystem	12.11.14	12.3.3	12.3.7	12.9-10.7	12.9-10.7	12.11.14
Rem/NR/Reg	NR	NR	Rem	NR	Reg	Rem
Recruitment of woody perennial species in EDL	3	0	3	5	5	3
Native plant species richness - trees	2.5	0	2.5	2.5	2.5	2.5
Native plant species richness - shrubs	0	0	2.5	0	2.5	2.5
Native plant species richness - grasses	2.5	2.5	2.5	2.5	2.5	5
Native plant species richness - forbs	0	0	0	2.5	2.5	2.5
Average tree canopy height*	4	0	5	1.5	4	5
Average tree canopy cover*	2	0	2.5	2	5	5
Shrub canopy cover	5	0	3	5	3	0
Native grass cover	3	0	5	5	5	1
Organic litter	3	3	3	0	3	3
Large trees	5	0	5	5	10	5
Coarse woody debris	2	0	0	0	5	5
Non-native plant cover	0	0	0	3	5	5
Quality and availability of food and foraging habitat	5	1	5	5	10	5
Quality and availability of shelter	5	1	5	5	10	5
Total (Out of 100)	**42**	**7.5**	**44**	**44**	**75**	**54.5**
Score out of 3	**1.26**	**0.23**	**1.32**	**1.32**	**2.25**	**1.64**

Quality and availability of food and foraging habitat

The quality and availability of Koala foraging habitat across the offset area is considered moderate with the exception of AU2 and AU5 which achieved low (0%) and high (76.11%) scores, respectively. These were attributed a score of **1 out of 10** for low and **10 out 10** for high. AUs 1, 3, 4 and 6 achieved 60.56%, 58.89%, 58.89% and 57.22% of the benchmark, respectively, therefore each achieving a score of **5 out of 10**.

Quality and availability of shelter

The quality and availability of Koala shelter habitat across the offset area is considered moderate with the exception of AU2 and AU5 which achieved low (0%) and high (76.11%) scores, respectively. These were attributed a score of **1 out of 10** for low and **10 out 10** for high. AUs 1, 3, 4 and 6 achieved 60.56%, 58.89%, 58.89% and 57.22% of the benchmark, respectively, therefore each achieving a score of **5 out of 10**.

A discussed in Section 6.1, these scores are derived from the balance site condition attributes whereby Koala sheltering habitat values are considered in terms of attributes including recruitment, native tree species richness, canopy cover, shrub cover, presence of large trees and average tree canopy height as these are attributes which are considered to influence the provision of shelter. Within the offset area, sheltering resources are scattered across the landscape.

Site Context (30%)

The site context characteristics for Koala are shown on PLAN 8 with scores summarised in TABLE 32.

Table 32: Koala site context scores for offset area

	AU1	AU2	AU3	AU4	AU5	AU6
Size of patch	10	10	10	10	10	10
Connectedness	2	2	2	2	2	2
Context	4	4	4	4	4	4
Ecological corridors	4	4	6	4	4	4
Role of the site location to species overall population in the state	5	5	5	5	5	5
Threats to species	7	7	7	7	7	7
Species mobility capacity	4	4	7	4	10	10
Total (out of 56)	**36**	**36**	**39**	**36**	**42**	**42**
Score out of 3	**1.93**	**1.93**	**2.09**	**1.93**	**2.25**	**2.25**

Size of patch

The offset area is connected to a patch of >500 ha therefore achieves a score of **10 out of 10** across assessment units.

Connectedness

The offset area shares 21% of its boundary with koala habitat therefore achieves a score of **2 out of 5** across assessment units.

Context

Retained critical Koala habitat within a 1 km buffer of the site was calculated at 32% therefore achieves a score of **4 out of 5** across assessment units.

Ecological corridors

The offset area shares a boundary with a Statewide corridor of regional significance (refer PLAN 3) therefore achieves a score of **4 out of 6** across assessment units.

Role of the site location to species overall population in the State

This attribute aims to quantify the geographical importance of the referral area for koala populations across the broader State. This attribute achieved a score of **5 out of 5**.

Threats to species

Threats to koala are present across the broader Avonvale Offset Property and includes potential for dog and fox attack, degradation of habitat through uncontrolled weed infestations, namely *Lantana camara* (Lantana), uncontrolled wildfire and the presence of barbed wire. Additional to this is the likelihood of non-native feral herbivores to destroy revegetation areas.

The presence of moderate to severe Lantana infestations is a threat to the koala habitat by reducing the potential for natural regeneration of habitat. Non-native predators including wild dogs and European red foxes and non-native feral herbivores including wild pigs, red deer and spotted deer were confirmed within the offset area and broader property during baseline surveys (refer SECTION 4.2 – Pest Surveys). Additionally, wild dogs are known to occur within the locality within connecting vegetation. Wild dogs are known to travel up to 20 km seeking prey with home ranges of multiple packs of wild dogs to overlap with the offset area and broader offset property. Given the confirmed presence of multiple threats across the offset area, a score of **7 out of 15** or 'moderate' was attributed to each assessment unit.

An adaptive management approach is proposed to manage threats from dogs and other vertebrate pest species for the life of the offset (20 years).

Species mobility capacity

Species mobility capacity is considered variable across all AUs, ranging from minor to high restriction. Assessment units 1, 2 and 4 were attributed a score of high restriction (**4 out of 10**) due to the sparse state of vegetation. The limited availability of stems to promote movement throughout the landscape is recognised as reducing species mobility capacity. AU3 was scored moderate restriction (**7 out of 10**) noting the provision of trees for movement, however, incursion of dense weeds including Lantana which may compromise movement. AUs 5 and 6 were scored as minor restriction (**10 out of 10**) due to the relatively low weed cover and consistent provision of trees for movement throughout the landscape.

Species Stocking Rate (40%)

Evidence of koala was recorded within the offset area through the detection of scats during SAT surveys as part of the baseline field surveys. Five (5) SATs were completed corresponding with the associated transect number being MHQA transects 1, 6, 7, 8, and 10, respectively. SATs were completed where there were sufficient trees to complete an assessment. All SATs returned an activity class of 'low' under the East Coast (med-high) population category with the exception of T1 located within a stand of mature eucalypt trees which returned a 'high' usage, indicating dispersal is occurring across the surrounding paddock. A summary of the SAT survey results completed at each MHQA transect are provided in TABLE 33 with raw data provided at APPENDIX E.

Table 33: Baseline SAT survey results

SAT ID (MHQA transect)	Number of trees with scats (/30)	Evidence of koala activity (%)	Koala use (East Coast med-high)
SAT at T1	11	36%	High
SAT at T6	5	16%	Low

SAT at T7	0	0%	Low
SAT at T8	0	0%	Low
SAT at T10	1	3.33%	Low

The SAT surveys demonstrate that koalas utilise the landscape with a preference for retained stands of regrowth vegetation. The results support the understanding that the variation in density and abundance of food and foraging resources across the landscape influences the presence of Koalas and patterns of utilisation within the offset area. It is considered that the offset area has the capacity to support ecological gain for the Koala and promote consistent foraging and breeding behaviours across the landscape through management activities particularly revegetation practices.

The species stocking rate provides an estimation of the landscape's capacity to support koala and their range of life cycle requirements including dispersal, foraging and breeding as well as population-level dynamics. Species stocking rate for Koala was scored variably between assessment units where necessary to reflect the variance in vegetation structure and density and evidence of utilisation within the offset area. AU1 and 2 which are entirely paddock were scored **20 out of 70** reflecting the primary function as enabling dispersal between foraging areas. Similarly, AU4 which is predominantly paddock with scattered trees was scored **30 out of 70** to acknowledge the presence of some Koala activity within the AU which given the size of the AU is consistent with expected patterns of movement between higher quality patches of food resources. AU3, 5 and 6 were scored **40 out of 70** reflective of the presence of higher quality foraging areas and higher levels of utilisation (refer to TABLE 34). Further details on the justification for the scoring of each attribute is provided below:

- Presence – A koala was observed within the offset area therefore 'presence detected on or adjacent to site' was assigned a score of **10 out of 10** for all assessment units.
- Species usage of the site (habitat type and evidenced usage) – This attribute was scored a **15 out of 15** for AU3, AU5 and AU6 indicating foraging/breeding habitat reflective of confirmed presence within retained stands of vegetation and consistent vegetation structure. In the case of AU1, it is noted that large areas of the area are comprised of paddock, however, as a precaution this AU was assigned a higher score for this attribute based on high utilisation recorded within one patch of trees. Due to the general lack of vegetation structure and low density of trees within AU1, AU2 and AU4, these assessment units were scored as **5 out of 15** reflecting their primary function as dispersal habitat. While one scat was recorded within AU4, this is an expected result due to the large size of the assessment unit (approx. 86 ha) and provision of some trees to enable movement across the paddock portions of the site. Compared with the higher utilisation activity recorded within other AUs, this finding supports the interpretation of AU4 as primarily dispersal habitat.
- Approximate density – This attribute was scored as **10 out of 30** for all assessment units except for AU1 and AU2 which were scored **0 out of 30** due to the sparsity of trees and absence of Koala evidence. It is considered that the variability in the landscape of the offset area, Koalas utilised the more heavily treed and connected habitat areas. It is anticipated that the capacity of these non-remnant assessment units to support the Koala will improve with weed management and active regeneration.
- Role/importance of species population on site – Using the precautionary principle, the offset area is considered a key source for population for dispersal under 'role/importance of species population on-site' therefore was scored a **5 out of 15** for all assessment units.

Table 34: Koala species stocking rate scores within offset area assessment units

Species Stocking Rate Table						
	AU1	**AU2**	**AU3**	**AU4**	**AU5**	**AU6**
Presence detected on or adjacent to site (neighbouring property with connecting habitat) (/10)	10	10	10	10	10	10

Species usage of the site (habitat type and evidenced usage) (/15)	5	5	15	5	15	15
Approximate density (per ha) (/30)	0	0	10	10	10	10
Role/importance of species population on site* (/15)	5	5	5	5	5	5
Total Species Stocking Rate Score (/70)	**20**	**20**	**40**	**30**	**40**	**40**
Species Stocking Rate Score – out of 4	**1.14**	**1.14**	**2.29**	**1.71**	**2.29**	**2.29**
***SSR Supplementary Table – Total supplementary score 0 = 0, 5-15 = 5, 20-35 = 10, 40-45 = 15**						
	AU1	**AU2**	**AU3**	**AU4**	**AU5**	**AU6**
Key source population for breeding (/5)	0	0	0	0	0	0
Key source population for dispersal (/5)	5	5	5	5	5	5
Necessary for maintaining genetic diversity (/15)	0	0	0	0	0	0
Near the limit of the species range (/15)	0	0	0	0	0	0

Grey-headed Flying-fox – Foraging Habitat Assessment

Site Condition (40%)

The baseline site condition characteristics for grey-headed flying-fox are summarised in APPENDIX F.

Site Context (30%)

The baseline site context characteristics for grey-headed flying-fox are shown on PLAN 9 with results summarised in APPENDIX F.

A 'low' level of threats to GHFF are present within the offset area including the presence of barbed-wire.

Species Stocking Rate (30%)

The baseline species stocking rate scores is determined by the stem density of GHFF foraging species. The offset area species stocking rate results for grey-headed flying-fox are summarised in APPENDIX F.

Swift Parrot – Foraging Habitat Assessment

The results of the foraging habitat assessment are presented below.

One (1) preferred foraging species for the swift parrot was recorded within the offset area being *Eucalyptus tereticornis* (forest red gum) which was detected within AUs 3 and 4. It is estimated a total of 139 non-juvenile preferred foraging trees are present within the offset area (refer TABLE 35). A total of 5,095 non-juvenile trees comprising eucalypts, *Acacia* sp., *Allocasuarina* sp. and *Casuarina* sp. are estimated within the offset area (refer TABLE 36).

Table 35: Swift parrot baseline stem density (preferred foraging species)

AU	AU Area (ha)	Plot #	Count of non-juvenile preferred foraging trees (100 X 20 m plot)	Mean number per AU (100 X 20 m plot)	Estimate per hectare	Estimate per AU
1	49.3	2	0	0	0	0
1		4	0			
1		13	0			
2	15.2	3	0	0	0	0
2		5	0			
3	2.0	6	3	3	15	30
4	86.8	9	1	0.25	1.25	108.5
4		10	0			
4		11	0			
4		12	0			
5	11.0	7	0	0	0	0
5		8	0			
5		15	0			
6	3.7	1	0	0	0	0
					Total site (168 ha)	**139**

Table 36: Baseline stem density (all trees)

AU	AU Area (ha)	Plot #	Count of all non-juvenile trees (100 X 20 m plot)	Mean number per AU (100 X 20 m plot)	Estimate per hectare	Estimate per AU
1	49.3	2	10	5	25	1233
1		4	5			
1		13	0			
2	15.2	3	0	0	0	0
2		5	0			
3	2.0	6	3	3	15	30
4	86.8	9	2	2.5	12.5	1085
4		10	8			
4		11	0			
4		12	0			
5	11.0	7	15	18	90	990
5		8	6			

AU	AU Area (ha)	Plot #	Count of all non-juvenile trees (100 X 20 m plot)	Mean number per AU (100 X 20 m plot)	Estimate per hectare	Estimate per AU
5		15	33			
6	3.7	1	95	95	475	1758
					Total site (168 ha)	**5095**

Key foraging species to be reinstated within the offset area include *Eucalyptus tereticornis* (forest red gum) within AUs 1, 2, 3, 4, 5 and 6 and *Eucalyptus sideroxlyon* (mugga ironbark) within AU1 and AU6. While *Eucalyptus sideroxylon* is not associated with RE12.11.14, it comprises part of the planting palette used by the offset provider for RE12.11.14 based on local availability of seed stock and suitable site conditions and has been used successfully across other approved offsets within the broader offset property.

The results of the planting capacity and density analysis are provided in TABLE 37. Out of the total planting capacity of 152,857 trees, a total of 33,859 are proposed to be consist of preferred foraging trees for the swift parrot, resulting in a net total of 27,226 preferred foraging trees to protected and reinstated as a result of the offset, inclusive of an 80% survival rate of planted preferred foraging trees. This value was inputted as 'future value of the offset' for the OAG.

A Rehabilitation Plan is provided with this analysis to guide on-site planting works (APPENDIX G). The analysis and planting percentages of preferred foraging species is consistent with the Rehabilitation Plan to ensure offset actions are completed as proposed in this analysis.

Table 37: Swift parrot planting capacity analysis

AU	Planting Area (ha)	Mapped Status	On-ground Status	Planting Rate	Total Tree Plantings	Foraging Species Proportion planted			Foraging Species Count – Planted	80% survival rate	Future value with offset
						E. tereticornis	E. sideroxylon	Combined			
AU1	46.6	Cat X	Paddock	1/10 m^2	46600	0.10	0.15	0.25	11650	9320	9320
AU2	17.9	Cat X	Paddock	1/10 m^2	17900	0.50	0	0.50	8950	7160	7160
AU3	2.0	Cat B	Remnant	1/1000 m^2	20	0.25	0	0.25	5	4	34
AU4	86.1	Cat X	Paddock	1/10 m^2	86100	0.15	0	0.15	12915	10332	10441
AU5	11.0	Cat C	Sparse regrowth	1/50 m^2	2200	0.15	0	0.15	330	264	264
AU6	3.7	Cat B	Remnant	1/1000 m^2	37	0.10	0.15	0.25	9	7	7
Total					**152857**				**33859**	**27087**	**27226**

Regent Honeyeater – Foraging Habitat Assessment

The results of the foraging habitat assessment are presented below.

Presently the offset area does not contain any preferred foraging species for the regent honeyeater. A total of 5,095 non-juvenile trees comprising eucalypts, *Acacia* sp., *Allocasuarina* sp. and *Casuarina* sp. are estimated within the offset area (refer TABLE 36).

As the regional ecosystems and pre-clear regional ecosystems within the offset area do not contain preferred foraging species for the regent honeyeater, the planting capacity to establish suitable habitat for the species is limited. However, key foraging species *Eucalyptus sideroxlyon* (mugga ironbark) are proposed to comprise a proportion of the planting palette within AU1 (non-remnant RE12.11.14) and AU 6 (remnant RE12.11.14). While *Eucalyptus sideroxylon* is not associated with RE12.11.14, it comprises part of the planting palette used by the offset provider for this regional ecosystem due to the local availability of seed stock and suitable site conditions and has been used successfully across other approved offsets within the broader offset property.

The results of the planting capacity and density analysis are provided in TABLE 38. Out of the total planting capacity of 156,857 trees, a total of 6,996 are proposed to be consist of preferred foraging trees for the regent honeyeater, resulting in a net total of 5,596 preferred foraging trees to protected and reinstated as a result of the offset, inclusive of an 80% survival rate of planted preferred foraging trees. This value was inputted as 'future value of the offset' for the OAG.

A Rehabilitation Management Plan is provided with this analysis to guide on-site planting works (APPENDIX G). The analysis and planting percentages of preferred foraging species is consistent with the RMP to ensure offset actions are completed as proposed in this analysis.

Table 38: Regent honeyeater planting capacity analysis

AU	Planting Area (ha)	Mapped Status	On-ground Status	Planting Rate	Total Tree Plantings	Foraging Species Proportion planted	Foraging Species Count – Planted	80% survival rate	Future value with offset
						E. sideroxylon			
AU1	46.6	Cat X	Paddock	1/10 m^2	46600	0.15	6990	5592	5592
AU2	17.9	Cat X	Paddock	1/10 m^2	17900	0	0	0	0
AU3	2.0	Cat B	Remnant	1/1000 m^2	20	0	0	0	0
AU4	86.1	Cat X	Paddock	1/10 m^2	86100	0	0	0	0
AU5	11.0	Cat C	Sparse regrowth	1/50 m^2	2200	0	0	0	0
AU6	3.7	Cat B	Remnant	1/1000 m^2	37	0.15	6	4	4
Total					**156857**		**6996**	**5596**	**5596**

Feral animal abundance

The results of the baited camera trap survey (recorded species and number of occurrences over days of camera deployment) were utilised to provide relative abundance of non-native vertebrate pest species over the offset area, reducing bias and increasing repeatability.

A relative abundance index (RAI) is then calculated for feral animal abundance, using the formula **RAI= D/TN x 100**, where D is number of individual detections and TN is the total number of camera-trap nights (all cameras combined). For the purposes of this study, any feral animal was recorded as a new individual if >1 hour had elapsed between sightings. This methodology ensures that the surveys are representative of the entire area and are repeatable for future monitoring requirements. A higher RAI indicates a higher pest presence.

Several feral animals were observed over the 520-day combined survey timeframe predominantly comprising non-native herbivore species. The results of predator and herbivore RAI are provided in TABLE 39 and TABLE 40. The RAI for predator species is **3.46** and for herbivore species is **45.0**, consisting of wild pigs, spotted deer and red deer. Additionally, pest data collated by the offset property pest contractors coordinates of observations, number of observed pests and observation method (camera or in-person) is provided at APPENDIX H.

Refer to PHOTO SET 10 for examples of pest animals captured within the offset area during camera monitoring.

Table 39: Baseline non-native predator survey detections and RAI

Camera	Survey Duration (nights)	Species	Detection	RAI
1	15	*Vulpes vulpes* (European red fox)	1	**3.46**
2	15	*Vulpes vulpes* (European red fox)	1	
3	15	Nil	0	
4	15	Nil	0	
5	78	Nil	0	
6	71	*Canis lupis familiaris* (Wild dog) *Vulpes vulpes* (European red fox)	2 3	
7	63	*Felis catus* (Feral cat)	2	
8	6	Nil	0	
9	90	*Canis lupis familiaris* (Wild dog) *Vulpes vulpes* (European red fox) *Felis catus* (Feral cat)	3 1 2	
10	38	*Felis catus* (Feral cat)	2	
11	38	*Vulpes vulpes* (European red fox)	1	
12	38	Nil	0	
13	38	Nil	0	
Total	**520**	**3**	**18**	

Table 40: Baseline non-native herbivore survey detections and RAI

Camera	Survey Duration (nights)	Species	Detection	RAI
1	15	*Cervus elaphus (*Red Deer) *Lepus europaeus* (European hare)	6 4	**45.0**
2	15	*Cervus elaphus (*Red Deer)	14	
3	15	*Lepus europaeus* (European hare)	1	
4	15	Nil	0	
5	78	*Sus scrofa* (Wild pig)	37	
6	71	*Sus scrofa* (Wild pig)	36	
7	63	*Sus scrofa* (Wild pig)	33	
8	6	*Sus scrofa* (Wild pig) *Cervus elaphus (*Red Deer)	21 4	
9	90	*Sus scrofa* (Wild pig) *Cervus elaphus (*Red Deer) *Lepus europaeus* (European hare)	22 17 4	
10	38	*Cervus elaphus (*Red Deer)	1	
11	38	*Cervus elaphus (*Red Deer)	5	
12	38	*Axis axis* (Spotted Deer)	2	
13	38	*Cervus elaphus (*Red Deer) *Axis axis* (Spotted Deer)	26 1	
Total	**520**	**3**	**234**	

Feral cat (camera 10)

Red deer (camera 11)

European red fox (camera 11)

Spotted deer (camera 12)

Spotted deer (camera 13)

Photo set 10: Examples of observed pest species

Fauna observations

A total of eighteen (18) fauna species were recorded during camera trapping and observations on-site, including confirmed sightings of koala (refer PHOTO SET 11). Refer to TABLE 41.

Table 41: Fauna recorded within offset area during baseline surveys

Scientific name	Common name	Introduced/native	Observation method
Aepyprymnus rufescens	rufus bettong	Native	Camera trapping
*Axis axis**	spotted deer	Introduced	Camera trapping
Bos taurus	domestic cow	Introduced	Observed, camera trapping
*Canis lupis familiaris**	wild dog	Introduced	Camera trapping
*Cervus elaphus**	red deer	Introduced	Observed, camera trapping
Chenonetta jubata	Australian wood duck	Native	Camera trapping
Corvus orru	Torresian crow	Native	Observed/camera trapping
*Felis catus**	feral/domestic cat	Introduced	Camera trapping
Gymnorhina tibicen	Australian magpie	Native	Observed
*Lepus europaeus**	European hare	Introduced	Camera trapping
Macropus giganteus	eastern grey kangaroo	Native	Camera trapping
Phascolarctos cinereus	**koala**	**Native**	**Observed**
Porphyrio porphyrio	purple swamphen	Native	Camera trapping
Rhinella marina	cane toad	Introduced	Observed
*Sus scrofa**	wild pig	Introduced	Camera trapping
Threskiornis moluccus	Australian white ibis	Native	Camera trapping
*Vulpes vulpes**	European red fox	Introduced	Camera trapping
Varanus varius	lace monitor	Native	Camera trapping

*Feral pest species

Photo set 11: Koala sighting and scats within Avonvale offset area.

Extent of weed cover

The results of the 5 December 2024 baseline weed surveys are displayed on PLAN 11 – Baseline weed survey coverage results and raw data including baseline north, south, east and west photos taken from the 50 m centre point location are provided at APPENDIX I.

The offset area was mapped into six (6) patches or Weed Management Zones (WMZs) detailed in TABLE 42 below. One line-transect site was located within each patch for a total of seven (7) transects. The transect IDs are also provided in TABLE 42.

Table 42: Weed patches and transects

Patch / Weed Management Zone	Size (ha)	Percentage of offset area	Transect ID
1	88.2	52.56%	1, 3
2	7.2	4.29%	2
3	23.4	13.9%	4
4	22.5	13.4%	5
5	6.4	3.8%	6
6	20.1	11.97%	7

A total of twenty-two (22) weed species were recorded across line-transect sites including two (2) listed WONS being Lantana camara (Lantana) and *Opuntia tomentosa* (Velvety Tree-Pear) and four (4) species listed as Category 3 – restricted under the Queensland *Biosecurity Act 2014* (TABLE 43).

The recorded cover of WONS, other weeds, native species and bare ground recorded at each line-transect site is provided in TABLE 44. Native grass as recorded in the surveys was dominated by *Digitaria didactyla* (Queensland Couch) and *Heteropogon contortus* (Black Speargrass). Notably, no WONS were recorded in WMZs 2, 4 or 6. The dominant WONS species is *Lantana camara* (Lantana) and the dominant other weed not defined as a WONS is *Verbena bonariensis* (Purple-top Verbena).

The total estimated area of WONS cover within the offset area is **4.53 ha** (TABLE 45) and **78.67 ha** for other weed species (TABLE 46).

Weed mapping and targeted line-transect surveys will be repeated at established locations as part of prescribed milestone survey events to demonstrate changes in cover of weeds with treatment. As stated in the methodology, additional transects may be completed where weed composition and location changes.

Table 43: Recorded weed species within offset area during baseline surveys

Scientific Name	Common Name	Listing	WMZ 1	WMZ 2	WMZ 3	WMZ 4	WMZ 5	WMZ 6
Ambrosia artemisiifolia	Annual Ragweed	Category 3					✓	
Bidens pilosa	Cobbler's Pegs		✓	✓	✓	✓	✓	✓
Cirsium vulgare	Spear Thistle		✓	✓		✓		
Conyza sumatrensis	Tall Fleabane		✓	✓		✓	✓	✓
Cyperus polystachyos	Bunchy Sedge				✓	✓		
Euphorbia sp.	Spurge			✓	✓			
Gomphocarpus physocarpus	Cotton Balloon Bush		✓	✓				✓
Heliotropium amplexicaule	Blue Heliotrope		✓	✓	✓	✓	✓	
Lantana camara	Lantana	WONS, Category 3	✓		✓		✓	
Melinis repens	Red Natal Grass		✓		✓		✓	
Mimosa pudica	Common Sensitive Plant		✓					✓
Opuntia tomentosa	Velvety Tree-Pear	WONS, Category 3	✓					
Oxalis stricta	Common Yellow Woodsorrel		✓	✓		✓	✓	
Setaria sphacelata	South African Pigeon Grass			✓				
Sida cordifolia	Flannel Weed				✓	✓	✓	
Sida rhombifolia	Arrowleaf Sida		✓	✓		✓	✓	✓
Solanum nigrum	Black Nightshade		✓				✓	
Sonchus oleraceus	Common Sowthistle		✓					
Sporobolus africanus	Parramatta Grass	Category 3	✓					
Tagetes minuta	Southern Cone Marigold					✓		
Verbena bonariensis	Purple-top Verbena		✓	✓		✓	✓	
Zinnia sp.				✓				

Table 44: Weed cover (Line-transect methodology) – raw data located at Appendix I

WMZ	Transect	WONS cover (m)	Other weeds cover (m)	Native cover (m)	Bare ground (m)
WMZ 1	Transect 1	**3.4**	**21.7**	81.4	0.4
WMZ 1	Transect 3	**0**	**36.06**	88.7	0
WMZ 1	AVERAGE	**1.7**	**28.88**	85.05	0.2
WMZ 2	Transect 2	**0**	**37.8**	90.4	0
WMZ 3	Transect 4	**11.8**	**74.97**	20.1	5.6
WMZ 4	Transect 5	**0**	**165.59**	49.1	0
WMZ 5	Transect 6	**4.2**	**77.4**	65.4	0
WMZ 6	Transect 7	**0**	**27.3**	100	0

Table 45: Estimated cover of WONS (hectares)

Weed Management Zone	Area (ha)	Percentage WONS cover (based on transect results)	Estimated area of WONS cover (ha)
WMZ 1	88.2	1.7%	1.5 ha
WMZ 2	7.2	0%	0
WMZ 3	23.4	11.8%	2.76
WMZ 4	22.5	0%	0
WMZ 5	6.4	4.2%	0.27
WMZ 6	20.1	0%	0
Total for offset area	**168**		**4.53**

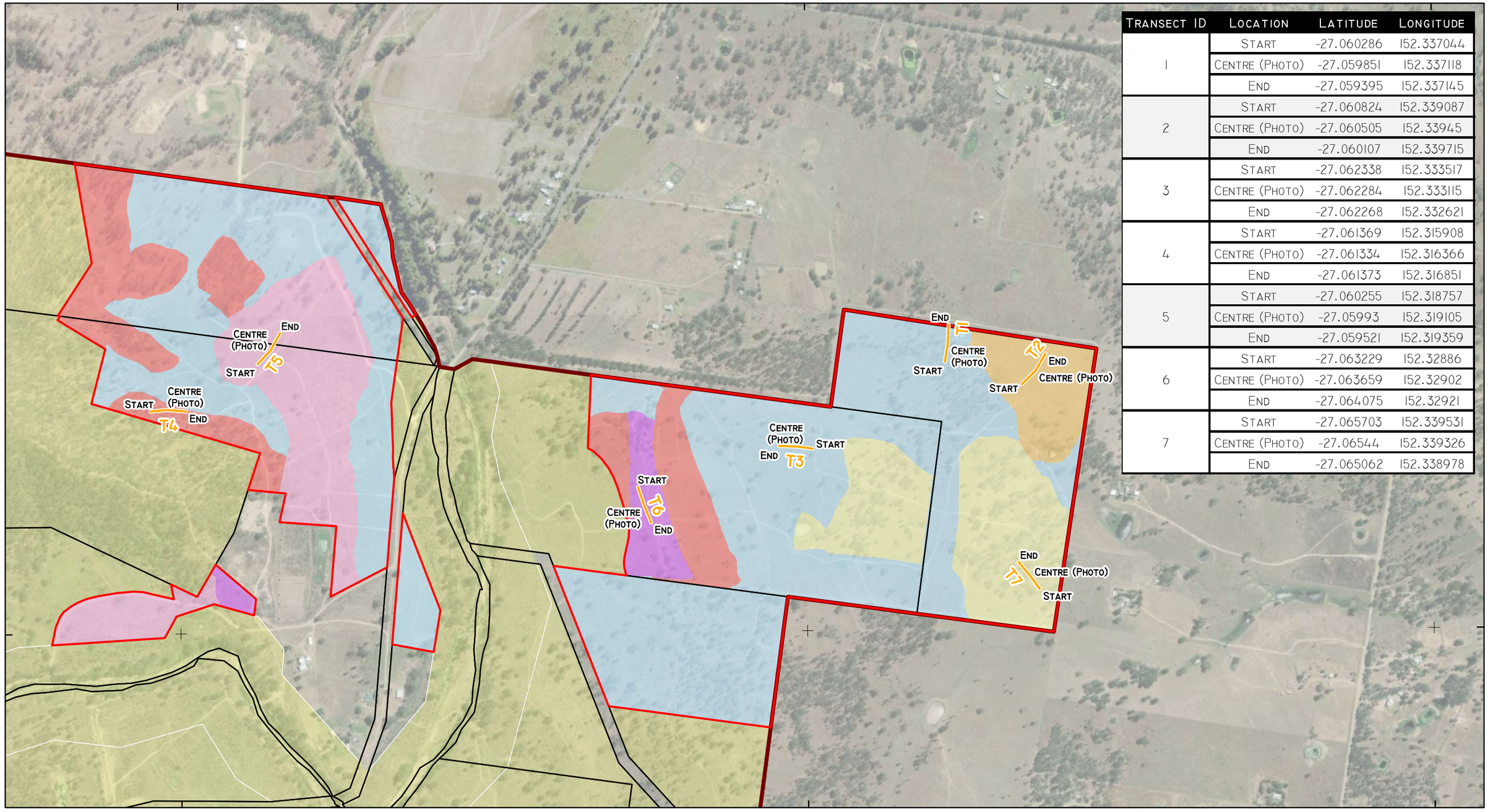
Table 46: Estimated cover of other weeds

Weed cover category	Area (ha)	Percentage other weeds cover (based on transect results)	Estimated area of other weed cover (ha)
WMZ 1	88.2	28.88%	25.49
WMZ 2	7.2	37.8%	2.72
WMZ 3	23.4	74.97%	17.52
WMZ 4	22.5	165.59%	22.5 (capped at 100%)
WMZ 5	6.4	77.4%	4.95
WMZ 6	20.1	27.3%	5.49
Total	**168**		**78.67**

PLAN II - BASELINE WEED SURVEY COVERAGE RESULTS

152°19'0"E 152°20'0"E 152°21'0"E

27°4'0"S



TRANSECT ID	LOCATION	LATITUDE	LONGITUDE
1	START	-27.060286	152.337044
	CENTRE (PHOTO)	-27.059851	152.337118
	END	-27.059395	152.337145
2	START	-27.060824	152.339087
	CENTRE (PHOTO)	-27.060505	152.33945
	END	-27.060107	152.339715
3	START	-27.062338	152.333517
	CENTRE (PHOTO)	-27.062284	152.333115
	END	-27.062268	152.332621
4	START	-27.061369	152.315908
	CENTRE (PHOTO)	-27.061334	152.316366
	END	-27.061373	152.316851
5	START	-27.060255	152.318757
	CENTRE (PHOTO)	-27.05993	152.319105
	END	-27.059521	152.319359
6	START	-27.063229	152.32886
	CENTRE (PHOTO)	-27.063659	152.32902
	END	-27.064075	152.32921
7	START	-27.065703	152.339531
	CENTRE (PHOTO)	-27.06544	152.339326
	END	-27.065062	152.338978

FILE NAME: OES_5 PLAN II WEED COVERAGE V6
26/06/2026

AVONVALE STATION-
OFFSET MANAGEMENT PLAN (OES5)

0 50 100 200 300 M

GDA94 MGA ZONE 56 1:10,000

N

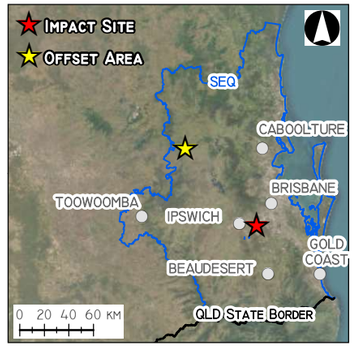
THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. ONE ENVIRONMENT GROUP CANNOT ACCEPT REPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWING BY ANY THIRD PARTY. SERVICE LAYER CREDITS: SOURCE: ESRI, VANTOR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY
REFERENCES - © STATE OF QUEENSLAND, 2026

LEGEND

- AVONVALE STATION
- OFFSET SITE ALLOMENTS
- OFFSET SITE EASEMENT/STRATA
- EPBC 2019/8575 OFFSET AREA
- EXISTING AVONVALE STATION OFFSET AREAS
- WEED TRANSECTS

WEED MANAGEMENT ZONES

- WEED MANAGEMENT ZONE 1 – NATIVE PASTURE GRASS WITH EXOTIC HERBACEOUS WEEDS [90.9 HA]
- WEED MANAGEMENT ZONE 2 – HIGHLY DISTURBED EX-PASTURE WITH EXOTIC HERBACEOUS WEEDS [7.2 HA]
- WEED MANAGEMENT ZONE 2 – SCATTERED LANTANA CAMARA WITH EXOTIC GRASS AND HERBACEOUS WEEDS [22.2 HA]
- WEED MANAGEMENT ZONE 4 – LOW-LYING PASTURE DOMINATED BY HERBACEOUS WEEDS [22.5 HA]
- WEED MANAGEMENT ZONE 5 – EXOTIC PASTURE GRASS DOMINANT [5.1 HA]
- WEED MANAGEMENT ZONE 6 – NATIVE GRASS AND FORBS DOMINANT WITH SCATTERED HERBACEOUS WEEDS [20.1 HA]



ONE ENVIRONMENT

6. Offset Area Design

The Offset Area is 168 ha of land all which has been divided into five (5) Assessment Units based on the differing vegetation communities and structure across the Offset Area. Each Assessment Unit is considered a separate Environmental Management Zone (EMZ). The majority of the Offset Area comprises partially cleared grazing land with scattered trees and/or patches of regrowth and remnant vegetation. Extensive revegetation of existing cattle grazing areas is proposed, with the overall design of the offset achieving:

- Habitat recreation by revegetating cleared land into habitat in logical infill and expansion locations to maximise the area and width of dedicated offset land.
- Habitat recovery and re-connection through strategically located restoration and revegetation adjacent to existing habitat and adjoining approved restoration areas. The bolstering of existing offset areas widens and improves the safety and opportunity for fauna movement.
- Expand the adjacent retained remnant ridgeline vegetation communities with the riparian and alluvial flats being reinstated with impacted species' habitat through approved offset solutions.

This section the OAMP provides a summary of each EMZ and outlines core objectives sought within the EMZ as part of the overall offset outcome. The designation of the Offset Area into an EMZ is specifically linked to Environmental Management Action Tables in Section 5.0 of the OAMP allowing itemised tasks to reference specific geographical areas within the Offset Area.

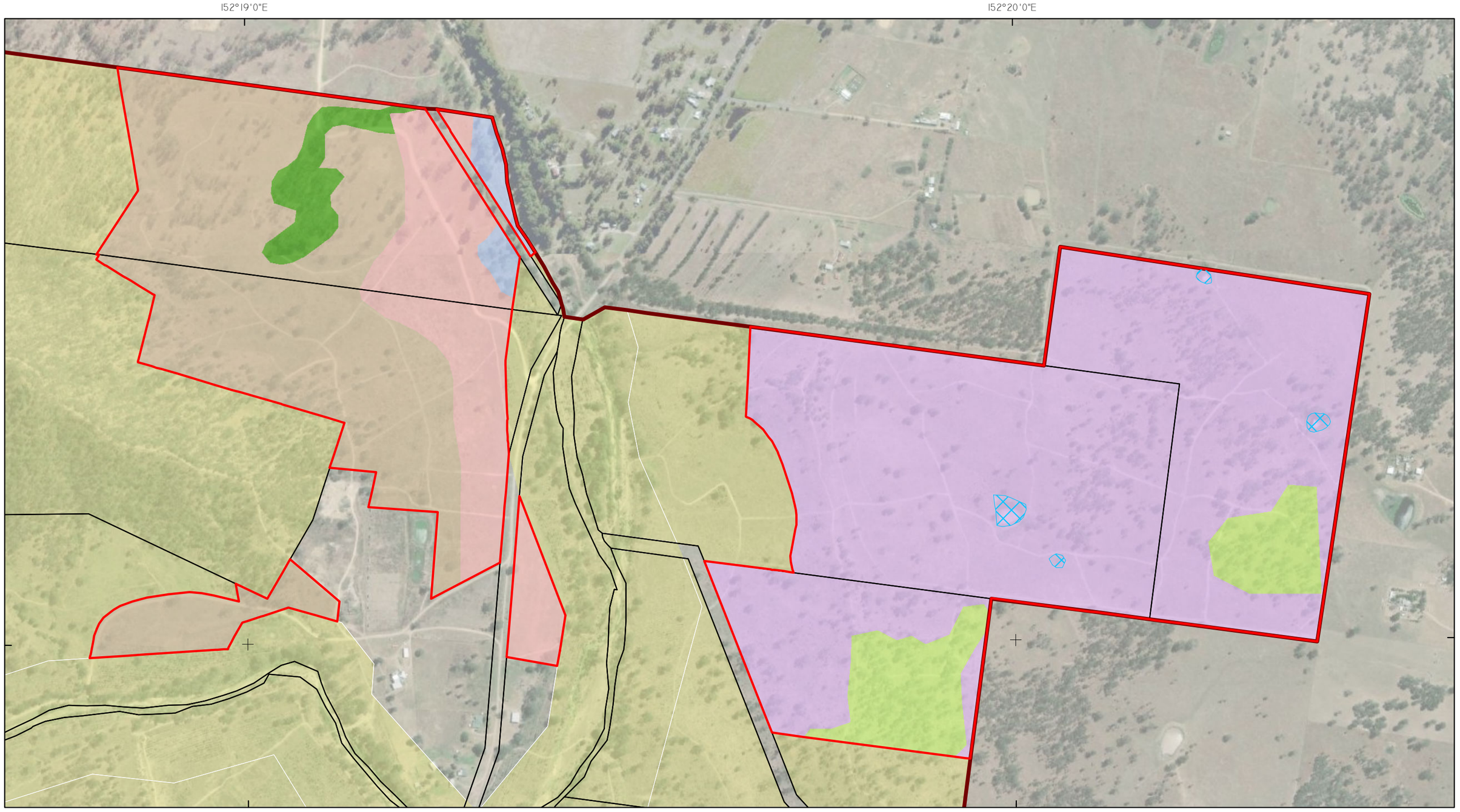
Refer to PLAN 12 for the Offset Area Design designating the spatial extent of each EMZ.

The total Offset Area is 168 ha, which is categorised into the EMZs summarised in TABLE 47, below.

Table 47: Environmental Management Zones

Environmental Management Zone	Description	Queensland VMA Category	Area (ha)
EMZ-1	Non-remnant open paddock RE12.11.14	Category X	53
EMZ-2	Non-remnant open paddock RE12.3.3	Category X	15.2
EMZ-3	Remnant Waterway RE12.3.7	Category B	2
EMZ-4	Non-remnant open paddock with scattered trees RE12.9-10.7	Category X	86.8
EMZ-5	Regrowth RE12.9-10.7	Category C	11

PLAN 12 - OFFSET AREA DESIGN



FILE NAME: OES_5 PLAN 12 OFFSET AREA DESIGN V6
9/06/2026

AVONVALE STATION-
OFFSET MANAGEMENT PLAN (OES5)

0 50 100 200 300 M

GDA94 MGA ZONE 56 1:8,000

N

THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. ONE ENVIRONMENT GROUP CANNOT ACCEPT REPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWING BY ANY THIRD PARTY.
SERVICE LAYER CREDITS: SOURCE: ESRI, VANTOR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY

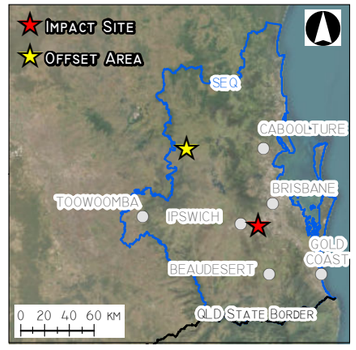
REFERENCES - © STATE OF QUEENSLAND, 2026

LEGEND

- AVONVALE STATION
- OFFSET SITE ALLOMENTS
- OFFSET SITE EASEMENT/STRATA
- OFFSET SITE WATERBODIES [0.7 HA]
- EPBC 2019/8575 OFFSET AREA
- EXISTING AVONVALE STATION OFFSET AREAS

OFFSET DESIGN

- ENVIRONMENTAL MANAGEMENT ZONE (AU1) NON-REMNANT PADDOCK: RE 12.11.14 [46.6 HA]
- ENVIRONMENTAL MANAGEMENT ZONE (AU2) NON-REMNANT PADDOCK: RE 12.3.3 [17.9 HA]
- ENVIRONMENTAL MANAGEMENT ZONE (AU3) REMNANT: RE 12.3.7 [2 HA]
- ENVIRONMENTAL MANAGEMENT ZONE (AU4) NON-REMNANT PADDOCK WITH SCATTERED TREES: RE 12.9-10.7 [86.8 HA]
- ENVIRONMENTAL MANAGEMENT ZONE (AU5) REGROWTH: RE 12.9-10.14 [11 HA]
- ENVIRONMENTAL MANAGEMENT ZONE (AU6) REMNANT: RE 12.11.14 [3.7 HA]



ONE ENVIRONMENT

6.1. Environmental Management Zones 1, 2 and 4 – Category X vegetation

Environmental Management Zones 1, 2 and 4 are defined through their primary role of habitat creation and cover 53 ha, 15.2 ha and 86.8 ha of the Offset Area, respectively. Existing habitat values for the Koala range from marginal (paddock trees) to non-existent (grass plains). As there are very few remnant aged trees, the existing values for the Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater are almost nil based on the lack of preferred foraging trees, however, pre-clear data shows substantial reinstatement opportunities for foraging and roosting trees. There are disconnected locations throughout EMZ 1 where native vegetation values occur in a cluster or strand of healthy specimens, however, these were not observed or considered to contribute to the functional role of habitat available for the impacted species. EMZ 2 is entirely devoid of trees, except for some scattered in the north portion of the area and based on the pre-clear RE12.3.3, will be reinstated with preferred forage tree *Eucalyptus tereticornis*, expanding and enhancing alluvial and floodplain foraging habitat. The land encompassing EMZs 1, 2 and 4 is consistent with Category X areas on-site under the Queensland *Vegetation Management Act 1999* and co-aligns with the areas approved by the Department on other offsets.

Management measures within EMZs 1, 2 and 4 principally seek to transition cattle grazing paddocks to remnant habitat, strategically located within a regional conservation network. The revegetation and reinstatement of native vegetation throughout EMZs 1, 2 and 4 results in three (3) critical objectives, including:

- Expand available species' resources through new habitat.
- Provide north-south and east-west connectivity to surrounding habitat.
- Provide an increased habitat node on the south east edge of the Ivory Creek corridor system.

A high proportion (50%) of the planting palette for EMZ 2 is proposed to comprise *Eucalyptus tereticornis* (APPENDIX G). RE12.3.3, which is the vegetation community the EMZ is proposed to be planted as, is described as an *E. tereticornis* woodland by the Queensland Herbarium with other species *E. crebra* and *E. moluccana* sometimes present. *Eucalyptus tereticornis* is well-documented to persist well in Land Zone 3. Further, under the Technical Description for the RE (Queensland Herbarium, 2018), *E. tereticornis* is the dominant canopy species, comprising a relative cover and frequency of 78 and 100%, respectively. This supports the assessment that a planting palette comprising 50% *E. tereticornis* is suitable for EMZ 2.

The land zones and remnant vegetation communities on the broader Avonvale Station are known to support Koala usage, and as such, is desirable for habitat recreation noting shared attributes with other species. Where existing vegetation occurs on the broader landholding with these characteristic both summer and winter foraging tree species occur for the GHFF. EMZs 1, 2 and 4 will achieve its management objectives through:

1. Removing weed sources and dense matted pasture grasses from the soil profile in preparation for mass planting of native trees and other species known to support foraging habitat for the species.
2. Sequential and long-term exclusion of cattle uses through fencing.
3. Mass replanting with native tube stock and seedlings endemically collected from site and propagated in the on-site nursery in accordance with the RMP at APPENDIX G.
4. Plant maintenance, weed and pest management through the varying stages of revegetation to mature self-sustaining regrowth ecosystems.

Further details on specific management actions for EMZs 1, 2 and 4 are located in the Tabulated Management Actions in Section 6.0 of this OAMP and the RMP located at APPENDIX G.

6.2. Environmental Management Zones 3, 5 and 6 – Category B and C vegetation

Environmental Management Zones 3 and 5 are areas with existing vegetation values reflective of either remnant or regrowth vegetation values and cover 2 ha and 11 ha of the Offset Area, respectively. Existing habitat values for the Koala are present in the form of open eucalypt woodland with varying density of large and old-growth trees. Consistent foraging values are available for the Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater relative to the surrounding grazing land. The land designated for part of the offset is measured as consistent with Category B and C areas on-site under the Queensland *Vegetation Management Act 1999* and are considered to complement the surrounding revegetation areas through the enhancement of native vegetation.

The primary objective of management actions within EMZs 3, 5 and 6 is to enhance habitat values through natural assisted regeneration via weed management to increase recruitment of native trees and understory species and infill planting where required.

Management actions within EMZs 3, 5 and 6 principally seek to enhance existing remnant habitat values and provide key areas of sheltering resources and higher value foraging vegetation. These areas will be particularly important while surrounding revegetation grazing land is revegetated and general connectivity is improved.

The land zones and remnant vegetation communities on the broader Avonvale Station are known to support Koala usage, and as such, is desirable for habitat recreation noting shared attributes with other species. Where existing vegetation occurs on the broader landholding with both summer and winter foraging tree species occur for the GHFF. EMZs 3, 5 and 6 will achieve its management objectives through:

1. Removal of weed sources from the soil profile where present to support recruitment of native trees and understory species, and provide opportunities for infill planting where needed.
2. Supplementary planting post weed removal with native tube stock and seedlings endemically collected from site and propagated in the on-site nursery in accordance with the RMP at APPENDIX G.

Further details on specific management actions for EMZs 3, 5 and 6 are located in the Tabulated Management Actions in Section 6.0 of this OAMP and the RMP located at APPENDIX G.

7. Offset Land Management Actions

There are eight (8) actions required to be implemented within the Offset Area. Although in many actions there is overlap, primarily the specific tasks can be considered to either reduce or remove an existing threat or improve or create new habitat opportunities. Some actions apply to specific species and others are designed to improve habitat and outcomes for all species, which is a relevant matter for the existing approved projects on the landholding. Some actions are limited to acute or specific locations, others apply to the entire Offset Area and selected actions will apply to the entire landholding, inclusive of areas retained for grazing.

Actions to be completed in accordance with this OAMP include:

- Action 1: Vertebrate Pest Management (Primarily Targeting Feral Dogs)
- Action 2: Weeds of National Significance (Reduction & Management)
- Action 3: Stock Management
- Action 4: Access Management, Trespass and Neighbouring Stock Mustering Controls
- Action 5: Wildfire Management
- Action 6: Native Seed Collection & Propagation
- Action 7: Revegetation (Habitat Creation) Activities
- Action 8: Infrastructure Improvement

Each of these management actions is tabulated into a more detailed format in the following subsections. The tables are set out to respond to the following criteria:

Outcome: *What is the action / task designed to achieve and why is it necessary?*
Action Description: *What are the tasks proposed?*
Action Location(s): *Where on site is the action proposed?*
Action Timing: *When and how will the action / task be implemented, started, completed?*
Responsibility: *Who will complete the action and who will provide the funding?*
Measured & Monitored By: *How will the action be measured, how will the outcome of the action be measured, by what method and timing?*
Adaptive Management: *What's the procedure for correcting or amending the action if the proposed outcomes are not being achieved?*

A summary of the reporting schedule is provided in SECTION 5.

Avonvale Offset Area Offset Management Plan

Action Management Tables

7.1. **Action 1**: Vertebrate Pest Management (Primarily Targeting Feral Dogs)

The Department of Agriculture & Fisheries (DAF) – Biosecurity Queensland maps feral dogs through the Somerset Regional Council Area as 'common'. Feral dogs are listed as a 'class 2' pest in the Somerset Regional Council Pest Management Plan and noted within many contemporary newspaper articles and Council's meeting minutes as increasing in population since 2013 [Ref: Elsome, D (2018)]. Council have introduced a feral dog bounty program providing $25 for each scalp provided as evidence. Council also provide baiting and training on use of baiting to land holders, however, do not retain their own pest management officer.

Historical land holder and farm staff observations on the broader Avonvale Station have antidotally noted feral dogs as an issue for stock and that the problem is shared by all surrounding cattle grazers. Site surveys associated with Avonvale and Cherry Gully Station offset property located feral dogs through the vegetated and cleared portions of the Offset Area. Additionally, predator induced mortalities of Koala have been recorded within the broader property. There are 23 local records for Koalas of which 7 are noted as severely injured or killed by animals.

A core role of the Action 1 Offset Management Tasks will be for the prolonged control and reduction in feral dogs over the offset land for the offset period. Refer to TABLE 48 for management actions.

Site Images of Feral Dogs / Koala Carcass and Other Pest Species:

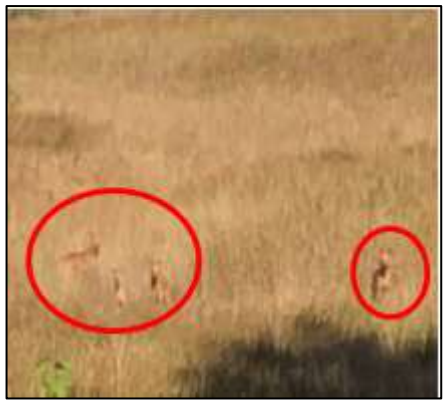


Table 48: Offset Area – Action 1 – Management Actions

Action Description: *What are the tasks proposed?*	– Suppress the occurrence of non-native vertebrate pest species including predator species to the target MNES (wild dogs, European red foxes, feral cats) and herbivores known to impact regenerating habitat (deer, feral pigs) for the life of the offset. – **Injury or death of MNES from non-native predator attacks within the offset area is reduced where possible.**
Action Location(s): *Where on site is the action proposed?*	– Vertebrate pest management is to occur in EMZs 1 to 6 as part of broader property management. – Vertebrate pest management will cover the entire offset area and broader areas to ensure dispersal and ambush targets are located and controlled.
Action Timing: *When and how will the action / task be implemented, started, completed?*	Years 1 – 5 – Implement Pest Management Implementation Strategy and Action Plan (refer APPENDIX J). The Pest Management Implementation Strategy was developed for the broader Avonvale and Cherry Gully Station properties managed by the Offset Provider in consultation with Somerset Regional Council. Consultation with SRC Pest Management Officer Shane Teske was undertaken by the Offset Provider on 18th January 2022. Council reviewed the feral management proposals and approval outcomes for the offset property and made the following recommendations for management: 1. Baiting 4 times per year. This is done in March, July, Sept, and Nov. 2. No baiting occurs when raining as it makes the poison useless. 3. Offset Provider would manage the process with Shane. 4. Offset Provider would be required to provide 72 hours' notice to all neighbours. 5. Offset Provider will supply all the meat, 250g pieces. 6. Detailed paperwork including liability coverage etc. is required and would need to include a map showing lots on which baits are located. 7. Council would meet the Offset Provider onsite and inject the meat with 1080 poison supplied by Council. Council is to provide 1080 poison free of cost.

	8. Offset Provider to place the baits, 200-300m apart. 9. Baits remain in place for 7 days. 10. Uneaten baits must be collected, burnt, or deep buried after 7 days. 11. Dogs die in circa 24 hours. 1080 poison is specific to dogs. Years 1-5 – Targeted Pest Management Activities to ensure feral animal abundance of pest species and koala mortality/injury is reduced. Management techniques will entail: • Quarterly Spotlight Diurnal Hunting (Shooting) Program. • Implement 1080 baiting program in February to May and September to November in accordance with Somerset Regional Council's recommended guidelines. • Include annual trapping/baiting/hunting event targeting feral dogs species. • Decommissioning and removal of any pest species denning, foraging or breeding features. Year 5 – Remobilise and Replicate Detailed Baseline / Seasonal Pest Management Survey utilising the methods described in **Section 5.1.** Compare and report on data in **Year 5 Milestone Report** to be prepared by a suitably qualified professional as appointed by the proponent demonstrating that seasonal pest abundance and evidence of koala mortality if applicable. Data will be used to inform pest management frequency and location. The OAAR will include any proposed amendments to the Targeted Pest Management Activities. Years 6-10 – Continue to implement Pest Management Strategy / Actions in accordance with any recommended adaptive management changes incorporated in response to Year 5 baseline surveys as documented in the OAAR. The OAAR prepared by the offset provider is to be the primary reporting tool from Years 6-10. Year 10 - Remobilise and Replicate Detailed Baseline / Seasonal Pest Management Survey utilising the methods described in **Section 5.1.** Compare and report on data in **Year 10 Milestone Report** to be prepared by a suitably qualified professional as appointed by the proponent demonstrating that seasonal pest abundance and evidence of koala mortality if applicable.

	Data will be used to inform pest management frequency and location. The OAAR will include any proposed amendments to the Targeted Pest Management Activities. Years 11-15 – Continue to implement Pest Management Strategy / Actions in accordance with any recommended adaptive management changes incorporated in response to Year 10 milestone surveys as documented in the Year 10 Milestone Report. The OAAR prepared by the offset provider is to be the primary reporting tool from Years 11-15. Year 15 - Remobilise and Replicate Detailed Baseline / Seasonal Pest Management Survey utilising the methods described in **Section 5.1.** Compare and report on data in **Year 15 Milestone Report** to be prepared by a suitably qualified ecologist as appointed by the proponent demonstrating that seasonal pest abundance and evidence of koala mortality if applicable. Data will be used to inform pest management frequency and location. The OAAR will include any proposed amendments to the Targeted Pest Management Activities. Years 16-20 – Continue to implement Pest Management Strategy / Actions in accordance with any recommended adaptive management changes incorporated in response to Year 15 milestone surveys as documented in the Year 15 Milestone Report. The OAAR prepared by the offset provider is to be the primary reporting tool from Years 16-20. Year 20 – Remobilise and Replicate Detailed Baseline / Seasonal Pest Management Survey utilising the methods described in **Section 5.1.** Compare and report on data in Year 20 Milestone Report to be prepared by a suitably qualified ecologist as appointed by the proponent demonstrating that seasonal pest abundance and evidence of koala mortality if applicable. Data will be used to inform pest management frequency and location.
Responsibility: *Who will complete the action and who will provide the funding?*	The Offset Provider will establish, resource and fund the pest management components of the Offset Area Strategy. The following tasks will require specific expertise or appointed contractors to complete: – Baseline and repeat milestone surveys to be completed by a suitably qualified professional (senior tertiary trained ecologist, zoologists or environmental scientist with a minimum of 5 years industry field experience).

	– Use of 1080 or sodium fluoroacetate poisons is regulated under the *Health (Drugs and Poisons) Regulations 1996*. Deployment and use of this control method to be via a registered contractor holding relevant permits and demonstrated experience. – Hunting / Shooting Program to occur in accordance with all relevant Queensland Government permits and regulations. – Existing operational farm staff and offset implementation staff to be educated towards the contribution of pest species record keeping. The Offset Provider is responsible for preparing and issuing Offset Area Annual Reports to the proponent within contracted timeframes for inclusion in the Approved Project ACR.
Measured & Monitored By: *How will the action be measured, how will the outcome of the action be measured, by what method and timing?*	Repeat of baseline surveys and range estimate of vertebrate pest species populations, seasonal locations, dispersal patterns and hot spots, including sighting and incidence (death / injury) data in accordance with the methods described in **Section 5.1.** Interim actions and results provided in Year 2-4 Offset Area Annual Report (provided as conditioned in the relevant Annual Compliance Report for the Approved Action) Replicated baseline surveys prior to the end of milestone years being Year 5, 10, 15 and 20 of the offset to demonstrate: – Incidental sighting and records of vertebrate pest species on-site. – Vertebrate pest species scat / track or imprint evidence at targeted survey locations. – Reduced site population census on infrared drone and baited remote sensor camera surveys. – Reduced scalp collection or animal kills on diurnal hunting (Shooting) events. – Stock losses over the property. – Nil occurrence of injury or mortality by vertebrate pest species on site Koala populations. Results of each milestone survey are to be included in the corresponding Annual Compliance Report.

	Year 5 OAAR to include repeat survey methods, results data and comparative analysis demonstrating statistical reduction in vertebrate pest management evidence and impacts. Report to include any adaptive management recommended changes to pest control and reduction methods to be deployed for years 6-10. Details of surveys, results and alterations to management strategies to be provided to proponent in the Year 5 OAAR for issue to the Department in the Year 5 Annual Compliance Report for the Action. It is noted due to the wide roaming nature of pest species, there is not necessarily benefit in locating cameras in the same location in future surveys associated with milestone events. For future monitoring, where required as part of milestone surveys, the location of cameras may be subject to change based on site conditions and anecdotal evidence of pest activity reported by the suitably qualified pest management contractor. Interim actions and results provided in Year 6-9 Offset Area Annual Report (provided as conditioned in the relevant Annual Compliance Report for the Approved Action. Repeat of Baseline surveys in Years 10, 15 and 20 to demonstrate seasonal pest abundance. Year 10 Milestone Report to include repeat survey methods, results data and comparative analysis demonstrating a maintenance or statistical reduction in vertebrate pest species evidence and impacts. Additionally, the OAAR will include any adaptive management recommended changes to pest control and reduction methods to be deployed for years 11-19. Details of surveys, results and alterations to management strategies to be provided to proponent in the Year 10 OAAR and Milestone Report for issue to the Department in the corresponding Annual Compliance Report for the Action. Repeat of baseline surveys in year 15 and year 20 to demonstrate seasonal pest abundance. Actions and results provided in Year 11-19 of continuation of Year 10 adaptive management vertebrate pest management strategy (provided as conditioned in the relevant Annual Compliance Report for the Approved Action).

Risks & Adaptive Management: *what's the procedure for correcting or amending the action if the proposed outcomes are not being achieved?*	Without intervention and management actions the risk of vertebrate pest species impacts on the koala are assessed as 'High' in Section 7 of this Offset Area Management Plan. This is based on regional and local government data on feral dogs combined with a number of on-site feral dog sightings and Koala mortality evidence collected during preliminary surveys. The pest management strategies incorporate intensive implementation methods and three (3) major data collection survey events for confirming base case and successful reduction of pest management impacts. The repeat survey points are designed to deliver data on outcomes being achieved. If the surveys don't demonstrate the targeted effectiveness the implementation strategy will be adjusted to: – Adopt new management techniques. – Increase successful techniques and reduce less successful management methods. – Increase intensity of implementation program. – Change the timing or locality of proposed target treatment locations or events. – Allow the site strategy to assimilate into any new broader threat abatement programs. The vertebrate pest management implementation strategy will use the baseline data to build a calendar of annual activities based around varying control methods, seasons and species. The threat abatement actions and outcomes within any calendar year will be reported within the OAAR and will provide a number of lead indicators towards a reduction in occurrence and impacts. Major survey and review periods are set at year 5, 10, 15 and 20 to ensure the program achieves long term reduction and does not respond to specific stochastic events, such a contextual fluctuation in pest populations such as feral dogs.

7.2. **Action 2**: Weeds of National Significance (Reduction & Management)

Site surveys and observations over the Avonvale landholdings recorded a number of weed species, of which four (4)) are scheduled as declared weeds under the Land Protection (Pest and Stock Route Management) Act 2002 or now listed as 'restricted invasive' plants under the Queensland *Biosecurity Act 2014*. The most regularly recorded and in locations abundant species are *Lantana camara* with scattered occurrences of *Opuntia tomentosa*. The Queensland Government Department of Agriculture and Fisheries (DAF) maps the Somerset Region as containing widespread common and abundant infestations of Lantana. The Somerset Regional Council 2013-2018 Pest Management Plan schedules Lantana amongst the priority pest species noting it as abundant and widespread through the region with a 'high' capacity to spread and a 'low' capacity for Council to successfully control.

Lantana is a Weed of National Significance under the EPBC Act. In 2006 Lantana was nominated by the **NSW Government Office of Environment and Heritage** to be listed as a key threating process under the EPBC Act:

"The invasion, establishment and spread of Lantana camara impacts negatively on native biodiversity including many EPBC listed species and communities."

(Source: Key Threatening Process Nomination Form)

"Lantana is a Weed of National Significance. It is regarded as one of the worst weeds in Australia because of its invasiveness, potential for spread, and economic and environmental impacts. Lantana forms a dense, impenetrable thickets that take over native bushland."

(Source: Weed Management Guide – Weeds of National significance – Lantana – National heritage Trust)

"L. camara may change soil microhabitat through shading, self-mulching, and altered water and nutrient balances. Lamb (1988, cited in Swarbrick et al. 1995) identified an increase in soil nitrate in eucalypt woodland following Lantana invasion, to the benefit of the Lantana and other weeds, and to the detriment of some native species, and a decline in other nutrients. Gentle and Duggin (1998) point to Lantana's ability to aggressively compete for and sequester surface-soil nutrients, such as are made available by disturbance episodes, and verified experimentally Lantana's ability to out-compete and suppress an analogous native coloniser of mesic forests (Choricarpia leptopetala, Myrtaceae). "

(Source: Lantana camara - key threatening process listing – NSW Government)

Lantana occurs on the offset landholding both in open paddock areas as isolated clusters and thickets and as a dominant shrub or creeper through gully areas. Within open areas existing farm practices result in periodical pesticide application limiting spread, however, this does not occur to the extent of entire eradication as the costs of treatment to result in an economical return for the grazing benefit are non-existent. Baseline volumes of WONS and other weed species within the Offset Area are provided in SECTION 6.2.

Lantana infestations suppress and inhibit the natural regeneration of regrowth vegetation on-site which directly limits the growth rates and regeneration of primary and secondary native trees for target species. Although baseline data is limited to the survey events undertaken for this EPBC Act application, research infers the highly invasive and spreading nature of the species, coupled with the in-active management in areas, would result in progressive increases as local climatic events align with optimal germination and seeding periods. In areas blanket layers of Lantana additionally form a barrier to terrestrial species, which would include limiting ability to access areas containing food trees (many of these areas were impenetrable for human survey).

Refer to TABLE 49 for management actions.

Site Images of Lantana Infestations

Table 49: Offset Area – Action 2 – Management Actions

Action Description: *What are the tasks proposed?*	– Removal and control of all major *Lantana camara* and *Opuntia tomentosa* infestations (target WONS) or other WONS where identified from within the Offset Area using a variety of mechanical and herbicide methods. Lantana infestations are to be reduced to below 5% of the extent of weed cover by Year 10 to align with proposed Environmental Outcomes (**APPENDIX A**). – Ongoing maintenance rotations to retain target WONS extents within the Offset Area at or below the reduced extent achieved through weed management actions. – Prevent the further spread or establishing of new *Lantana camara* or *Opuntia tomentosa* outbreaks within the Offset Area (primarily by excluding cattle from EMZs 1, 2 and 4 where revegetation is occurring).
Action Location(s): *Where on site is the action proposed?*	– Management of *Lantana camara* and *Opuntia tomentosa* is to occur in the entire Offset Area.
Action Timing: *When and how will the action / task be implemented, started, completed?*	Year 1 – Exclude stock (cattle) access from *Lantana camara* infestation areas within the Offset Area (grazing cattle provide the most continuous source of WONS spread. By Year 2 the entire Offset Areas will retain cattle exclusion fencing – Refer Stock Restrictions management actions – Action 3). Years 2-5 – Commence detailed weed management control activities within the Offset Area. Methods deployed based on extent of infestation, existing native values, topography, waterways and other sensitive receiving environments: – Stick rake, grubbing, ploughing or slashing major accessible areas of Lantana where not on a slope greater than 15% or where no existing native values occur; – Apply broadscale herbicide and spot spray during high germination summer periods (Nov-March). Utilise organic based Lantana targeted herbicides which minimise impacts on native vegetation regenerating within and surrounding Lantana patches. Demonstrate a downward trend in the weed extent, vigor and health annually through years 2-5, achieving a significant reduction in *Lantana camara* and *Opuntia tomentosa* extent within the Offset Area by year 5, with to below 20% of the extent

	of weed cover determined by the baseline survey to contain weeds. Actions and downward trend to be reported annually in the OAAR. Year 5 – Replicate Detailed Weed Extent Re-Survey through the Offset Area – Include plans and calculations in the Year 5 OAAR demonstrating less than 20% of the extent of weed cover determined by the baseline survey to contain weed infestations. Years 6-10 – Continue to implement Detailed Weed Management Control Methods in accordance with any recommended adaptive management changes incorporated in response to Year 5 replicated baseline surveys as documented in the Year 5 Milestone Report. Demonstrate a downward trend in the weed extent, vigor and health annually through years 6-10, achieving a further reduction in *Lantana camara Opuntia tomentosa* extent within the Offset Area by year 10, with less than 5% of the extent of weed cover determined by the baseline survey to contain weeds. Actions and downward trend to be reported annually in the OAAR. Year 10 – Remobilise and Replicate Detailed Weed Extent surveys through the Offset Area – Compare and report on data in Year 10 Milestone Report prepared by a suitably qualified professional demonstrating less than 5% of the extent of weed cover determined by the baseline survey to contain weeds. Additionally, the OAAR will provide any proposed amendments to the Targeted Pest Management Activities and next steps and/or recommendations regarding the Biological Control area and methods. Years 11-19 – Continue to implement Detailed Weed Management Control Methods to be completed in accordance with any recommended adaptive management changes incorporated in response to Year 10 replicated baseline surveys as documented in the Year 10 Milestone Report. Repeat of baseline surveys in year 15 and year 20 and Milestone Report for each survey prepared by a suitably qualified professional demonstrating a maintenance of year 10 significant reductions to the extent of *Lantana camara* and *Opuntia tomentosa* below 5% of the extent of weed cover determined by the baseline survey to contain weeds.

	Management activities, weed control methods and adaptive management continue to be documented in Years 11-19 OAARs and included in the relevant Annual Compliance Report for the Approved Action.
Responsibility: *Who will complete the action and who will provide the funding?*	The Offset Provider will establish, resource and fund all weed management components of the OAMP. The following tasks will require specific expertise or appointed contractors to complete: – Repeat baseline surveys to be completed by a senior tertiary trained ecologist, or environmental scientist with a minimum of 5 years industry field experience. – Use of any herbicides to be undertaken by a licensed contractor or strictly in accordance with the *Agricultural Chemicals Distribution Control Act 1996* and or in accordance with manufactures recommendations or label instructions. Preparing and issuing Offset Area Annual Reports to the proponent within contracted timeframes for inclusion in the Approved Project ACR.
Measured & Monitored By: *How will the action be measured, how will the outcome of the action be measured, by what method and timing?*	Baseline WONS surveys providing an actual mapped extent of infestations and density of weeds in hectares provided in **Section 5.2** are to be used as the benchmark for measuring improvement. Interim actions and results provided in Year 2-5 Offset Area Annual Report (published as conditioned in the relevant Annual Compliance Report for the Approved Action). Year 2 to 5 documentation demonstrating a downward trend in weed extent and outbreak to less than 20% of the extent of weed cover determined by the baseline survey to contain weeds via offset provider reporting. All **OAARs** prepared for Years 1-20 of the offset management will include details on management activities, weed control methods and adaptive management and will be included in the relevant Annual Compliance Report for the Approved Action. Replicate baseline surveys in Year 5 in accordance with baseline survey methodology detailed in **Section 5.1**. Results are to be included in a **Year 5 Milestone Report** prepared by a suitably qualified professional demonstrating less than 20% of the extent of weed cover determined by the baseline survey to contain weeds. The Year 5 Milestone Report is to include repeat

	survey methods, results data and comparative analysis demonstrating less than 20% of the offset area relative to the baseline to contain weeds. Replicate of baseline surveys in Year 10 in accordance with baseline survey methodology detailed in **Section 5.1**. Results are to be included in a **Year 10 Milestone Report** prepared by a suitably qualified professional demonstrating a downward trend in the weed extent, vigor and health through years 6-10, with less than 5% of the extent of weed cover determined by the baseline survey to contain weeds. Year 10 Milestone Report will include repeat survey methods, results data and comparative analysis to demonstrate less than 5% of the extent of weed cover determined by the baseline survey to contain weeds. Repeat of baseline surveys in Year 15 and Year 20 in accordance with baseline survey methodology detailed in **Section 5.1.** Results for each survey event are to be included in a **Year 15 Milestone Report** and **Year 20 Milestone Report** prepared by a suitably qualified professional demonstrating a maintenance of Year 10 significant reductions to the extent of *Lantana camara* and *Opuntia tomentosa* below 5% of the extent of weed cover determined by the baseline survey to contain weeds. Each Milestone Report will include repeat survey methods, results data and comparative analysis to demonstrate maintenance of below 5% of the extent of weed cover determined by the baseline survey to contain weeds.
Risks & Adaptive Management: *what's the procedure for correcting or amending the action if the proposed outcomes are not being achieved?*	The primary weed issue through the Offset Area is *Lantana camara* and *Opuntia tomentosa*. Mapping of *Lantana camara* and *Opuntia tomentosa* populations and utilising the method described in **Section 5.2** enables the tables in this management plan to set a specific and quantifiable weed reduction target. 5-yearly milestone surveys and reporting are prescribed in this OAMP to demonstrate whether interim targets are being achieved. Where surveys demonstrate failure to achieve the prescribed interim targets, this will trigger a review of the OAMP and management measures which may include the following actions: – Adopt new management techniques – Increase successful techniques and reduce less successful management methods – Increase intensity of implementation program – Change the timing or locality of proposed target treatment locations or events

7.3. **Action 3**: Stock Management

The Offset Area historically forms part of the broader Avonvale and Cherry Gully operational cattle stations. Avonvale retains an active 'Environmental Authority' (Permit F1-0048) under the Queensland Government's *Environmental Protection Act 1994* for the operation of feedlot facilities between 1,000 and 10,000 animals. Both properties have historically retained extensive rotational pasture paddocks and selectively vegetated paddocks for the raising of weaners. Cattle or evidence of recent cattle use was observed in all locations of preliminary ecological surveys, with the level of recent intensity directly correlating to the condition of residual biodiversity values.

The pressure and impacts brought on the landholding's habitat values include:

1) The need for wholesale clearing to periodically expand pasture paddocks.
2) Cycle tordening and selective clearing to limit canopy cover of native trees to minimise suppression of grass feed. Directly prevent the maturing of habitat trees.
3) Direct trampling and compacting of regeneration areas.
4) Spread of weed species and infestations that are also supported by minimising canopy cover and prevention of regeneration.

Although there is some limited research that intensive cattle grazing can result in some positive biodiversity outcomes, generally cattle farming re-engineers the landscape to support predator species.

The risks of ongoing cattle grazing on the land could vary from low to medium to high subject to the future maintenance or expansion of the grazing use, which is driven by a number of economic factors, however, primarily the rise and fall of the cattle price. Regardless, the long term and current highest and best use for the land is the continuation of the feedlot operation. No reduction in risk or improvement in condition or value of native species habitat will occur without direct intervention and a change in use (such as this offset outcome).

Fauna friendly stock exclusion fencing is the ultimate proposed solution for restricting stock from accessing environmental Offset Areas. Fencing is costly and time consuming and is programmed to roll out in line with works within the Offset Area, and as such, will all be in place by the end of Year 1 of legally securing the Offset Area (refer to PLAN 13 for the indicative Offset Area fencing locations). Refer to TABLE 50 for management actions.

Table 50: Offset Area – Action 3 – Management Actions

Action Description: *What are the tasks proposed?*	– Prevention and management of stock from the Offset Area using fauna friendly stock exclusion fencing.
Action Location(s): *Where on site is the action proposed?*	– Livestock are to be removed from the entirety of Avonvale Station and excluded from the offset area for the life of the approval. Refer to PLAN 13 for the indicative Offset Area fencing locations.
Action Timing: *When and how will the action / task be implemented, started, completed?*	Year 1 – Fencing in accordance with the Indicative Offset Area Fencing Plan (PLAN 13) will commence following legal securement of the offset area and is to be completed by end of Year 1. – A status update will be inspected annually and reported in the Offset Area Annual Report. Years 2-20 – Annual status update to confirm that livestock have continued to be excluded from Avonvale Station. All fencing will be inspected annually and reported on in the Offset Area Annual Report.
Responsibility: *Who will complete the action and who will provide the funding?*	The Offset Provider will remove all livestock from Avonvale Station. The Offset Provider will establish, resource and fund the construction, monitoring, maintenance and reporting on all fencing (using fencing contractors where deemed appropriate). The Offset Provider is responsible for preparing and issuing Offset Area Annual Reports to the proponent within contracted timeframes for inclusion in the Approved Project ACR.
Measured & Monitored By: *How will the action be measured, how will the outcome of the action be measured, by what method and timing?*	– All fencing shown on the Indicative Offset Area Fencing Plan (PLAN 13) being in place by the end of Year 1 of reporting. – Nil stock breaches into Offset Areas from years 2-20 (post completion of all fencing). – No reporting of stock impacts as justification for not achieving: o Habitat quality improvements o Weed spread targets

	– Annual documented evidence of fence monitoring and maintenance rectifications in each Offset Area Annual Reporting period from years 2-20.
Risks & Adaptive Management: *What's the procedure for correcting or amending the action if the proposed outcomes are not being achieved?*	Providing the right type of fencing is installed in the correct locations and monitored the risk of failure is extremely unlikely. Regardless, any breach of cattle accessing the Offset Area would be identified through the general course of offset establishment or maintenance or as part of the cattle operator's routine stock checks (typically daily). Damage as a result of a short-term breach is likely to be minimal and reversible through reinstatement works.

PLAN 13 - INDICATIVE OFFSET AREA FENCING

152°18'0"E 152°19'0"E 152°20'0"E 152°21'0"E

27°3'0"S

27°4'0"S

FILE NAME: OES_5 PLAN 13 FENCING V6
26/06/2026

AVONVALE STATION -
OFFSET MANAGEMENT PLAN (OES5)

0 100 200 400 600 M

GDA94 MGA ZONE 56 1:17,000

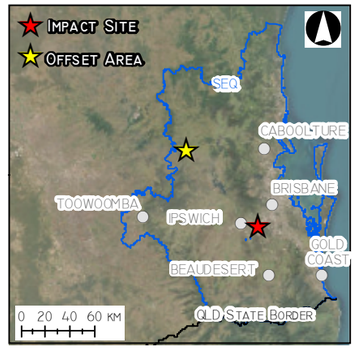
N

THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. ONE ENVIRONMENT GROUP CANNOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWING BY ANY THIRD PARTY.
SERVICE LAYER CREDITS SOURCE ESRI, VANTOR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY
REFERENCES - © STATE OF QUEENSLAND, 2026

LEGEND

- AVONVALE STATION
- EPBC 2019/8575 OFFSET AREA
- EXISTING AVONVALE STATION OFFSET AREAS
- EXISTING PROPERTY FENCE & APPROVED OFFSET AREA FENCE LOCATIONS
- EXISTING BARBED WIRE FENCING WITHIN OFFSET AREA TO BE RETROFITTED [962M]
- EXISTING BARBED WIRE FENCING WITHIN OFFSET AREA TO BE REMOVED [899M]
- NEW FENCE LOCATIONS FOR PROPOSED OFFSET

* NEW FENCING TO BE FAUNA FRIENDLY CATTLE EXCLUSION FENCING



ONE ENVIRONMENT

7.4. **Action 4**: Access Management, Trespass and Neighbouring Stock Mustering Controls

Cherry Gully & Avonvale are surrounded to the north, east and south by large cattle grazing landholdings and a number of smaller agricultural farms. On landholdings at this scale it is common for neighbours to access and muster through un-owned adjoining land parcels to connect fragmented landholdings. Additionally, an adjoining land holder may cut a new access track in adjoining un-owned land without permission because of the perceived benefit to both parties, which is typically the case in farming operations.

The impacts of unlawful access and stock mustering mimic those listed in the 'general stock management' section of this management plan (trampling, compacting, weed spread, fence destruction). Without a system for identifying and preventing or controlling access, trespass and adjoining mustering the actions established for on-site stock management will be undermined.

Refer to TABLE 51 below for management actions.

Table 51: Offset Area – Action 4 – Management Actions

Action Description: *What are the tasks proposed?*	– Prevention / control of unauthorised access, stock mustering and trespass through the Offset Area.
Action Location(s): *Where on site is the action proposed?*	– Offset Area will be fenced in accordance with Offset Area Fencing Plan (PLAN 13).
Action Timing: *When and how will the action / task be implemented, started, completed?*	Year 1 – Inspection and rectification of all external fence boundaries – Notification of Offset Areas, purpose and outcomes to all adjoining landowners. Remaining Actions: – Access gates and signage to be installed where Offset Area fencing crosses tracks required to be maintained for external land holder access (as fencing is installed) – No new access tracks through the Offset Area unless to support offset outcomes
Responsibility: *Who will complete the action and who will provide the funding?*	The Offset Provider is responsible for funding and undertaking all actions relating to access, trespass and neighbouring stock mustering. The Offset Provider is responsible for preparing and issuing Offset Area Annual Reports to the proponent within contracted timeframes for inclusion in the Approved Project ACR.
Measured & Monitored By: *How will the action be measured, how will the outcome of the action be measured, by what method and timing?*	– Copy of notification letter provided to adjoining land holders. – Evidence (photos) of erected signage and gates at Offset Area / existing track fencing conflict points. – Fence monitoring as per Stock Management commitments – No evidence of stock influence in outcomes scheduled for the Offset Area habitat (e.g. no stock impacts reflected in habitat quality scoring outcomes).

Risks & Adaptive Management: *What's the procedure for correcting or amending the action if the proposed outcomes are not being achieved?*	Given there is no legal requirement for access or mustering through the landholding (e.g. no easement, etc.) necessary enforcement options are available, however, it is considered extremely unlikely this would be required provided alternative access and mustering points are established that do not conflict offset outcomes.

7.5. **Action 5**: Wildfire Management

The Queensland Government's State Planning Policy mapping tool shows the site contains areas of areas of Very High, High and Medium Potential for Bushfire intensity (refer to FIGURE 8 in Section 9.1). Similar mapping is contained within the Somerset Regional Council hazard assessment. On ground, the fuel was generally observed as lower than the high level mapping as vegetated areas had been thinned out to maxmise grazing grasses on the ground layer, which also precluded the build up of loose leaf litter. The offset area predominantly maintains a modified pasture grass understorey which reduces the current level of bushfire risk.

The last recorded wildfires within the vicinity of the Offset Site occurred in September 2018 and involved the evacuation of some residents of the adjoining Toogoolawah township. Avonvale and Cherry Gully Stations were not affected by these fire events. The land retains only sections of vegetation interspersed with open pasture land and includes a system of firebreaks and access tracks for the protection of stock and farming infrastructure. This fire management system will be maintained and evolved as parts of the site transfer from open pasture to revegetation as part of the offset works.

This offset proposal and the actions in this management plan include activities that support the expansion and condition of native habitat trees through removal of cattle grazing uses. One unwanted outcome of this habitat creation will be increased fuel loads and vegetated areas supporting the establishment or potential spread of wildfires. High intensity wildfires scold the biodiversity of bushland and the majority of terrestrial species, including the target species, may perish. Ultimately, burned open eucalypt woodland communities will recover from fire, however, a major event may set the offset outcomes back by years.

As the changed uses on site increase the potential for bushfire, coupled with increasing fire intensity events generally experienced in South East Queensland, the need for ongoing and refined bushfire management is an important component of the Offset Area.

Refer to TABLE 52 below for management actions.

Table 52: Offset Area – Action 5 – Management Actions

Action Description: *What are the tasks proposed?*	– Manage created bushland habitat within the Offset Area to prevent and / or minimise the impact of high intensity wildfires. This will be achieved through: o Conversion of the current on-site bushfire management approach into a management plan supportive of the changed environmental offset outcomes. o Periodical and controlled low intensity burns occurring in a mosaic configuration every 8-10 years through the Offset Area of the property. o Creation and alteration of existing fire breaks in support of habitat improvement, expansion and revegetation areas (consider new tracks and breaks in replanting programs). o Monitoring of fuel loads through the Offset Area. o Establishment of safety and emergency response protocols for wildfire events.
Action Location(s): *Where on site is the action proposed?*	– From Years 1-4 the risk of wildfire is limited, however, as the EMZs become established, the ability for the vegetation to support the establishment and spread of wildfire is increased. – Establish and maintain fire break infrastructure in accordance with PLAN 14.
Action Timing: *When and how will the action / task be implemented, started, completed?*	Year 1 – Establish fire break infrastructure in accordance with PLAN 14. – Continuation of existing fire break infrastructure maintenance (firebreaks and trails). By the end of Year 4 (once revegetation of the offset area is progressed) – Develop Offset Area Wildfire Management Plan, as a minimum plan to include: o Results of baseline fuel load surveys o Method and metric for maintaining fuel loads and decreased risk levels o Plan of fire tracks, trails and breaks o Program for mosaic low intensity control burns

	○ Plan to be endorsed by the Queensland Rural Fire Brigade <u>Years 4-20</u> – Implement Offset Area Wildfire Management Plan
Responsibility: *Who will complete the action and who will provide the funding?*	The Offset Provider is responsible for funding appropriate qualified bushfire consultants for fuel load monitoring and preparation of the Offset Area Wildfire Management Plan. Plan to be endorsed by the Queensland Rural Fire Brigade / Implementation of the plan, specifically the mosaic low intensity back burns to occur under relevant permits and instruction from the Rural Fire Brigade. The Offset Provider is responsible for preparing and issuing Offset Area Annual Reports to the proponent within contracted timeframes for inclusion in the Approved Project ACR.
Measured & Monitored By: *How will the action be measured, how will the outcome of the action be measured, by what method and timing?*	– No reported deaths of target species from wildfire within OAARs. – No reduction (temporary or permanent) in the available foraging and food trees during the offset period as a result of wildfire. – Offset Area Wildfire Management Plan included within Year 4 OAAR and incorporated into ACR. – All Wildfire Management Plan activities (tracks, burns, fuel load reduction, etc.) undertaken to be outlined within relevant OAAR.
Risks & Adaptive Management: *What's the procedure for correcting or amending the action if the proposed outcomes are not being achieved?*	As fire is a natural occurrence within open eucalypt woodland and within time bushland will recover from even major events, the risks of the Offset Area Wildfire Management Plan not preventing a wildfire within the Offset Area low is considered of medium consequence. If a major wildfire event occurs within the Offset Area during the offset period the following adaptive management actions will occur:

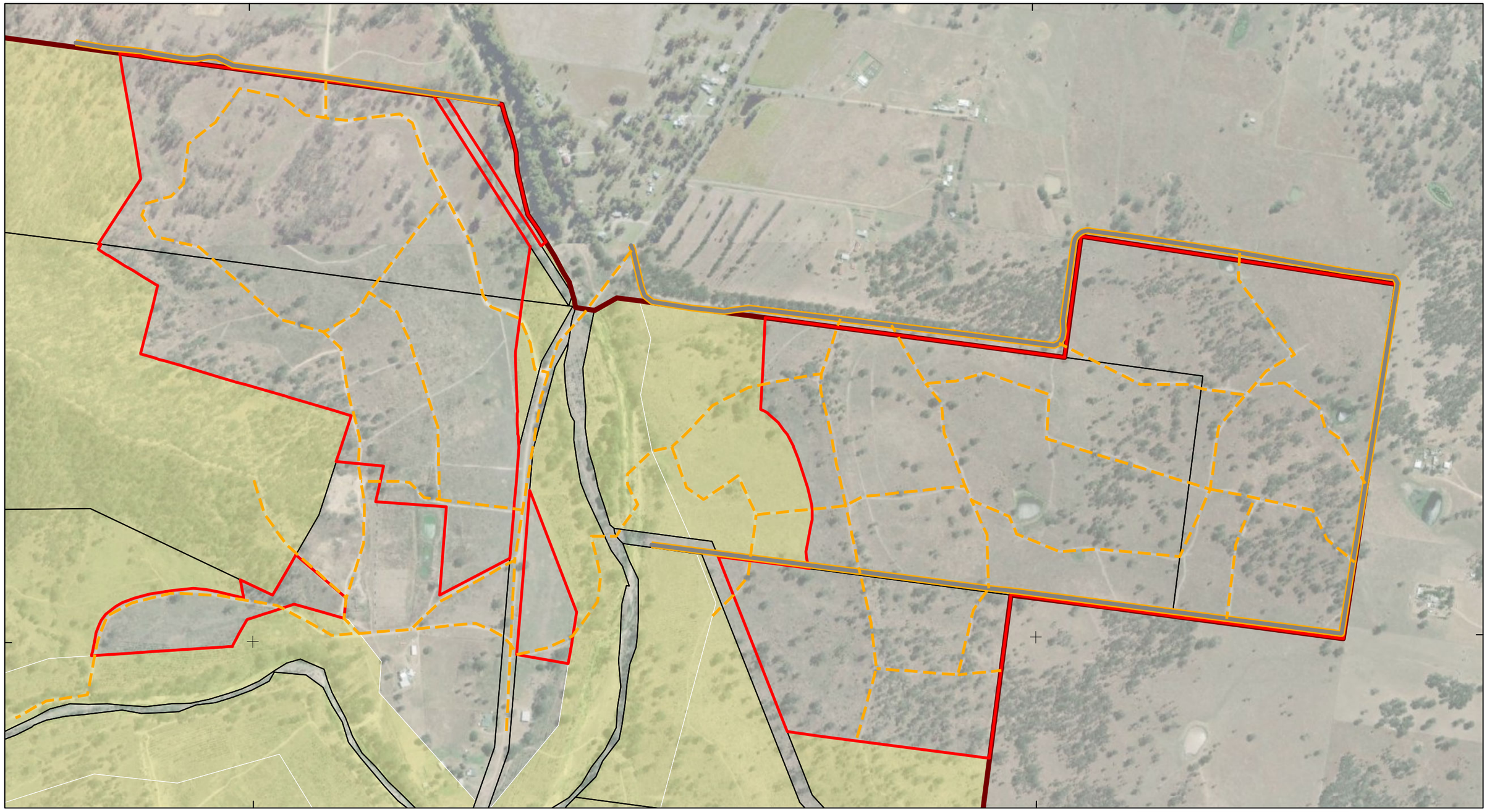
	1. A post wildfire audit of the damage and cause of the wildfire (where it commenced, direction and area it moved through, which Environmental Management Zones sustained the greatest damage and why, recommendations on actions which could be incorporated to avoid or minimise any future events) 2. An Offset Area Recovery Plan would be prepared scheduling actions to expedite the recovery and reinstatement of values destroyed by fire. 3. A revised Offset Area Wildfire Management Plan would be developed adopting recommendations and strategies from the post wildfire event audit.

PLAN 14 - Bushfire Infrastructure and Access Tracks

152°19'0"E

152°20'0"E

27°4'0"S



FILE NAME: OEs_5 PLAN 14 Bushfire and Access V6
9/06/2026

Avonvale Station -
Offset Management Plan (OEs5)

N

0 25 50 100 150 200 250
M

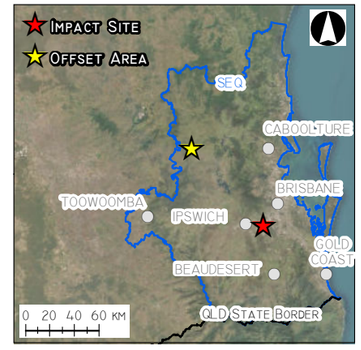
GDA94 MGA zone 56 1:8,000

THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT.
ONE ENVIRONMENT GROUP CANNOT ACCEPT REPONSIBILITY FOR ANY USE OF OR
RELIANCE UPON THE CONTENTS OF THESE DRAWING BY ANY THIRD PARTY.
Service Layer Credits: Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community

References - © State of Queensland, 2026

Legend

- Avonvale Station
- EPBC 2019/8575 Offset Area
- Existing Avonvale Station Offset Areas
- Bushfire Trails
- Access Tracks



ONE ENVIRONMENT

7.6. **Action 6**: Native Seed Collection & Propagation

One of the key innovative measure incorporated in the Offset Area Management Plan is the establishment of a site nursery for the collection and harvest of habitat tree seed and the propagation of locally sourced planting stock. The offset proposed is mostly a replanting solution and will benefit from sourcing local stock from the site established nursery. The Offset Provider's ownership of the site provides unrestricted access to areas of existing remnant and regrowth habitat for the collection of seed in alignment with the seasonal fruiting and flowering events. The species to be planted as part of the offset are to consist of a mix of tree species corresponding to the technical descriptions of the pre-clear Regional Ecosystems being RE12.11.14, RE12.9-10.7, RE12.3.3 and RE12.3.7. This includes a mix of the following tree species:

- *Angophora leiocarpa*
- *Angophora subvelutina*
- *Corymbia intermedia*
- *Corymbia tessellaris*
- *Eucalyptus crebra*
- *Eucalyptus melanophloia*
- *Eucalyptus siderophloia*
- *Eucalyptus tereticornis*
- *Eucalyptus acmenoides*
- *Eucalyptus sideroxylon*

Of the ten tree species listed above, the following are considered 'locally important koala trees' as per ANU (2022):

- *Eucalyptus crebra*
- *Eucalyptus melanophloia*
- *Eucalyptus siderophloia*
- *Eucalyptus tereticornis*

The benefit of utilising, as much as possible, site seed sources is that the specific mix of plants and animals, particularly within the mature remnant areas, have naturally adapted to survive and thrive within the local environmental characteristics (climate, slope, soils). To maximise the success of replanting areas, this

Offset Area Management Plan proposes to expand and build on the direct collection of site seed to be propagated and germinated in a purpose-built on-site nursery established for approved offset EPBC 2015/7530.

The benefits of using local site seed provenance in habitat creation is widely established through research, including:

- The use of local or site-based materials from locally adapted ecosystems to minimise the potential for establishment failure and mortality
- Maintains the local/ sub regional genetic architecture of plant and animal species
- Limits the altering or disruption of local ecosystem variations and segregations (ecotypes)
- Limits the capacity to import external pathogens through offsite plant and soil stock

Refer to TABLE 53 for management actions.

Table 53: Offset Area – Action 6 – Management Actions

Action Description: *What are the tasks proposed?*	– Sourcing, collecting and storing of local seed provenance from vegetated portions of the site for use in the offset replanting works. – Minor expansion to the on-site nursery for the storage, propagation and germination of native plant seedlings for use in revegetation areas
Action Location(s): *Where on site is the action proposed?*	– An on-site nursery is established external to the Offset Area within Year 1, adjoining an existing dam or watering facility with access to other available farm infrastructure (power / equipment / facilities / machinery sheds – A temporary seed harvest storage area has been established in a vacated shed at the Feedlot facilities while the permanent nursery location is finalising design analysis). – Seed collection programs are occurring in line with various tree species flowering / fruiting seasons through portions of the broader landholding which retain existing vegetation. – Harvested native seedlings to be germinated into tube stock for use in revegetation planting in EMZs 1, 2 and 4 and where needed within EMZs 3, 5 and 6 of the Offset Area in accordance with the revegetation program and Rehabilitation Management Plan (APPENDIX G). The project commits to the replanting of approximately 151.3 ha of land at Avonvale Station with an additional 16.7 ha within regrowth and remnant EMZs subject to infill planting where required to achieve the proposed offset outcomes for the Swift Parrot and Regent Honeyeater.
Action Timing: *When and how will the action / task be implemented, started, completed?*	Year 1 – Ensure existing seed collection program expands to cover the additional proposed replanting area based on the flowering / fruiting seasons for selected species with priority focus on specimens that are known to be utilised by the local native species. – Consult immediately adjoining land holders for permission to harvest seed from adjoining vegetated areas to maximise year 1 collection volumes. – Undertake expanded seed collection program within Year 1 (Collection commences when offset commences)

	Year 2 – Continue seed collection program in year 2 until sufficient stock to complete the full replanting of EMZs 1, 2 and 4 for the project has been germinated and propagated within the on-site nursery. – Expand and operate on-site purpose-built nursery to cater for collected seed, germination and transition of seedlings to tubestock for reuse in site planting.
Responsibility: *Who will complete the action and who will provide the funding?*	The Offset Provider is responsible for: – Completing the seed collection program using appropriate qualified experts (Accredited Bushland Regenerators) to determine seed collection timeframes relative to targeted species. – Fund any additional expansion or construction at the on-site nursery to cater for the Offset Area EMZs 1, 2 and 4 area and employ necessary experienced and trained staff to operate and harvest on-site stock. – Preparing and issuing Offset Area Annual Reports to the proponent within contracted timeframes for inclusion in the Approved Project ACR.
Measured & Monitored By: *How will the action be measured, how will the outcome of the action be measured, by what method and timing?*	– Minimum 50% of all replanted stock being sourced from site (target is 100%) – Measured through annual nursery stock take providing data on: – Volume of seed collected within the annual period – % of collected seed successfully germinated and propagated into tube stock – Number of plants distributed from the on-site nursery to revegetation areas (provided as a total number and as a % proportion of total plants replanted). – Nursery Stocktake statistics to be included as an appendices to OAAR. **Note: due to sequencing issues with the collection of site seed and the operation of the on-site nursery a volume of site seed has been sent to external nurseries for germination.*

Risks & Adaptive Management: *Whats the procedure for correcting or amending the action if the proposed outcomes are not being achieved?*	Failure to achieve on-site seed propagation will result in the shortfall needing to be purchased from local native plant nurseries (Fernwood and Pine Mountain Nursery are both within 30 km of the offset site). The risk of this outcome primarily occur in the additional costs with outsourcing this activity and the potential increase in stock mortality and need for rectification plantings. Additional minor risks which can be managed through warranties and certifications derive from the potential introduction of pathogens through external nursery stock and soil. Failure to achieved the minimum 50% sourcing of replanted stock from site will be documented in OAARs, including details on: – % of plants achieved from site – Reasons for failure to achieve site seed source targets – Changes to collection program or nursery operations to rectify shortfall in subsequent annual period.

7.7. **Action 7**: Revegetation (Habitat Creation) Activities

The entirety of the offset is to consist of habitat creation. The habitat creation is to:

- Expand the available habitat resources through infill planting of broad hectare cleared land.
- Complete additional planting within the Offset Area significantly expanding existing approved offset projects and conservation values at the site.
- Provide east-west connectivity to the other approved EPBC offset areas within the Avonvale and Cherry Gully Station properties (ref EPBC 2015/7530, EPBC 2021/8975, EPBC 2021/9005 and 2015/7609). This connectivity will ensure that long-term movement capability is provided to the eastern and western tracts of contiguous vegetation. Additionally, the Offset Area will connect adjacent ridgeline remnant habitat with the reinstated riparian and alluvial rich soils being replanted along Ivory Creek.

Revegetation will occur through the transitioning of grassed grazing lands into vegetated ecosystems supporting habitat for the target species'. In total, EMZs 1, 2 and 4 totalling 151.3 ha out of the 168 ha Offset Area is proposed for revegetation / habitat creation with infill planting proposed in the balance 16.7 ha across EMZs 3, 5 and 6. Revegetation is a high cost and high labour-intensive task from preparation to commencement through to the first 5 years of establishment. To maximise success, revegetation is proposed in three (3) tranches of work (3 x 56 ha tranches). Planning and preparation works are proposed within Year 1 of the offset while collected site seed is propagated and harvested for use in the on-site nursery.

The Modified Habitat Quality Assessment methodology for Koala, Swift Parrot and Regent Honeyeater and the Foraging Habitat Assessment tool for Grey-headed Flying-fox was applied across the Offset Area within delineated EMZs to establish a baseline score for improvement for each MNES (refer **Section 4.0**). Baseline methods applied will be repeated at milestone years prior to the end of Years 5, 10, 15 and 20 to track improvements of habitat quality against the Environmental Outcomes for each MNES (**Section 4** and APPENDIX A).

During Years 1-5 prior to the first milestone monitoring event, informal monitoring methods completed by the Offset Provider will be used to assess planting progress. This includes rehabilitation progress reporting including commentary on mortality rates and projective foliage cover to be included in OAARs. After 5 years of established and maintained growth and at the other prescribed milestone monitoring years (*i.e.,* Years 10, 15 and 20), habitat quality transects will be performed as part of survey and monitoring.

Refer to TABLE 54 for management actions.

Table 54: Offset Area – Action 7 – Management Actions

Action Description: *What are the tasks proposed?*	– Ceasing grazing uses within areas identified for revegetation. – Tilling / cultivating grazing grassed area for treatment of pasture grass seedbank in preparation for planting. – Revegetation in accordance with the pre-clear regional ecosystem planting mix inclusive of canopy species dominated by target food tree species. – Monitoring and maintaining works to self-sustaining regrowth community. – Achieve an 80% success rate of tree plantings during the contractor establishment phase (3-5 years) Refer to **APPENDIX G – Rehabilitation Management Plan** for further details of rehabilitation methodology. ***Note: The 80% survival rate is to be achieved throughout the 3-5 year contractor establishment phase, after which the plantings are considered self-sustaining. It is anticipated the overall density of plantings will normalise to typical eucalypt forest density during the successional phase of the offset (5-20 years post planting).***
Action Location(s): *Where on site is the action proposed?*	– The entirety EMZs 1, 2 and 4 are to be revegetated in accordance with the Rehabilitation Management Plan (APPENDIX G). – Infill planting to occur in EMZs 3, 5 and 6 following weed treatment in accordance with the RMP.
Action Timing: *When and how will the action / task be implemented, started, completed?*	Years 1-2 – Finalise locations, sequence and timing for revegetation program. – Cultivate and prepare planting areas in preparation for planting. – Create water source for revegetation establishment (purpose located dam, temporary tank or broadscale irrigation) – Establish photo monitoring points for planting areas (georeferenced star picket at photo monitoring locations) Year 3 – Complete all planting.

	– Monitor and maintain planting areas. Year 4 – Monitor and maintain planting areas. Year 5 – Monitor and maintain planting areas. – Engage a suitably qualified ecologist to complete Year 5 surveys in accordance with the Modified Habitat Quality Assessment (Koala) and Foraging Habitat Assessment methodologies for Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater in accordance with the baseline scoring methodology described in **Section 5.1**. – Undertake Koala Spot Assessment Technique to derive Koala occurrence category for revegetation zones. – Report on results of both surveys within a Milestone Report to be prepared by an engaged suitably qualified professional which will include an assessment of how the offset is tracking against the Environmental Outcomes at **Section 4** and APPENDIX A. A review of adaptive management is required where Environmental Outcomes are not achieved as proposed. Year 6-20 – Monitor and maintain planting areas inclusive of rectification and replacement works for failed areas or plant dieback. Year 10 – Engage a suitably qualified ecologist to complete Year 10 surveys in accordance with the Modified Habitat Quality Assessment (Koala) and Foraging Habitat Assessment methodologies for Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater in accordance with the baseline scoring methodology described in **Section 5.1**.

	– Undertake Koala Spot Assessment Technique to derive Koala occurrence category for revegetation zones and establish at transect locations where tree presence has increased to a sufficient density to allows SATs to be performed. – Report on results of both surveys within a Milestone Report to be prepared by an engaged suitably qualified professional which will include an assessment of how the offset is tracking against the Environmental Outcomes at **Section 4** and APPENDIX A. A review of adaptive management is required where Environmental Outcomes are not achieved as proposed. Year 15 – Engage a suitably qualified ecologist to complete Year 15 surveys in accordance with the Modified Habitat Quality Assessment (Koala) and Foraging Habitat Assessment methodologies for Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater in accordance with the baseline scoring methodology described in **Section 5.1**. – Undertake Koala Spot Assessment Technique to derive Koala occurrence category for revegetation zones and establish at transect locations where tree presence has increased to a sufficient density to allows SATs to be performed. – Report on results of surveys within a Milestone Report to be prepared by an engaged suitably qualified professional which will include an assessment of how the offset is tracking against the Environmental Outcomes at **Section 4** and APPENDIX A. A review of adaptive management is required where Environmental Outcomes are not achieved as proposed. Year 20 – Engage a suitably qualified ecologist to complete Year 20 surveys in accordance with the Modified Habitat Quality Assessment (Koala) and Foraging Habitat Assessment methodologies for Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater in accordance with the baseline scoring methodology described in **Section 5.1**. – Undertake Koala Spot Assessment Technique to derive Koala occurrence category for revegetation zones and establish at transect locations where tree presence has increased to a sufficient density to allows SATs to be performed.

	– Report on results of both surveys within a Milestone Report to be prepared by an engaged suitably qualified professional which will include an assessment of how the offset is tracking against the Environmental Outcomes at **Section 4** and APPENDIX A.
Responsibility: *Who will complete the action and who will provide the funding?*	The Offset Provider is responsible for: – Funding the appointment of trained and experienced Bushland Regenerators or Revegetation contractors for the completion of all implementation works associated with revegetation areas (site preparation, planting, establishment and maintenance) – Commissioning and funding tertiary trained Ecologists for milestone monitoring surveys and reporting of interim and milestone revegetation outcomes in accordance with the Environmental Outcomes at **Section 4** and APPENDIX A. – Preparing and issuing Offset Area Annual Reports to the proponent within contracted timeframes for inclusion in the Approved Project ACR.
Measured & Monitored By: *How will the action be measured, how will the outcome of the action be measured, by what method and timing?*	– Informal monitoring by the Offset Provider to be completed annually. – Reporting on revegetation activities will occur with each 12 month Offset Area Annual Report with major surveys results and adaptive management changes documented at Years 10, 15 and 20. – Evidence within photo monitoring of established habitat trees. A plan of completed revegetation extent in Years 2-5 Offset Area Annual Reports demonstrating completion of planting. – The following technical methodologies in accordance with the methods and locations detailed in **Section 5.1** will be applied at Years 5, 10, 15 and 20 by a suitably qualified professional to track progress against the Environmental Outcomes (**Section 4** and APPENDIX A). o Modified Habitat Quality Assessment tool for the Koala. o Foraging Habitat Assessment methodologies for the Grey-headed Flying-fox, Swift Parrot and Regent Honeyeater.

	○ Spot Assessment Techniques (SAT) surveys showing the establishment of Koala usage within the habitat creation zones (presently no habitat so no usage). SATs to be established in locations (*i.e.,* at prescribed transect locations) where sufficient tree coverage is achieved to enable the method. ○ A Milestone Report is to be prepared by the suitably qualified professional at milestone years (*i.e.,* Years 5, 10, 15 and 20) with the details of the above surveys.
Risks & Adaptive Management: *what's the procedure for correcting or amending the action if the proposed outcomes are not being achieved?*	The potential for large scale revegetation to fail can occur from degrading factors (poor soil preparation, planting stock or maintenance regime) or external events (extreme frost, pest invasion, drought, flood or major wind). Degrading factors are to be identified as part of regular monitoring and will form the basis for actioning adaptive management. Losses from these factors will be catered for using the following adaptive management measures: 1) Identify and address the degrading factor (e.g. soil issue, pests, species failure). 2) Remedial plantings in areas of dieback to bolster survival rates to above 80% during the contractor establishment phase, focusing on preferred foraging species for the swift parrot and regent honeyeater where required. 3) Introduce a different species *i.e.,* if one plant species consistently dies on a site, consider using in its place a species that is performing well. 4) Adjust planting methods such as using advanced tube stock or direct seeding, modifying site preparation techniques. The additional factors will also be considered to ensure a contractual process is in place for carrying out effective adaptive management: 1) Contractual obligations of appointed bushland regenerators or revegetation contractors ensure retention funds and minimum success rates (e.g. contractor responsible for replacement and re-establishing failed stock or areas). 2) Offset Provider and engaged contractors will have insurance for major external events.

	3) Species to be planted are consistent with the pre-clear and ground-truthed regional ecosystem communities which considers underlying landform and soil specifications required for the species. Criteria for successful offset outcomes for this zone are established in this management plan and the approval of the project. If revegetation fails, it will need to be replaced. If growth rates are below expectations the tenure of the offset period will increase until targeted outcomes have been demonstrated as achieved.

7.8. **Action 8**: Infrastructure Improvement

Barbed wire fencing presents a threat to the Grey-headed Flying-fox due to the risk of entanglement. Across the offset area existing strand barb wire fencing subdivides the land into cadastral allotments and paddocks. With the removal of cattle from the landholding, large parts of the internal fencing will be considered redundant. Currently no existing approval conditions or management plan requirements carry the obligation to remove barbed wire fencing located throughout the property.

Removing internal barbed wire fencing is proposed to reduce the risk of Grey-headed Flying-fox entanglement. To ensure ongoing protection from unwanted access and overgrazing, external fencing will remain, however, internal barbed wire fencing can be removed as part of the overall compensation proposal for the Grey-headed Flying-fox at this site. Baseline internal barbed wire fencing is shown on PLAN 13 with portions proposed to be removed and retrofitted as part of the implementation of the offset.

Refer to TABLE 55 for management actions.

Table 55: Offset Area – Action 8 - Management Actions

Action Description: *What are the tasks proposed?*	Remove or replace barbed wire fencing across the properties to promote safe fauna movement. – Removal of barbed wire fencing where suitable OR replace top strands of existing barbed wire with single-strand wire in accordance with **PLAN 13**. – Reduced risk of entanglement and mortality of Grey-headed Flying-fox due to collision with barbed wire.
Action Location(s): *Where on site is the action proposed?*	– Removing or replacing barbed wire fencing across the 168 ha Offset Area.
Action Timing: *When and how will the action / task be implemented, started, completed?*	Year 1 – Remove or replace redundant internal barbed wire fencing around previous cattle and horse yards as per PLAN 13.
Responsibility: *Who will complete the action and who will provide the funding?*	The Offset Provider is responsible for: – Removing barbed wire and retrofitting by replacing the top line of barbed wire with a single-strand wire.
Measured & Monitored By: *How will the action be measured, how will the outcome of the action be measured, by what method and timing?*	– Map of existing barbed wire fence locations through the offset area. – Evidence of removal of fencing within 12 months of approval documented in Year 1 OAAR.
Risks & Adaptive Management: *What's the procedure for correcting or amending the action if the proposed outcomes are not being achieved?*	Failure to remove barbed wire fencing. Considered highly unlikely to not be achieved. Corrective measures may include: – Renewed effort to remove or replace barbed wire fencing

8. Risk Assessment & Management

A limited number of risks associated with climate change, pest control, large scale rehabilitation and grazing land uses are evaluated for the Offset Site. Risks are generally described and assessed against the likelihood and consequence model outlined in the Commonwealth Government's Department of Environment – *Environmental Management Plan Guidelines* (2014). The following risk factors are considered in more detail in this OAMP:

1. Climate Change Risk 1 – Wildfire
2. Climate Change Risk 2 – Flooding
3. Climate Change Risk 3 – Drought
4. Climate Change Risk 4 – Climate Factors – Shifting Habitat Range
5. Planting Stock Failure
6. Pest Management (Feral Dog Populations)
7. Weed Invasion / Expansion (Weeds of National Significance – Lantana)
8. Stock Management, Unlawful Access & Land Clearing (Cattle Operations Impacts)

8.1. Climate Risk 1 – Wildfire

The offset land retains little to no existing vegetation, however, its proximity to surrounding vegetation increases the risk of wildfire on the site, and as such, it is reflected as medium to high and very high-risk fuel loads for wildfire in both State Government and Somerset Regional Council Mapping (refer FIGURE 9 for Wildfire Hazard Mapping). The last recorded wildfires within the vicinity of the Offset Site occurred in September 2018 and involved the evacuation of some residents of the adjoining Toogoolawah Township. Avonvale was not affected by these fire events. The offset land retains limited vegetation interspersed with open pasture land and includes a system of boundary line firebreaks and access tracks for the protection of stock and farming infrastructure. This fire management system will be maintained and evolved as parts of the site transfer from open pasture to revegetation as specific Offset Works are sequentially completed.

The overall assessment of Wildfire Risks is that their occurrence is possible within the life of the offset and consequences of such an event would be moderate. Without intervention and management Wildfire is evaluated as a MEDIUM Risk to this offset project.

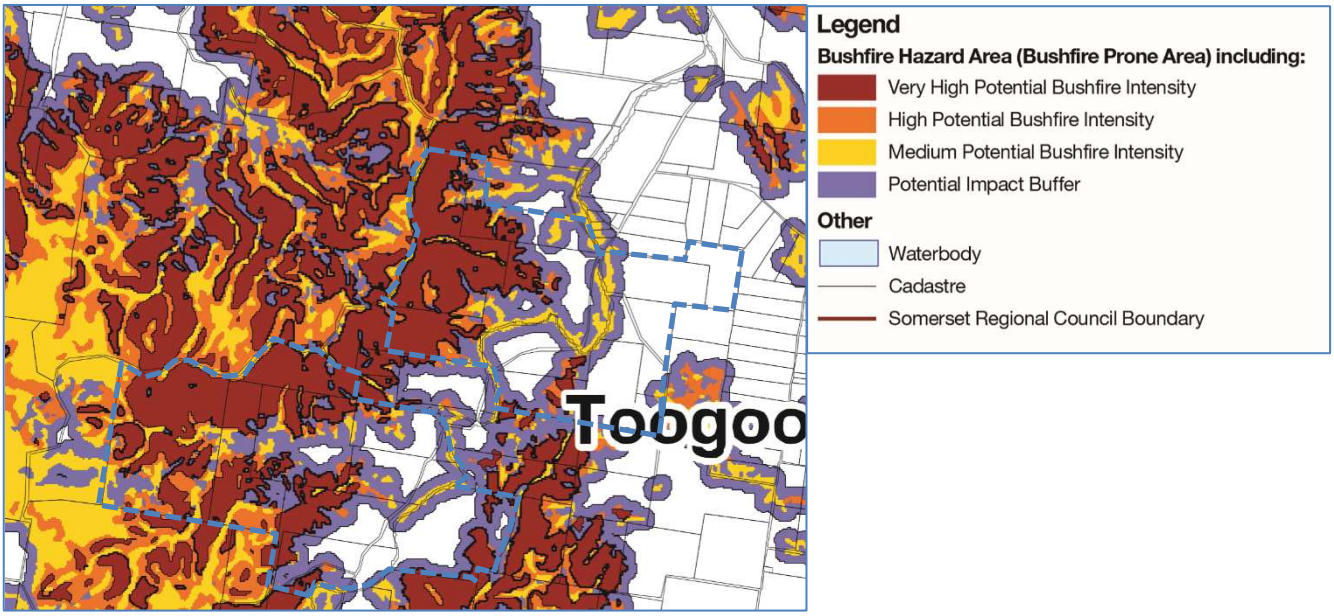
Climate Risk 1 – Wildfire: Risk Evaluation

Qualitative measure of likelihood (how likely is it that this event/issue will occur after control strategies have been put in place)	
Possible	Might occur during the life of the project
Qualitative measure of consequences (what will be the consequence/result if this issue does occur rating)	
Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts

	Consequence				
	Minor	**Moderate**	**High**	**Major**	**Critical**
Possible	*Low*	**Medium**	*Medium*	*High*	*Severe*

Climate Risk 1 – Wildfire: Risk Management Actions (refer TABLE 52 for Detailed Wildfire Management Actions)

- Maintain the existing bushfire breaks between adjacent land holders and access tracks through and around areas of mature and regrowth vegetation.
- Establish new tracks and fire breaks as necessary as part of the increased vegetation cover created through revegetation and rehabilitation.
- Establish an Offset Area Wildfire Management Plan that caters for excessive dry periods and or high risk buildup of wildfire fuel loads. If necessary, undertake mosaic understorey low intensity back burning exercises to reduce fuel load risks.
- Work with local Qld Rural Fire Brigade, Somerset Regional Council Representatives and adjoining land owners to minimise wildfire risks at the regional scale.
- Consider taking out insurance for plant stock replacements.



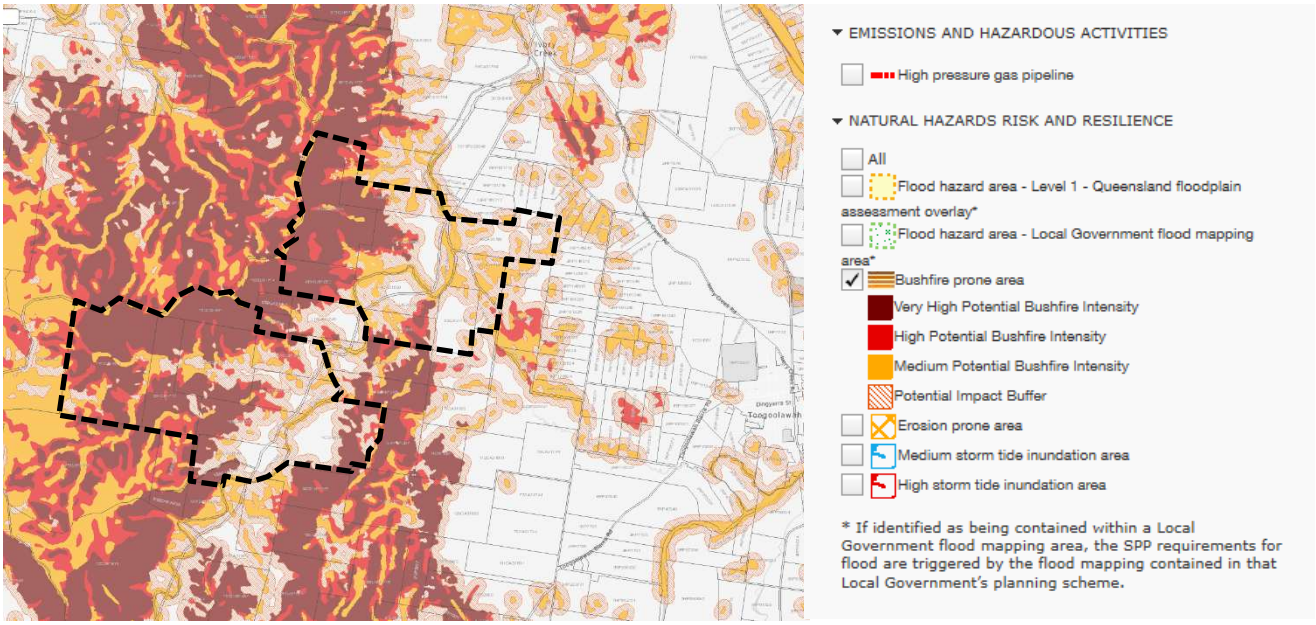


Figure 9: Somerset Regional Council – Bushfire Hazard Area and Queensland Government State planning - Natura; Hazard Risk and Resilience Mapping

8.2. Climate Change Risk 2 - Flooding

The local township of Toogoolawah and surrounding creek and river catchments are known for periodical flooding. The offset land retains only small sections located directly along Ivory Creek that is mapped or known for any level of even minor flooding (Refer FIGURE 10 for Potential Flood Hazard areas mapped by State and Local Government). The area affected by the minor flooding is not associated with this offset. The Ivory Creek corridor is included as part of four other approved EPBC offsets. As the entirety of the offset is outside of potential flood prone areas, the potential flood risk is considered low and more applicable to impacting replanting efforts.

Climate Change Risk 2 - Flooding: Risk Evaluation

Qualitative measure of likelihood (how likely is it that this event/issue will occur after control strategies have been put in place)	
Possible	Might occur during the life of the project
Qualitative measure of consequences (what will be the consequence/result if this issue does occur rating)	
Minor	Minor incident of environmental damage that can be reversed

	Consequence				
	Minor	**Moderate**	**High**	**Major**	**Critical**
Possible	**Low**	*Medium*	*Medium*	*High*	*Severe*

Climate Change Risk 2 - Flooding: Risk Management Actions

- Include stabilisation matting, tree stakes, etc. for plantings within higher risk zones of erosion from rising flood waters or fast moving channel or embankment flows.
- Consider taking out insurance for planting stock located within and adjacent to the flood zone to cover the cost of replacement works should a damaging rain / flood event occur.

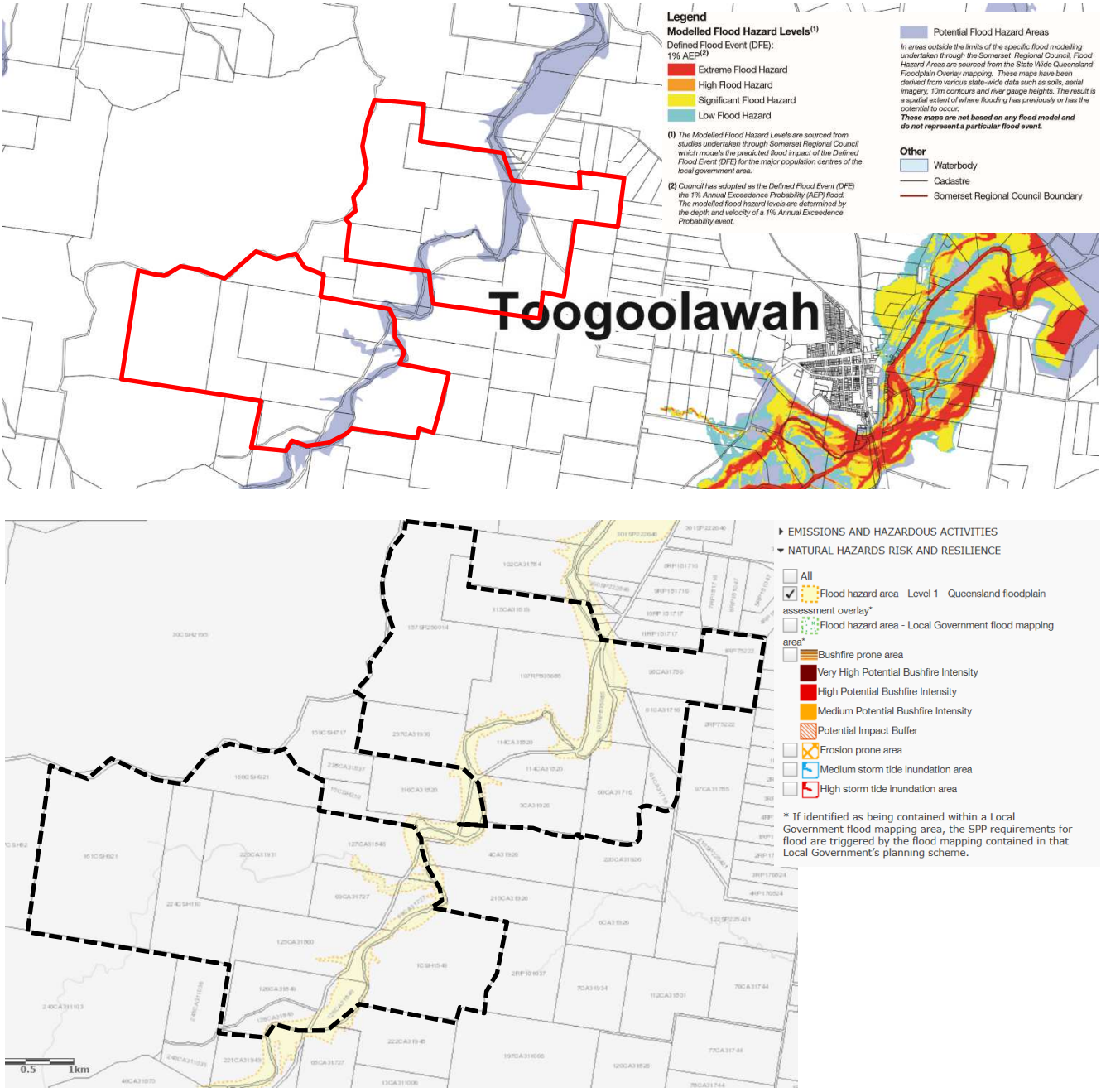


Figure 10: Somerset Regional Council – Modelled Flood Hazard Levels and Queensland Government State Planning – Flood Hazard Mapping

8.3. Climate Change Risk 3 - Drought

In March 2017, the Queensland Government declared the Somerset Region amongst a number of Local Government Areas as a drought area for the purposes of accessing funding and concessions for rural land holders. Despite several localised recent rain events, the declaration for the Somerset area remained in place as of August 2021. The average rainfall in 2019 at the nearest rain gage to the offset site recorded 431.60 mm. This is down on the 82-year mean rainfall for the region at the time of 987.7 mm by 556.10 mm. Review of historical rainfall data indicates that the last time Toogoolawah experienced annual rainfall less than 430 mm was in 1977 (annual rainfall of 366 mm), further supporting the unprecedented impacts of the drought.

Contrastingly, for the year of 2024 Toogoolawah received 1013.2 mm of rain, exceeding the mean annual rainfall amount (refer to FIGURE 11).

The Climate Change Adaptation Strategies for the Koala prepared by Christine Adams-Hosking concluded that the highest probability of Koala presence occurred at a mean annual rainfall of 700 mm *(Adams-Hosking, et* al, 2011). Therefore, despite unprecedented drought conditions, the offset site maintains rainfall similar to the optimal range to support Koala presences and other species that share the same habitat.

Climate Change Risk 3 - Drought: Risk Evaluation

Qualitative measure of likelihood (how likely is it that this event/issue will occur after control strategies have been put in place)	
Likely	Will probably occur during the life of the project
Qualitative measure of consequences (what will be the consequence/result if this issue does occur rating)	
Minor	Minor incident of environmental damage that can be reversed

	Consequence				
	Minor	**Moderate**	**High**	**Major**	**Critical**
Possible	**Low**	*Medium*	*Medium*	*High*	*Severe*

Climate Change Risk 3 - Drought: Risk Management

- Ensure offset design includes replanting and connection to higher moisture content soils associated with alluvial and riparian areas of the site.
- Maintain site dams and waterbodies for use in offset rehabilitation works and as water sources for native animals.
- Consider small 'turkey nest' dams as part of upper ridge rehabilitation for the purposes of water access for fauna and the creation of patches of high moisture soils and vegetation.

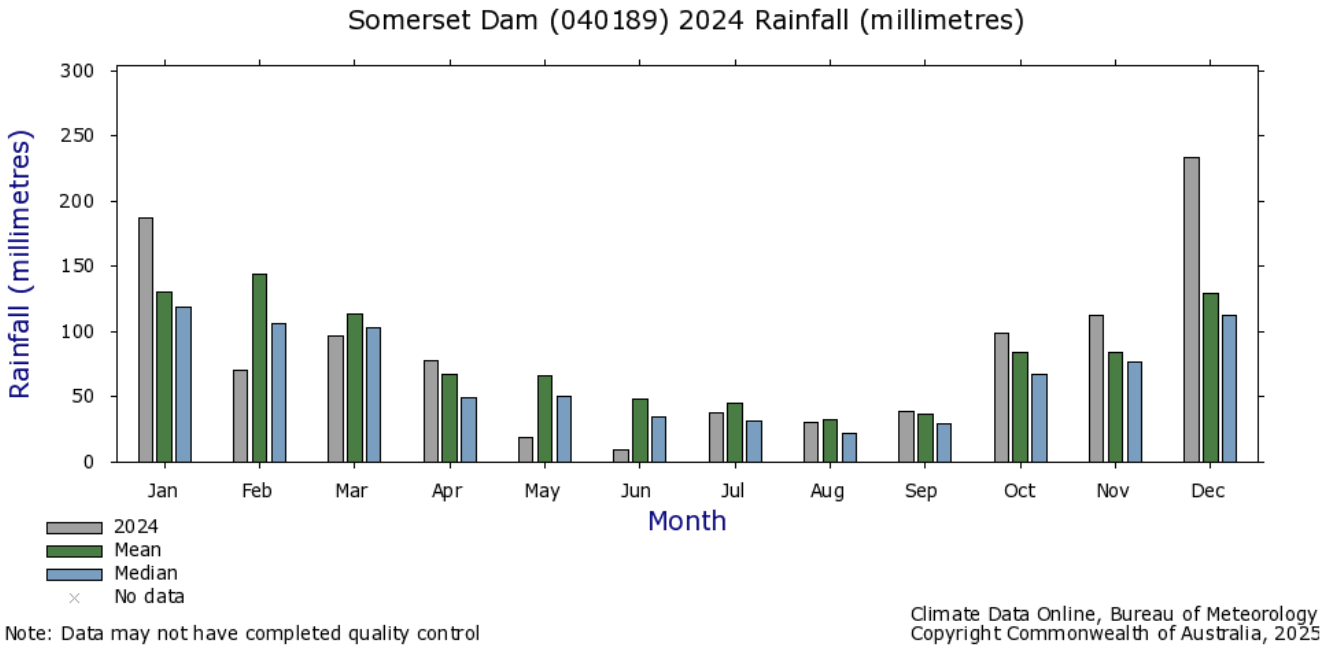


Figure 11: 2024 Mean Rainfall compared to the mean and median for each month

(Source: BOM Website - http://www.bom.gov.au/climate/data/ - Date Searched 23/04/2025)

8.4. Climate Change Risk 4 – Climate Factors – Shifting Habitat Range

A number of contemporary case studies and research papers have investigated the combined weather characteristics of climate change on the current and future distribution of suitable Koala habitat into the future. Koalas are considered to be at risk of these factors because of their low tolerance to adapt to environmental changes combined with the number of existing non-climate related threats already well documented. More recently, all species and their habitat have been affected nationally by the 2019-2020 bushfires. GHFF are also considered to be affected by climate change, however, most studies relate to the increased temperatures at the camp and roosting sites, with less material available on their foraging range. The proposed offset provides foraging habitat and thus not directly influence temperatures at the roosting locations, which periodically shift for a range of factors.

The Climate Change Adaptation Strategies for the Koala by Christine Adams-Hosking *applied climate change distribution models for the koala and five of its essential eucalypt food trees to a conservation prioritisation framework ('Zonation'), to determine which Queensland local government areas (LGAs) were the highest priority for koala conservation and adaptation.* The study included current (2011) and future predicted Koala habitat distribution in 2070 showing a substantial migration eastward. The study further concludes that:

"The highest probability of Koala presence occurred at a mean maximum summer temperature of approximately 27°C and a mean annual rainfall of approximately 700 mm" (Adams-Hosking, C., Grantham, H. S., Rhodes, J.R., McAlpine, C. and Patrick T. Moss (2011). Modelling climate-change-induced shifts in the distribution of the koala. Wildlife Research, 38, 122–130)

As previously stated, the offset land average rainfall in 2024 was 1013.2 mm which is above the 88-year average of 983.9 mm, compared with a drought period in 2019 which experienced rainfall 430 mm below the average at the time. However, these results occurred while the LGA was declared in a drought situation, with the last time the region experienced rainfall this low being 42 years prior. Additionally, the mean recorded minimum and maximum temperatures for the region are 13.5 to 26 degrees, thus even with predicted temperature increases, the offset land would remain around the noted 27 degree mean maximum parameter of the study. The land is also located within the current and 2070 Koala habitat distribution maps based on the A1F1 climate change scenario (Adams-Hosking *et al.* 2011). Refer to FIGURE 12 for estimated location of the Offset Site based on predicted changes in habitat distributions in 2070.

At the site scale, the offset design is founded in the re-establishment of connected Koala habitat along riparian creeks and drainage lines and through higher moisture content alluvial soils. The design will connect existing low range and foothill habitat with creek flats and riparian vegetation communities.

Climate Change Risk 4 – Climate Factors – Shifting Habitat Range: Risk Evaluation

Qualitative measure of likelihood (how likely is it that this event/issue will occur after control strategies have been put in place)	
Likely	Will probably occur during the life of the project
Qualitative measure of consequences (what will be the consequence/result if this issue does occur rating)	
Minor	Minor incident of environmental damage that can be reversed

	Consequence				
	Minor	**Moderate**	**High**	**Major**	**Critical**
Likely	**Low**	*Medium*	*High*	*High*	*Severe*

Climate Change Risk 4 – Climate Factors – Shifting Habitat Range: Risk Management

- Actions listed in the Risk Management sections for Wildfire (TABLE 52 of SECTION 8.5)

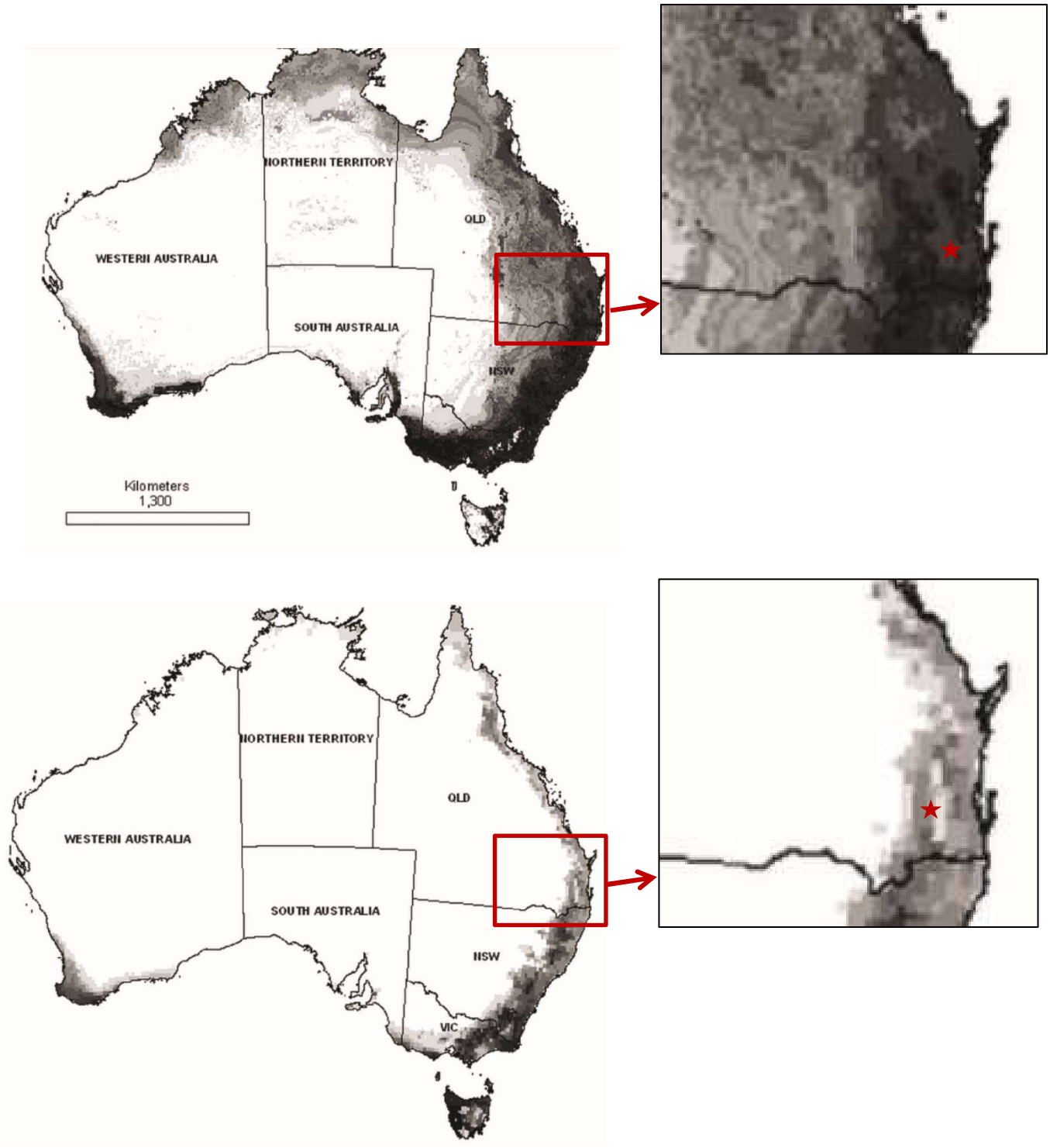


Figure 12: Modelled Habitat Distribution (2011 V 2070)

(Source: Adams-Hosking, et al. 2011)

8.5. Planting Stock Failure

The entirety of the Avonvale Offset Area design requires significant wholesale replanting. In projects which include large areas of wholesale planting, the risk exists for planting stock to fail in large volumes due to:

- Poor soil quality or incompatible match of soils to replanted vegetation types
- Weather related impacts – frost / prolonged dry periods, excessive heat or cool periods
- Poor quality planting stock or the sourcing of planting stock from a different geographic region
- Lack of appropriate planting area preparation – weed removal / pasture seed removal / cultivation, etc.

The majority of these challenges are expected to be managed through the use of experienced bushland regeneration experts and contractors with relevant insurance and payment retentions. Failure of planting stock is primarily an economic impact for this project as the Offset Area will not achieve committed condition improvement and habitat expansion targets without rectification of planting works. An important component of the offset proposal is the utilisation of the established on-site nursery and the direct harvesting of tree species seedlings form vegetated zones within the offset land.

Planting Stock Failure: Risk Evaluation

Qualitative measure of likelihood (how likely is it that this event/issue will occur after control strategies have been put in place)	
Possible	Might occur during the life of the project
Qualitative measure of consequences (what will be the consequence/result if this issue does occur rating)	
Minor	Minor incident of environmental damage that can be reversed

Planting Stock Failure: Risk Management

	Consequence				
	Minor	**Moderate**	**High**	**Major**	**Critical**
Possible	**Low**	*Medium*	*Medium*	*High*	*Severe*

- Source plant seed stock and base soil from the Offset Site. Germinate and propagate site seed stock into tube stock at purpose built Offset Site nursery.
- Undertake soil testing for both the modified planting soil and for the planting locations.
- Match species to pre-clear Regional Ecosystem vegetation communities based on geography, soil and region specifications.
- Undertake planting in manageable mosaic to ensure monitoring, watering etc. can be implemented as required.
- Use experienced contractors and bushland regenerators to undertake all revegetation and rehabilitation works. Ensure selected contractors included relevant insurances and payment retentions for success rates from part of contract obligations.
- Over plant all revegetation areas by 10% on allocated numbers to cater for a potential 10% failure rate.
- Undertake planting during warmer frost-free months.

8.6. Pest Management (Feral Dog Populations)

The Queensland Government Department of Agriculture & Fisheries (DAF) – Biosecurity Queensland map feral dogs through the Somerset Regional Council Area as 'common'. Feral dogs are listed as a 'class 2' pest in the Somerset Regional Council Pest Management Plan and noted in many newspaper articles and Council's minutes as increasing in population and incidence since 2013. Council have introduced a feral dog bounty program providing $25 to private landholders per wild animal scalp delivered as evidence. Council also provides baiting and training on use of baiting to land holders, however, do not retain their own pest management officer.

Site surveys located feral dogs throughout the broader Avonvale and Cherry Gully Stations. Additionally, the remnants of a dead Koala were recorded on-site with evidence suggesting the mortality was most likely the result of a dog attack.

Data shows 23 Koala records within 10 km of the Offset Site (primarily between the site and the Toogoolawah Township). Seven (7) of these records list the animals as either dead or injured. While the data does not provide a cause for the injury, 6 of the 7 death / injury records based on location are considered to be the result of either feral dog or domestic dog attack. One (1) of the records is located immediately adjacent to the Brisbane Valley Highway and thus is assumed as vehicle strike. The remaining 6 records occur within large partially vegetated rural landholdings without evidence of recent clearing thus increasing the likelihood of dog attack as death or injury cause.

Evidence collected from the Offset Area and regional and local records show without intervention feral dogs are likely within the Offset Area. The consequences of wild dog and Koala interactions are well documented and thus the impact and risk of uncontrolled feral dogs through the Offset Area is evaluated as High Risk.

Pest Management (Wild Dog Populations): Risk Evaluation

Qualitative measure of likelihood (how likely is it that this event/issue will occur after control strategies have been put in place)	
Likely	Will probably occur during the life of the project
Qualitative measure of consequences (what will be the consequence/result if this issue does occur rating)	
High	Substantial instances of environmental damage that could be reversed with intensive efforts

	Consequence				
	Minor	**Moderate**	**High**	**Major**	**Critical**
Likely	*Low*	*Medium*	**High**	*High*	*Severe*

Pest Management (Wild Dog Populations): Risk Management

- Repeat baseline and periodical surveys and monitoring of feral dog populations, locations and dispersal patterns within the Offset Area (Survey methods to include – direct observation / remote sensor camera and infra-red drone / sand traps for print record). Develop a base line of wild dog populations and 'hot spots' and key activity periods (e.g. dusk).
- Implement a purpose-built Pest Management Action Plan (refer APPENDIX J) which includes method *i.e.,* trapping, shooting, baiting. Develop and implement an adaptive management approach to pest management that considers each method relative to the base line data collected to determine the most effective pest management measures for the offset site.
- Undertake stakeholder engagement with immediate landholders to foster joint sub regional scale action plan.
- Establish contact and recommended approaches with relevant Council staff (or contractors) undertaking similar works within the broader Somerset Region.

8.7. Weed Invasion / Expansion - *Lantana*

Preliminary site surveys and observations over the Avonvale offset area recorded a number of weed species, three (3) of which are scheduled as declared weeds under the *Land Protection (Pest and Stock Route Management) Act 2002* or now listed as 'restricted invasive' plants under the *Biosecurity Act 2014*. The most regularly recorded and in locations abundant species are *Lantana camara* and *Lantana montevidensis*. The Queensland Government Department of Agriculture and Fisheries (DAF) maps the Somerset Region as containing widespread common and abundant infestations of Lantana. The Somerset Regional Council 2013-2018 Pest Management Plan schedules Lantana amongst the priority pest species noting it as abundant and widespread through the region with a 'high' capacity to spread and a 'low' capacity for Council to successfully control.

Lantana is a Weed of National Significance under the EPBC Act. In 2006 Lantana was nominated by the **NSW Government Office of Environment and Heritage** to be listed as a key threating process under the EPBC Act:

"The invasion, establishment and spread of Lantana camara impacts negatively on native biodiversity including many EPBC listed species and communities."

(Source: Key Threatening Process Nomination Form)

Lantana infestations suppress and inhibit the natural regeneration of regrowth vegetation on-site that directly limits the growth rates and regeneration of primary and secondary naïve habitat species. Although baseline data is limited to the survey events undertaken for this EPBC Act application, research infers the highly invasive and spreading nature of the species, coupled with the inactive management in areas, would be resulting in a progressive increase as local climatic events align with optimal germination and seeding periods. In areas, blanket layers of Lantana additionally form a barrier to terrestrial species, which would include limiting the target species' ability to access areas containing habitat trees.

Weed Invasion / Expansion - Lantana: Risk Evaluation

Qualitative measure of likelihood (how likely is it that this event/issue will occur after control strategies have been put in place)	
Likely	Will probably occur during the life of the project
Qualitative measure of consequences (what will be the consequence/result if this issue does occur rating)	
Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts

	Consequence				
	Minor	**Moderate**	**High**	**Major**	**Critical**
Likely	*Low*	**Medium**	*High*	*High*	*Severe*

Weed Invasion / Expansion - Lantana: Risk Management

- Repeat baseline survey methodology and for large infestations use an antenna based GPS system to map the full extent (as description polygons) of all Lantana areas within the Offset Area (achieve a total ha extent of weed infestations / occurrences within the Offset Area).
- Exclude stock (cattle) access from Lantana infestation areas within the Offset Area (grazing cattle provide the most continuous source of Lantana spread).
- Undertake detailed weed management control activities within the Offset Area. Methods deployed based on extent of infestation, existing native values, topography, waterways and other sensitive receiving environments:
    - Stick rake, grubbing, ploughing or slashing major accessible areas of Lantana where not on a slope greater than 15% or where no existing native values occur;
    - Apply broadscale herbicide and spot spray during high germination summer periods (Nov-March). Utilise organic based Lantana targeted herbicides which minimise impacts on native vegetation generating within and surrounding Lantana patches.
- Undertake periodical weed maintenance rotations for removal / suppression of Lantana regeneration.
- Incorporate adaptive management principles into weed management methods to streamline overall management to the most effective control types.
- Explore the introduction of biological Lantana control measures to provide a long term (20 year plus) solution for management

8.8. Stock Management, Unlawful Access & Land Clearing (Cattle Operations Impacts)

As noted throughout this OAMP, the Offset Area forms part of Avonvale Station, which is an operational cattle station retaining an active 'Environmental Authority' (Permit F1-0048) under the Queensland Government's *Environmental Protection Act 1994* for the operation of feedlot facilities between 1,000 and 10,000 animals. The property retains extensive rotational pasture paddocks and selectively vegetated paddocks for the raising of weaners. The impacts of this operation on the environment occur at both acute (land clearing) and chronic (tordening for cattle grass cover) timeframes.

The risks of ongoing cattle grazing on the land could vary from low to medium to high subject to the future maintenance or expansion of the grazing use, which is driven by a number of economic factors, however, primarily the rise and fall of the cattle price. Regardless, the long term and current highest and best use for the land is the continuation of the feedlot operation. No reduction in risk or improvement in condition or value of the native species habitat will occur without direct intervention and a change in use (such as this and the offset outcome established through EPBC 2015/7530).

The Offset Area is surrounded to the north, east and south by large cattle grazing landholdings and a number of smaller agricultural farms. On landholdings at this scale, it is common for neighbours to access and muster through unowned adjoining land parcels to connect fragmented landholdings. Additionally, an adjoining land holder may cut a new access track in adjoining unowned land without permission because of the perceived benefit to both parties, which is typically the case in farming operations.

The impacts of unlawful access and stock mustering mimic those listed in the 'general stock management' section of this management plan (trampling, compacting, weed spread, fence destruction).

Stock Management, Unlawful Access & Land Clearing (Cattle Operations Impacts): Risk Evaluation

Qualitative measure of likelihood (how likely is it that this event/issue will occur after control strategies have been put in place)	
Likely	Will probably occur during the life of the project
Qualitative measure of consequences (what will be the consequence/result if this issue does occur rating)	
Minor	Minor incident of environmental damage that can be reversed

	Consequence				
	Minor	**Moderate**	**High**	**Major**	**Critical**
Likely	**Low**	*Medium*	*High*	*High*	*Severe*

Stock Management, Unlawful Access & Land Clearing (Cattle Operations Impacts): Risk Management

- Two important controls that significantly reduce the risk of Stock Management, Unlawful Access and Land Clearing (Cattle Operations Impacts) within the Offset Area are:
  - The land is being is owned by the Offset Provider (any residual grazing uses will be secondary land uses to the approved offset outcomes)

    - The legal security mechanism provides a legally binding mechanism for the protection of existing and created values. The legal security applies the regulations of the *Vegetation Management Act 1999*, *Land Act 1994* or *Land Titles Act 1994* to the land title that remains regardless of the transfer of ownership or sale of the land.
- Progressive stock exclusion fencing is to be installed to the extent of the Offset Area (Refer to PLAN 13 for Indicative Offset Area Fencing Plan).
- Consultation on the Offset Area and third-party access for mustering / access will occur with adjoining landholders.

9. Adaptive Management

This OAMP adopts a number of 'adaptive management' procedures both as a governing principle and within specific management activities. Most management activity table topics incorporate detailed baseline survey and data collection to be periodically repeated through the offset period and utilised for iterative changes to management implementation, particularly for stochastic habitat risks and threats. The primary purpose of adaptive management procedures for the Avonvale Offset Area is to allow on-ground monitoring and experiences on the most effective measures to feed into amendments to the OAMP, which focus on best return in habitat outcomes for investment made. Refer to FIGURE 13 for the adaptive management model.

"Adaptive management is a systematic approach for improving environmental management by learning from management outcomes. We believe that protected areas management can benefit greatly from this approach which allows management to proceed despite uncertainty, and reduces this uncertainty through a systematic process for learning."

(Murray, 2019 - http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.137.9484)

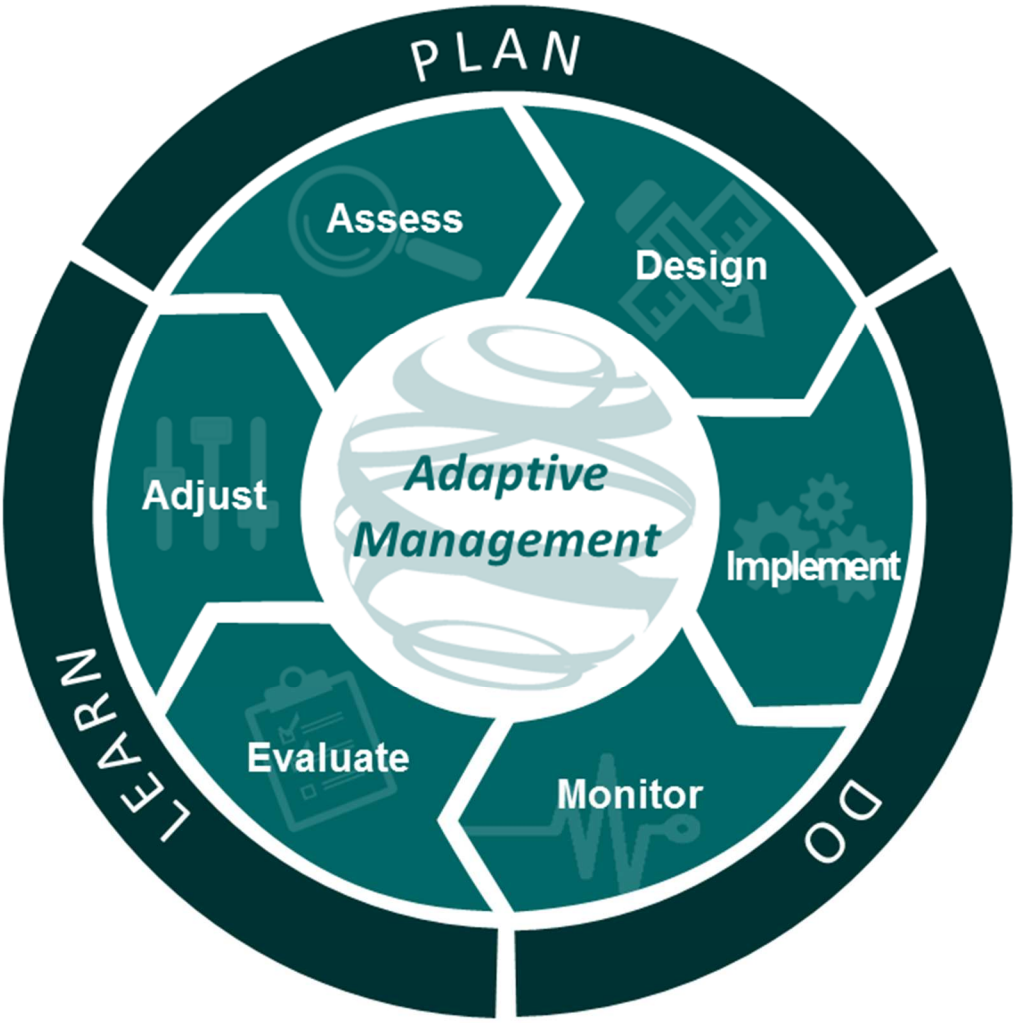


Figure 13: ***Adaptive Management Model (https://essa.com/approach/)***

10. Reporting Framework

As part of the commercial agreement between Cherish Enterprises and One Environment, all surveys, results, management activities statuses, alterations or amendments are recorded within an Offset Area Annual Report (OAAR). By executed contract, each Offset Area Annual Report (OAAR) is to be completed by the Offset Provider (One Environment) and issued to the Proponent (Cherish Enterprises Pty Ltd) within 30 days of each 12-month anniversary of the documented commencement of the action. This commitment is purposely documented to ensure adequate time is provided to the proponent to evaluate and utilise the OAAR in preparing the Approved Action Annual Compliance Report. The beginning of Year 1 of the offset is marked by the implementation of the OAMP being from the legal securement of the offset area.

Extensive monitoring and reporting frameworks for all offset activities are documented in the OAMP and these are applicable to this Rehabilitation Management Plan (APPENDIX G). As part of existing offsets within the property, contractors maintain yearly data on revegetation success rates and stem growth rates, which will be used to ensure the benchmarks in this plan area achieved. Extensive records on number of plants created and purchased and planting densities and timeframes are also maintained and provided by the Offset Provider within each OAAR.

Following the completion of milestone surveys at Years 5, 10, 15 and 20, a Milestone Report will be prepared by a suitably qualified ecologist as appointed by the Proponent or Offset Provider.

While the inclusion in the ACR will be dictated by the proponent, it is anticipated the OAAR (prepared annually) and Milestone Report (prepared at Years 5, 10, 15 and 20) will be an appendix to the ACR with specific aspects relevant to conditioned offset outcomes extracted and referenced within the compliance tables.

TABLE 56 provides a summary of reports that will be prepared for the offset period including timing and responsibility.

Refer to FIGURE 14 for the reporting structure including the OAAR where offset actions are reported and the ACR.

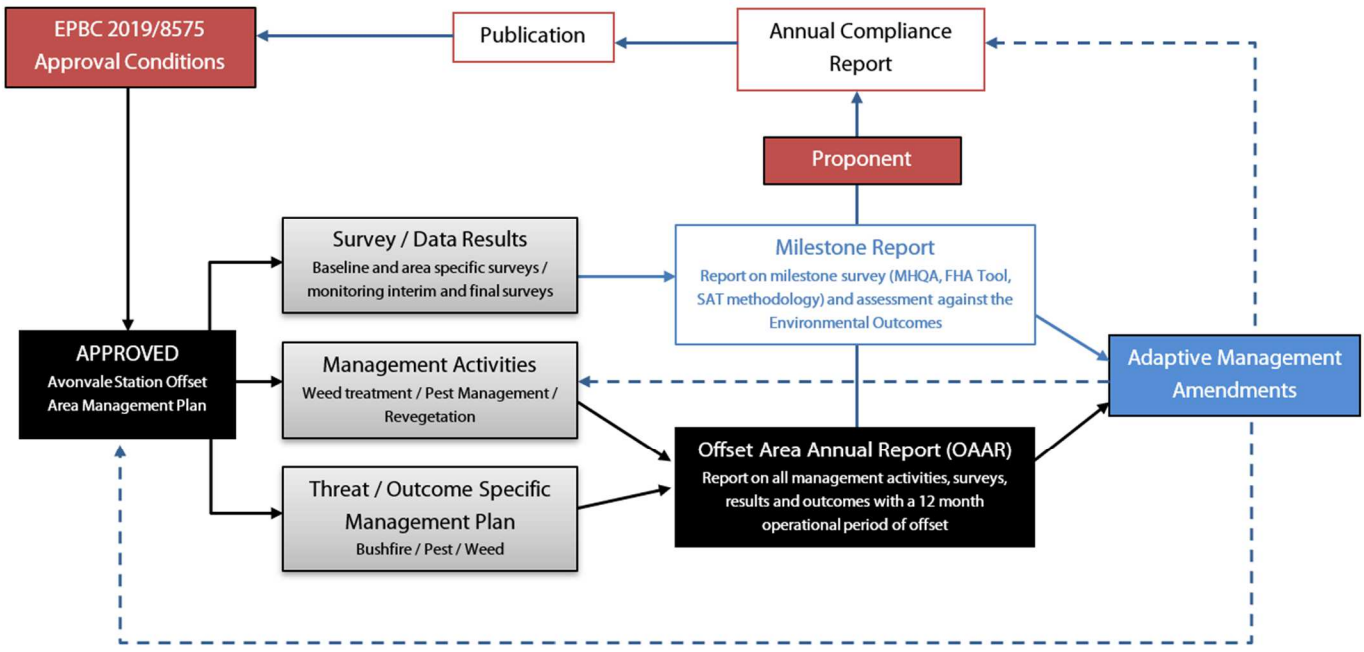


Figure 14: Offset Actions Reporting Structure

Table 56: Reporting Schedule

Report	Purpose	Frequency	Responsible party
Offset Area Annual Report *Details implementation of management actions against the OAMP and RMP including rehabilitation progress review.*	Designed to document all offset activities completed and/or commissioned by the Offset Provider and demonstrated against the timeframes and completion criteria of the OAMP and includes a review and progress update of rehabilitation works (planting and weed management). Required as part of the commercial agreement between the Proponent, to be provided one (1) month after each year of the offset.	Annually following the legal securement of the offset area	Offset Provider
Milestone Survey Report *Details the results of MHQA, GHFF FHA and swift parrot and regent honeyeater foraging habitat assessment.*	Designed to demonstrate increase in value of offset area for Matters of National Environmental Significance (koala, grey-headed flying-fox, swift parrot and regent honeyeater) as proposed under the OAMP. This will include an assessment of whether each environmental outcome has been or is likely to be achieved and advise of any circumstance/s which they consider is/are affecting the achievement of each outcome. The findings of each assessment will be documented and published within three (3) months of the end of the relevant year of the offset in which the assessment is undertaken.	Five-yearly at Years 5, 10, 15 and 20	Suitably qualified Ecologist as appointed by the Offset Provider
Annual Compliance Report *Required to be prepared as part of the approved project decision notice.*	Designed to document activities and demonstrate compliance against the EPBC Act approval conditions for the project. Other subsidiary reporting may be included as evidence of compliance with approval conditions.	Annually, timing specified in approval conditions	Suitably qualified person as appointed by the Proponent

11. References

Adams-Hosking, C. (2011). *Climate Change Adaptation Strategies for the Koala, Adaptation Case Study Series* – National Climate Change Adaptation Research Facility - Adaptation Research Network – Terrestrial Biodiversity.

Auld, B. (2009). Guidelines for monitoring weed control and recovery of native vegetation. New South Wales, Department of Primary Industries.

A.R.R.O.W. Wildlife Rehabilitation (2018). *Facebook post with Toogoolawah State High School planting Koala Trees* [Posted 1 May 2018 – Accessed via - https://www.facebook.com/Arrowwildlife/]

Australian Government – Department of Environment (2012) – *Environment Protection and Biodiversity Conservation Act 1999* – Environmental Offset Policy (October 2012)

Australian Government – Department of Environment (2012- Guide) – *How to use the Offsets Assessment Guide*

Australian Government – Department of Environment (2014) – *Environmental Management Plan Guidelines – 2014*

Australian Government – Department of Environment (2015) – *Referral guideline for management actions in grey-headed and spectacled flying-fox camps – September 2015*

Chenoweth EPLA and Bushland Restoration Services (2012). *South East Queensland Ecological Restoration Framework: Guideline. Prepared on behalf of SEQ Catchments and South East Queensland Local Governments, Brisbane.*

DAWE (2022a). Conservation Advice for *Phascolarctos cinereus* (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory. Department of Agriculture, Water and the Environment, Canberra, February.

DAWE (2022b). National Recovery Plan for the Koala Phascolarctos cinereus (combined populations of Queensland, New South Wales and the Australian Capital Territory). Department of Agriculture, Water and the Environment, Canberra, March 2022.

DAWE (2021). National Recovery Plan for the Grey-headed Flying-fox 'Pteropus poliocephalus.' Department of Agriculture, Water and the Environment, Canberra, March.

DCCEEW (2024). National Recovery Plan for the Swift Parrot (*Lathamus discolor*). Department of Climate Change, Energy, the Environment and Water, Canberra.

DoE (2016). National Recovery Plan for the Regent Honeyeater (*Anthochaera phrygia*). Department of the Environment, Commonwealth of Australia.

Department of Primary Industries, NSW Government (2018). Guidelines for camera trapping wild dogs, foxes and feral cats.

Eby, P. (1998). *An analysis of diet specialization in frugivore Pteropus poliocephalus in Australian subtropical rainforest. Australian Journal of Ecology. 23:443-456.*

Eby, P. and Law, B. (2008). Ranking the feeding habitats of Grey-headed flying foxes for conservation management. a report for The Department of Environment and Climate Change (NSW) & The Department of Environment, Water, Heritage and the Arts October 2008.

Eby, P., Sims, R. and Bracks, J. (2019). Flying fox Foraging Habitat Mapping NSW: a seamless map for assessing temporal and spatial patterns of habitat quality for flying foxes. Report to Local Government Association New South Wales.

Elsome, D. (2018). *Increase in wild dog sightings worries land owners,* Gatton, Lockyer & Brisbane Valley Star – 30th of August 2018 [Accessed via - https://www.gattonstar.com.au/news/increase-in-wild-dog-sightings-worries-landowners/3505372/]

ESSA (2017). *Adaptive Management Approach* – ESSA Technologies [Accessed via - https://essa.com/approach/]

Eyre, T.J., Kelly, A.L., Neldner, V.J., Wilson, B.A., Ferguson, D.J., Laidlaw, M.J. and Franks, A.J. (2015). 'BioCondition: A Condition Assessment Framework for Terrestrial Biodiversity in Queensland. Assessment Manual. Version 2.2'. Queensland Herbarium, Department of Science, Information Technology, Innovation and Arts, Brisbane.

Mace, R.D., Minta, S.C., Manley, T. l. and Aune, K. E. (1994). Estimating Grizzly Bear Population Size Using Camera Sightings. Wildlife Society Bulletin.

Mackey, B., Watson, J. and Worboys, G.L. (2010). Connectivity conservation and the Great Eastern Ranges corridor. ANU Enterprises Pty Ltd, Canberra.

McKeown, A. and Vanderduys, E. (2024). Grey-headed flying-fox population data. v2. CSIRO. Data Collection.

Melzer, et al (2015). *Importance of koala habitat associated with the Eton Range Realignment Project – Appendix 1 – Ranking koala habitat using Queensland's Regional Ecosystems*, Koala Research – Central Queensland University (06-11-15)

Moen, R and Lindquist, E.L. (2004). Testing a remote camera protocol to animals in the superior National Park.

Murray (2019). *Adaptive Management: A Science-Based Approach To Managing Ecosystems In The Face Of Uncertainty* [Accessed via - http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.137.9484]

Neldner, V.J., Wilson, B.A., Dillewaard, H.A., Ryan, T.S., Butler, D.W., McDonald, W.J.F, Addicott, E.P. and Appelman, C.N. (2020) Methodology for survey and mapping of regional ecosystems and vegetation communities in Queensland. Version 5.1. Updated March 2020. Queensland Herbarium, Queensland Department of Environment and Science, Brisbane.

NSW Government (2006). *Key Threatening Process – Lantana camara – Nomination Form* [Accessed via - https://www.environment.gov.au/system/files/pages/87ef6ac7-da62-4a45-90ec-0d473863f3e6/files/nomination-lantana-camara-invasion.pdf]

National Heritage Trust (2003). *Weed Management Guide – Lantana camara* [Accessed via - https://www.environment.gov.au/biodiversity/invasive/weeds/publications/guidelines/wons/pubs/l-camara.pdf]

Phillips, S. and Callaghan, J. (2011). 'The Spot Assessment Technique: A tool for determining localised levels of habitat use by Koalas Phascolarctos cinereus'.

Queensland Herbarium (2018). Technical Descriptions of Regional Ecosystems. Queensland Department of Environment, Science and Innovation, Brisbane.

Queensland Government – Department of Natural Resources (2017). *Guide to declarations under the Vegetation Management Act – July 2017*

Queensland Government – Department of Environment 7 Heritage (2017). *Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensland Government Environmental offset Policy (Version 1.2 April 2017)*

Rhodes J.R., Chooi, F.N.; deVilliers, D.L., Preece, H.J., McAlpine, C.A. and Possingham, H.P. (2011). *Using integrated population modelling to quantify the implications of multiple threatening processes for a rapidly declining population. Biological Conservation 144 (3): 1081-1088.*

Rosellini S., Osorio E., Ruiz-Gonzales A., Piñeiro A., Barja I. (2008). Monitoring the small-scale distribution of sympatric European pine martens (Martes martes) and stone martens (Martes foina): a multievidence approach using faecal DNA analysis and camera-traps. Wildl Res 35:434–440

SER (2012). Society of Ecological Restorations [Accessed via - https://www.ser.org/]

Wilson (2013). *Thriving Somerset koalas give scientists hope for species survival* (ABC News – Accessed via - https://www.abc.net.au/news/2013-11-29/koalas-give-scientists-hope-for-their-survival/5123954).

Wilson, P.R. and Taylor, P.M. (2012). Land Zones of Queensland. Queensland Herbarium, Queensland Department of Science, Information Technology, Innovation and the Arts, Brisbane. 79 pp.

12. Appendices

Appendix A: MNES Environmental Outcomes – Koala and Grey-headed Flying-fox
Appendix B: Offset Assessment Guidelines Calculator Sheets
Appendix C: Suitably qualified ecologists – CVs
Appendix D: Baseline Scoring – Koala
Appendix E: Transects – Raw Data
Appendix F: Baseline Scoring – Grey-headed Flying-fox
Appendix G: Rehabilitation Management Plan
Appendix H: Feral Animal Register
Appendix I: Weed Ground Cover Transects – Raw Data
Appendix J: Pest Management Implementation Strategy & Action Plan

Appendix A: MNES Environmental Outcomes – Koala and Grey-headed Flying-fox

Table 1: Koala Environmental Outcomes – Assessment Unit 1 / Environmental Management Zone 1 (Non-remnant Open Paddock RE12.11.14)

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Recruitment of woody perennial species	3	3	5	5	5	10 years	Recruitment of EDL dominant species will increase to >75% as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Establish photo monitoring points where remedial tree planting occurs at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Recruitment is currently 72.33% of the benchmark. If improvement to greater than 75% has not been achieved at year 10 then remedial actions to improve recruitment will be applied. These include refining weed and fire control methods and increasing remedial plantings.
Native plant species richness – Trees	2.5	2.5	5	5	5	10 years	All of the expected tree species to be present as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree species richness is currently at 33.33% of the benchmark. Recruitment of tree species is to be greater than 90% at year 10 as specified above. If the sub-canopy layer species richness has not improved to greater than 75% at year 10 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings of advanced stock.
Native plant species richness - Shrubs	0	0	2.5	2.5	5	20 years	All of the expected shrub species to be present as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub species richness is currently at 23.81% of the benchmark. If the shrub species richness has not improved to greater than 75% at year 10 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings.
Native plant species richness - Grasses	2.5	2.5	2.5	2.5	5	20 years	All of the expected grass species to be present as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Grass species richness is currently at 54.17% of the benchmark. If the grass species richness has not improved to greater than 75% at year 10 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings.
Native plant species richness - Forbs	0	0	2.5	2.5	2.5	10 years	Native forb species richness between 25% and 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Forb species richness is currently at 20.29% of the benchmark. If the forb species richness has not improved to greater than 25% at year 10 then remedial actions to improve the prospect of achieving between 25% and 90% in 20 years will be applied. These include remedial plantings.
Tree canopy height	4	4	4	4	5	20 years	A median tree height greater than 70% of the benchmark will be achieved as a result of 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Median tree canopy height is currently at 72% (EDL) and 53.85% (sub-canopy) of the benchmark (average 62.92%). If tree height has not transitioned to above 70% at year 15, then the prospect of extending the management period may be investigated. By Year 20 species plantings to be a minimum of 70% of the tree canopy height benchmark.

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Tree canopy cover	2	2	2	3	5	20 years	Canopy cover to be between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree canopy cover is currently at 13.42% (EDL) and 10.45% (sub-canopy) of the benchmark, average 11.93%. Recruitment of tree species is to be greater than 50% at year 10 as specified above. If canopy cover has not reached 50% at year 10 then remedial actions to improve the prospect of achieving between 50% and 200% in 20 years may be applied. These include remedial plantings of advanced stock.
Shrub canopy cover	5	5	5	5	5	Immediate	Canopy cover to be between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub canopy cover is currently at 112.5% of the benchmark. Remedial actions to ensure shrub canopy is maintained between 50% and 200% in 20 years may be applied if monitoring results observe a significant decrease in cover. Remedial actions may include additional plantings.
Native perennial grass cover	3	3	3	5	5	15 years	Native grass cover to achieve at least 90% of the benchmark by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Native perennial grass cover is currently at 74.07% of the benchmark. If the native perennial grass cover has not improved to greater than 90% at year 15 then remedial actions will be applied. These include refining weed and fire control methods to ensure native grass cover is maintained.
Organic litter	3	3	3	5	5	15 years	Organic litter to be between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Organic litter is currently at 14.44% of the benchmark. If organic litter has not improved to greater than 50% at year 15 then remedial actions to improve the prospect of maintain litter between 50% and 200% in 20 years will be applied. These include refining weed and fire control methods to ensure organic litter is maintained.
Large trees	5	5	5	5	5	Immediate	The number of large trees will be maintained between 0% and 50% of the benchmark as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	It is anticipated that the number of large trees will be maintained between 0% and 50%. Remedial actions are not anticipated.
Coarse woody debris	2	2	2	5	5	15 years	Course woody debris greater than 50% and less than 200% of the benchmark will be achieved by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Coarse woody debris is currently 37.82% of the benchmark with high variability between transects. If monitoring indicates that coarse woody debris is not improved to between 50 and 200% then remedial actions will be applied. These include a review of actions that impact on coarse woody debris such as fire regimes and importing native tree debris if necessary.
Weed cover	0	5	10	10	10	10 Years	Weed coverage will reduce to less than 5% over the course of 10 years by specific management actions 2, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Weed cover is currently 80%. If improvement to 5% has not been achieved by year 10 then remedial actions to reduce weed cover will be applied. These include refining weed control methods.

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Quality and availability of food and foraging habitat	5	5	5	10	10	15 Years	Quality and availability of food and foraging habitat will be improved to high by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of food and foraging habitat is currently moderate (60.56% of the benchmark). All site condition remedial actions also apply to this criterium achieving a high rating (*i.e.,* >66% of the benchmark).
Quality and availability of shelter	5	5	5	10	10	15 Years	Quality and availability of shelter will be improved to high by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of shelter is currently moderate (60.56% of the benchmark). All site condition remedial actions also apply to this criterium achieving a high rating (*i.e.,* >66% of the benchmark).
Site Condition Score	**42**	47	61.5	79.5	**87.5**				
Overall Site Condition Score out of 3	**1.26**	1.41	1.85	2.39	**2.63**				
Size of patch	10	10	10	10	10	NA	NA	NA	NA
Connectedness	2	2	2	2	2	NA	NA	NA	NA
Context	4	4	4	4	4	NA	NA	NA	NA
Ecological Corridors	4	4	4	4	4	NA	NA	NA	NA
Role of site location to species overall population in the state	5	5	5	5	5	NA	NA	NA	NA
Threats to the species	7	7	7	7	7	Immediate	Threats to species including barbed wire fencing and non-native predators will be suppressed through specific management actions 1, 2 & 3. No measurable improvement is anticipated.	Baseline attributes are established. This criterium is reliant upon the suppression and control of pest species. Pest monitoring will be evaluated as per the pest management program.	Non-native predators will be managed for life the offset through direction of pest management contractors and through interim milestone surveys. No measurable improvement is anticipated.
Species mobility capacity	4	7	10	10	10	10 Years	Species mobility capacity will be improved to minor restriction (<25%) by specific management actions 1 to 8.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species mobility is currently moderately restricted by the sparsity of foraging trees. All site condition remedial actions, as well as threat reductions also apply to this criterium achieving a high rating.
Site Context Score	**36**	39	42	42	**42**				
Overall Site Context Score (out of 3)	**1.93**	2.09	2.25	2.52	**2.25**				
Presence	10	10	10	10	10	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Usage (habitat type and evidenced usage)	15	15	15	15	15	20 Years	NA - Not anticipated to change	Baseline SAT attributes are established. Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Approximate Density	10	10	10	10	10	Immediate	NA - Not anticipated to change	Baseline SAT attributes are established. Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Role of the population	5	5	5	5	5	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
SSR Score (out of 70	**40**	40	40	40	**40**				

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
SSR Score out of 4	**2.29**	2.29	2.29	2.29	**2.29**				
Total Habitat Quality Scores	**5.86**	6.45	6.81	6.94	**7.6**				

Table 2: Koala Environmental Outcomes – Assessment Unit 2 / Environmental Management Zone 2 (Non-remnant Open Paddock RE12.3.3)

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Recruitment of woody perennial species	0	3	5	5	5	10 years	Recruitment of EDL dominant species will increase to >75% as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Establish photo monitoring points where remedial tree planting occurs at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Recruitment is currently 0% of the benchmark. If improvement to greater than 75% has not been achieved at year 10 then remedial actions to improve recruitment will be applied. These include refining weed and fire control methods and increasing remedial plantings.
Native plant species richness – Trees	0	2.5	5	5	5	15 years	Native tree species richness greater than 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree species richness is currently at 0% of the benchmark. Recruitment of tree species is to be greater than 75% at year 10 as specified above. If the sub-canopy layer species richness has not improved to greater than 75% at year 10 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings of advanced stock.
Native plant species richness - Shrubs	0	0	2.5	5	5	15 years	Greater than 90% of the benchmark of native shrub species richness to be achieved by as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub species richness is currently at 10% of the benchmark. If the shrub species richness has not improved to greater than 75% at year 15 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings.
Native plant species richness - Grasses	2.5	2.5	2.5	2.5	5	20 years	Native grass species richness greater than 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Grass species richness is currently at 33.33% of the benchmark. If the grass species richness has not improved to greater than 75% at year 10 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings.
Native plant species richness - Forbs	0	0	2.5	2.5	2.5	10 years	Forb species richness to achieve 25% to 90% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Forb species richness is currently at 10% of the benchmark. If the forb species richness has not improved to greater than 25% at year 10 then remedial actions to improve the prospect of achieving between 25% and 90% in 20 years will be applied. These include remedial plantings.
Tree canopy height	0	0	2	2	5	20 years	Tree canopy height greater than 70% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Median tree canopy height is currently at 0% (EDL) and 0% (sub-canopy) of the benchmark. If tree height has not transitioned to above 70% at year 15, then the prospect of extending the management period may be investigated. By Year 20 species plantings to be a minimum of 70% of the tree canopy height benchmark.

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Tree canopy cover	0	0	2	2	5	20 years	Tree canopy cover between 50% and 200% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree canopy cover is currently at 0% (EDL) and 0% (sub-canopy) of the benchmark. Recruitment of tree species is to be greater than 50% at year 10 as specified above. If canopy cover has not reached 50% at year 10 then remedial actions to improve the prospect of achieving between 50% and 200% in 20 years may be applied. These include remedial plantings of advanced stock.
Shrub canopy cover	0	3	3	3	5	20 years	Shrub canopy cover to be between 50% and 200% of the benchmark will be achieved as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub canopy cover is currently at 8.75% of the benchmark. At year 15 if shrub canopy cover is not transitioning to achieve 50% of the benchmark then remedial actions to ensure shrub canopy achieves between 50% and 200% in 20 years may be applied. Remedial actions may include additional plantings.
Native perennial grass cover	0	1	1	1	3	20 years	Native perennial grass cover between 50 and 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Native perennial grass cover is currently at 4.81% of the benchmark. If the native perennial grass cover has not improved to at least 40% by year 15 then remedial actions may be applied to ensure at least 50% cover of native perennial grass is achieved by year 20. These include refining weed and fire control methods to ensure native grass cover is maintained.
Organic litter	3	3	5	5	5	10 years	Organic litter between 50% and 200% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Organic litter is currently at 12.5% of the benchmark. If organic litter has not improved to greater than 50% at year 10 then remedial actions to improve the prospect of maintain litter between 50% and 200% in 20 years will be applied. These include refining weed and fire control methods to ensure organic litter is maintained.
Large trees	0	0	0	0	0	Immediate	The number of large trees will be maintained between 0% and 50% of the benchmark as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	It is anticipated that the number of large trees will be maintained between 0% and 50%. Remedial actions are not anticipated.
Coarse woody debris	0	0	2	2	5	20 years	Course woody debris greater than 50% and less than 200% of the benchmark will be achieved by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Coarse woody debris is currently 0% of the benchmark. If monitoring indicates that coarse woody debris does is not transitioning to increase to 50% by year 15 then remedial actions will be applied. These include a review of actions that impact on coarse woody debris such as fire regimes and importing native tree debris if necessary.
Weed cover	0	5	10	10	10	10 Years	Weed coverage will reduce to less than 5% over the course of 10 years by specific management actions 2, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Weed cover is currently 85%. If improvement to 5% has not been achieved by year 10 then remedial actions to reduce weed cover will be applied. These include refining weed control methods.

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Quality and availability of food and foraging habitat	1	1	5	5	10	20 Years	Quality and availability of food and foraging habitat will be improved to high by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of food and foraging habitat is currently poor (0% of the benchmark). All site condition remedial actions also apply to this criterium achieving a high rating (*i.e.,* >66% of the benchmark).
Quality and availability of shelter	1	1	5	5	10	20 Years	Quality and availability of shelter will be improved to high by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of shelter is currently poor (0% of the benchmark). All site condition remedial actions also apply to this criterium achieving a high rating (*i.e.,* >66% of the benchmark).
Site Condition Score	**7.5**	22	52.5	55	**80.5**				
Overall Site Condition Score out of 3	**0.23**	0.66	1.58	1.65	**2.42**				
Size of patch	10	10	10	10	10	NA	NA	NA	NA
Connectedness	2	2	2	2	2	NA	NA	NA	NA
Context	4	4	4	4	4	NA	NA	NA	NA
Ecological Corridors	4	4	4	4	4	NA	NA	NA	NA
Role of site location to species overall population in the state	5	5	5	5	5	NA	NA	NA	NA
Threats to the species	7	7	7	7	7	Immediate	Threats to species including barbed wire fencing and non-native predators will be suppressed through specific management actions 1, 2 & 3. No measurable improvement is anticipated.	Baseline attributes are established. This criterium is reliant upon the suppression and control of pest species. Pest monitoring will be evaluated as per the pest management program.	Non-native predators will be managed for life the offset through direction of pest management contractors and through interim milestone surveys. No measurable improvement is anticipated.
Species mobility capacity	4	7	10	10	10	10 Years	Species mobility capacity will be improved to minor restriction (<25%) by specific management actions 1 to 8.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species mobility is currently moderately restricted by the absence of habitat. All site condition remedial actions, as well as threat reductions also apply to this criterium achieving a high rating.
Site Context Score	**36**	39	42	42	**42**				
Overall Site Context Score (out of 3)	**1.93**	2.09	2.25	2.25	**2.25**				
Presence	10	10	10	10	10	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Usage (habitat type and evidenced usage)	5	5	5	5	15	20 Years	It is anticipated that under the management actions specified under management actions 1 to 8, Koala usage of the site as a measure of habitat type and evidence usage will increase. It is considered that with the reinstatement of key habitat values, the site will be considered breeding habitat by Year 20 as per the conservation advice.	Baseline SAT attributes are established. Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The absence of trees across the assessment unit indicates limited potential for usage within the assessment unit by Koala. Due to the presence of scattered trees, the assessment unit has been scored as dispersal habitat. If usage levels are not transitioning toward foraging level at year 10, then broader Koala population surveys will be undertaken to ascertain potential external causes and the management actions re-visited accordingly. If Koala usage (measured as both the increase in habitat values and Koala activity) has not improved to breeding level by year 20 then the management period may be extended and further remedial

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
									actions applied in consideration of other scoring improvements relative to potential external factors impacting on Koala usage.
Approximate Density	0	0	0	0	10	20 years	It is anticipated that under the management actions specified in management actions 1 to 8 at least low level Koala activity (<22.52% scats recorded using the East Coast med-high population category) will be recorded.	Baseline SAT attributes are established. Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The absence of trees across the assessment unit indicate no usage of the assessment unit by Koala. If density levels are not transitioning toward low level at year 10, then broader Koala population surveys will be undertaken to ascertain potential external causes and the management actions re-visited accordingly. If Koala activity has not improved to low level by Year 20 then the management period may be extended and further remedial actions applied in consideration of other scoring improvements relative to potential external factors impacting on Koala activity.
Role of the population	5	5	5	5	5	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
SSR Score (out of 70	**20**	20	20	20	**40**				
SSR Score out of 4	**1.14**	1.14	1.14	1.14	**2.29**				
Total Habitat Quality Scores	**3.46**	3.89	4.97	5.04	**6.95**				

Table 3: Koala Environmental Outcomes – Assessment Unit 3 / Environmental Management Zone 3 (Remnant Waterway RE12.3.7)

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Recruitment of woody perennial species	3	3	5	5	5	10 years	Recruitment of EDL dominant species will increase to >75% as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Establish photo monitoring points where remedial tree planting occurs at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Recruitment is currently at 33% of the benchmark. If improvement to 75% has not been achieved at year 10 then remedial actions to improve recruitment will be applied. These include refining weed and fire control methods and increasing remedial plantings.
Native plant species richness – Trees	2.5	2.5	5	5	5	10 years	Native tree species richness greater than 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Native tree species richness is currently at 83.33% of the benchmark. Recruitment of tree species is to be greater than 75% at year 10 as specified above. If the sub-canopy layer species richness has not improved to greater than 90% at year 10 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings of advanced stock.
Native plant species richness - Shrubs	2.5	2.5	5	5	5	10 years	Native shrub species richness greater than 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub species richness is currently at 37.5% of the benchmark. If the shrub species richness has not improved to greater than 75% at year 10 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings.
Native plant species richness - Grasses	2.5	2.5	2.5	2.5	5	20 years	Native grass species richness greater than 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Grass species richness is currently at 66.67% of the benchmark. If the grass species richness has not improved to greater than 75% at year 10 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings.
Native plant species richness - Forbs	0	0	2.5	2.5	2.5	10 years	Forb species richness to achieve between 25% and 90% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Forb species richness is currently at 23.53% of the benchmark. If the forb species richness has not improved to 25% at year 10 then remedial actions to improve the prospect of achieving and maintaining between 25% and 90% in 20 years will be applied. These include remedial plantings.
Tree canopy height	5	5	5	5	5	Immediate	Tree canopy height greater than 70% of the benchmark will be maintained as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Median tree canopy height is currently 104.55% (EDL) and 75% (sub-canopy), average 89.78%. It is anticipated that the tree canopy height will be maintained over 70%. Remedial actions are not anticipated.
Tree canopy cover	2.5	2.5	3.5	3.5	5	20 years	Canopy cover to be between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree canopy cover is currently at 111.61% (EDL) and 0% (sub-canopy) of the benchmark, average 55.81%. If sub-canopy cover is not transitioning to 50% cover by year 15 then remedial actions may be applied to ensure canopy cover of between 50%

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
									and 200% in 20 years is achieved.
Shrub canopy cover	3	3	3	3	5	20 years	Shrub canopy cover to be between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub canopy cover is currently at 30.45% of the benchmark. If monitoring indicates that shrub canopy cover is not transitioning to between 50 and 200% then remedial actions will be applied. These include a review of actions that impact on shrub canopy cover.
Native perennial grass cover	5	5	5	5	5	Immediate	Native grass cover to be maintained at least 90% of the benchmark by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Native perennial grass cover is currently at 137.5% of the benchmark. It is anticipated that native perennial grass cover will maintain greater than 90% of the benchmark by year 20. Remedial actions are not anticipated.
Organic litter	3	3	5	5	5	10 years	Between 50 and 200% of the benchmark for organic litter will be maintained as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Organic litter is currently 40.74% of the benchmark. It is anticipated that the organic litter cover will achieve between 50 and 200% of the benchmark by year 10. If organic litter cover has not increased to 50% by year 10 then remedial actions may be implemented. These include refining weed and fire control methods to ensure organic litter is maintained.
Large trees	5	5	5	5	5	Immediate	Between 0 and 50% of the benchmark for large trees will be maintained as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	It is anticipated that the large tree count will be maintained between 0 and 50% of the benchmark. Remedial actions are not anticipated.
Coarse woody debris	0	2	2	5	5	15 years	Course woody debris greater than 50% and less than 200% of the benchmark will be achieved by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Coarse woody debris is currently 0% of the benchmark due to current and historical land uses. If monitoring indicates that coarse woody debris is not transitioning to between 50 and 200% then remedial actions will be applied. These include a review of actions that impact on coarse woody debris such as fire regimes and importing native tree debris if necessary.
Weed cover	0	5	10	10	10	10 Years	Weed coverage will reduce to less than 5% over the course of 10 years by specific management actions 2, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Weed cover is currently 90% of the benchmark. If improvement to 5% has not been achieved at year 10 then remedial actions to reduce weed cover will be applied. These include refining weed control methods.
Quality and availability of food and foraging habitat	5	5	5	5	10	20 Years	Quality and availability of food and foraging habitat will be improved to high by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of food and foraging habitat is currently moderate (58.89% of the benchmark). All site condition remedial actions also apply to this criterium achieving a high rating (*i.e.,* >66% of the benchmark).
Quality and availability of shelter	5	5	5	5	10	20 Years	Quality and availability of shelter will be improved to high by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of shelter is currently moderate (58.89% of the benchmark). All site condition remedial actions also apply to this criterium achieving a high rating (*i.e.,* >66% of the benchmark).
Site Condition Score	**44**	51	68.5	71.5	**87.5**				

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Overall Site Condition Score out of 3	**1.32**	1.53	2.06	2.15	**2.63**				
Size of patch	10	10	10	10	10	NA	NA	NA	NA
Connectedness	2	2	2	2	2	NA	NA	NA	NA
Context	4	4	4	4	4	NA	NA	NA	NA
Ecological Corridors	4	4	4	4	4	NA	NA	NA	NA
Role of site location to species overall population in the state	5	5	5	5	5	NA	NA	NA	NA
Threats to the species	7	7	7	7	7	Immediate	Threats to species including barbed wire fencing and non-native predators will be suppressed through specific management actions 1, 2 & 3. No measurable improvement is anticipated.	Baseline attributes are established. This criterium is reliant upon the suppression and control of pest species. Pest monitoring will be evaluated as per the pest management program.	Non-native predators will be managed for life the offset through direction of pest management contractors and through interim milestone surveys. No measurable improvement is anticipated.
Species mobility capacity	7	7	10	10	10	10 Years	Species mobility capacity will achieve minor restriction (<25%) by specific management actions 1 to 8.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species mobility is currently moderately restricted by Lantana infestations within the waterway gully. All site condition remedial actions, as well as threat reductions also apply to this criterium achieving a high rating.
Site Context Score	**39**	39	42	42	**42**				
Overall Site Context Score (out of 3)	**2.09**	2.09	2.25	2.25	**2.25**				
Presence	10	10	10	10	10	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Usage (habitat type and evidenced usage)	15	15	15	15	15	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Approximate Density	10	10	10	10	10	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Role of the population	5	5	5	5	5	Immediate	NA - Not anticipated to change	NA - Not anticipated to change	NA - Not anticipated to change
SSR Score (out of 70	**40**	**40**	**40**	**40**	**40**				
SSR Score out of 4	**2.29**	**2.29**	**2.29**	**2.29**	**2.29**				
Total Habitat Quality Scores	**5.70**	**5.91**	**6.59**	**6.68**	**7.16**				

Table 4: Koala Environmental Outcomes – Assessment Unit 4 / Environmental Management Zone 4 (Non-remnant Open Paddock RE12.9-10.7)

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Recruitment of woody perennial species	5	5	5	5	5	Immediate	Recruitment of EDL dominant species will be maintained as >75% as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Establish photo monitoring points where remedial tree planting occurs at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	It is anticipated that the recruitment of woody perennial species will be maintained over 75%. Remedial actions are not anticipated.
Native plant species richness – Trees	2.5	2.5	5	5	5	10 years	Native tree species richness greater than 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree species richness is currently at 58.33% of the benchmark. Recruitment of tree species is to be greater than 90% at year 10 as specified above. If the sub-canopy layer species richness has not improved to greater than 75% at year 10 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings of advanced stock.
Native plant species richness - Shrubs	0	2.5	2.5	5	5	15 years	Native shrub species richness greater than 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub species richness is currently at 20% of the benchmark. If the shrub species richness has not improved to greater than 50% at year 15 then remedial actions to improve the prospect of achieving between 50 and 200% in 20 years will be applied. These include remedial plantings.
Native plant species richness - Grasses	2.5	2.5	5	5	5	10 years	Native grass species richness greater than 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Grass species richness is currently at 84.38% of the benchmark. If the grass species richness has not improved to greater than 90% at year 10 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings.
Native plant species richness - Forbs	2.5	2.5	2.5	2.5	2.5	Immediate	Forb species richness to be maintained between 25% and 90% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Forb species richness is currently at 30.77% of the benchmark. It is anticipated that forb species richness will be maintained between 25% and 90% therefore remedial plantings are not anticipated.
Tree canopy height	1.5	1.5	3	3	5	20 years	A median tree height greater than 70% of the benchmark will be achieved as a result of 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Median tree canopy height is currently at 52.38% (EDL) and 22.50% (sub-canopy) of the benchmark (average 37.44%). If tree canopy height has not transitioned to above 70% at year 15, and sub-canopy to at least 25% then the prospect of extending the management period may be investigated. By Year 20 species canopy and sub-canopy is to be a minimum of 70% of the tree canopy height benchmark.

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Tree canopy cover	2	2	2	2	5	20 years	Canopy cover to achieve between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree canopy cover is currently at 18.81% (EDL) and 21.56% (sub-canopy) of the benchmark, average 20.19%. Recruitment of tree species is to be greater than 50% at year 10 as specified above. If canopy cover is not transitioning to 50% at year 10 then remedial actions to improve the prospect of achieving between 50% and 200% in 20 years may be applied. These include remedial plantings of advanced stock.
Shrub canopy cover	5	5	5	5	5	Immediate	Canopy cover to be between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub canopy cover is currently at 109.17% of the benchmark. It is anticipated that shrub canopy will be maintained between 50% and 200% over the 20 year period.
Native perennial grass cover	5	5	5	5	5	Immediate	Native grass cover to be maintained at least 90% of the benchmark by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Native perennial grass cover is currently at 97.3% of the benchmark. It is anticipated that native grass cover will be maintained above 90% of the benchmark.
Organic litter	0	0	1	1	5	20 years	Organic litter to achieve between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Organic litter is currently at 7.00% of the benchmark. If organic litter is not transitioning to greater than 50% at year 15 then remedial actions to improve the prospect of maintain litter between 50% and 200% in 20 years will be applied. These include refining weed and fire control methods to ensure organic litter is maintained.
Large trees	5	5	5	5	5	Immediate	The number of large trees will be maintained between 0% and 50% of the benchmark as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	It is anticipated that the number of large trees will be maintained between 0% and 50%. Remedial actions are not anticipated.
Coarse woody debris	0	0	2	2	5	20 years	Course woody debris greater than 50% and less than 200% of the benchmark will be achieved by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Coarse woody debris is currently 1.38% of the benchmark. If monitoring indicates that coarse woody debris is not transitioning to 50% of the benchmark by year 15 then remedial actions may be applied to ensure this is achieved by year 20. These include a review of actions that impact on coarse woody debris such as fire regimes and importing native tree debris if necessary.
Weed cover	3	5	10	10	10	10 Years	Weed coverage will reduce to less than 5% over the course of 10 years by specific management actions 2, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Weed cover is currently 42.5%. If improvement to 5% has not been achieved by year 10 then remedial actions to reduce weed cover will be applied. These include refining weed control methods.
Quality and availability of food and foraging habitat	5	5	5	5	10	20 Years	Quality and availability of food and foraging habitat will be improved to high by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of food and foraging habitat is currently moderate (58.89% of the benchmark). All site condition remedial actions also apply to this criterium achieving a high rating (*i.e.,* ≥66% of the benchmark).

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Quality and availability of shelter	5	5	5	5	10	20 Years	Quality and availability of shelter will be improved to high by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of shelter is currently moderate (58.89% of the benchmark). All site condition remedial actions also apply to this criterium achieving a high rating (*i.e.,* ≥66% of the benchmark).
Site Condition Score	**44**	48.5	63	65.5	**87.5**				
Overall Site Condition Score out of 3	**1.32**	1.46	1.89	1.97	**2.63**				
Size of patch	10	10	10	10	10	NA	NA	NA	NA
Connectedness	2	2	2	2	2	NA	NA	NA	NA
Context	4	4	4	4	4	NA	NA	NA	NA
Ecological Corridors	4	4	4	4	4	NA	NA	NA	NA
Role of site location to species overall population in the state	5	5	5	5	5	NA	NA	NA	NA
Threats to the species	7	7	7	7	7	Immediate	Threats to species including barbed wire fencing and non-native predators will be suppressed through specific management actions 1, 2 & 3. No measurable improvement is anticipated.	Baseline attributes are established. This criterium is reliant upon the suppression and control of pest species. Pest monitoring will be evaluated as per the pest management program.	Non-native predators will be managed for life the offset through direction of pest management contractors and through interim milestone surveys. No measurable improvement is anticipated.
Species mobility capacity	4	7	10	10	10	10 Years	Species mobility capacity will be improved to minor restriction (<25%) by specific management actions 1 to 8.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species mobility is currently moderately restricted by the absence of habitat and presence of weeds and pests. All site condition remedial actions, as well as threat reductions also apply to this criterium achieving a high rating.
Site Context Score	**36**	39	42	42	**42**				
Overall Site Context Score (out of 3)	**1.93**	2.09	2.25	2.25	**2.25**				
Presence	10	10	10	10	10	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Usage (habitat type and evidenced usage)	5	5	5	5	15	20 Years	It is anticipated that under the management actions specified under management actions 1 to 8 = Koala usage of the site as a measure of habitat type and evidence usage will increase. It is considered that with the reinstatement of key habitat values, the site will be considered breeding habitat by Year 20 as per the conservation advice.	Baseline SAT attributes are established. Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The absence of trees across the majority of the assessment unit indicates limited potential for usage within the assessment unit by Koala. Due to the presence of scattered trees, the assessment unit has been scored as dispersal habitat. If usage levels are not transitioning toward foraging level at year 10, then broader Koala population surveys will be undertaken to ascertain potential external causes and the management actions re-visited accordingly. If Koala usage (measured as both the increase in habitat values and Koala activity) has not improved to breeding level by year 20 then the management period may be extended and further remedial actions applied in consideration of other scoring improvements relative to potential external factors impacting on Koala usage.

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Approximate Density	10	10	10	10	10	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Role of the population	5	5	5	5	5	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
SSR Score (out of 70	**30**	30	30	30	**40**				
SSR Score out of 4	**1.71**	1.71	1.71	1.71	**2.29**				
Total Habitat Quality Scores	**4.96**	5.26	5.85	5.93	**7.16**				

Table 5: Koala Environmental Outcomes – Assessment Unit 5 / Environmental Management Zone 5 (Regrowth RE12.9-10.7)

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Recruitment of woody perennial species	5	5	5	5	5	Immediate	Recruitment of EDL dominant species will be maintained as >75% as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Establish photo monitoring points where remedial tree planting occurs at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	It is anticipated that the recruitment of woody perennial species will be maintained over 75%. Remedial actions are not anticipated.
Native plant species richness – Trees	2.5	2.5	5	5	5	10 years	Native tree species richness greater than 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree species richness is currently at 77.78% of the benchmark. Recruitment of tree species is to be greater than 90% at year 10 as specified above. If the sub-canopy layer species richness has not improved to greater than 90% at year 10 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings of advanced stock.
Native plant species richness - Shrubs	2.5	2.5	2.5	5	5	15 years	Native shrub species richness greater than 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub species richness is currently at 66.67% of the benchmark. If the shrub species richness has not improved to greater than 75% at year 15 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings.
Native plant species richness - Grasses	2.5	2.5	5	5	5	10 years	Native grass species richness greater than 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Grass species richness is currently at 83.33% of the benchmark. If the grass species richness has not improved to greater than 90% at year 10 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings.
Native plant species richness - Forbs	2.5	2.5	2.5	2.5	2.5	Immediate	Forb species richness to be maintained between 25% and 90% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Forb species richness is currently at 37.18% of the benchmark. It is anticipated that forb species richness will be maintained between 25% and 90% therefore remedial plantings are not anticipated.
Tree canopy height	4	4	4	4	5	20 years	A median tree height greater than 70% of the benchmark will be achieved as a result of 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Median tree canopy height is currently at 95.24% (EDL) and 63.33% (sub-canopy) of the benchmark (average 79.29%). If tree canopy and height is not maintained above 70% and sub-canopy has not improved to 70% at year 15 then the prospect of extending the management period may be investigated. By Year 20 species canopy and sub-canopy is to be a minimum of 70% of the tree canopy height benchmark.

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Tree canopy cover	5	5	5	5	5	Immediate	Canopy cover to achieve between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree canopy cover is currently at 79.17% (EDL) and 165% (sub-canopy) of the benchmark, average 122.1%. Tree canopy height is anticipated to be maintained between 50% and 200% within the 20 year period. Remedial actions are not anticipated.
Shrub canopy cover	3	3	5	5	5	10 years	Canopy cover to be between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub canopy cover is currently at 46.67% of the benchmark. If the shrub species richness has not improved to greater than 50% by year 10 then remedial actions to improve the prospect of achieving between 50 and 200% in 20 years will be applied. These include remedial plantings.
Native perennial grass cover	5	5	5	5	5	Immediate	Native grass cover to be maintained at least 90% of the benchmark by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Native perennial grass cover is currently at 106.56% of the benchmark. It is anticipated that native grass cover will be maintained above 90% of the benchmark.
Organic litter	3	3	5	5	5	10 years	Organic litter to achieve between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Organic litter is currently at 45% of the benchmark. If organic litter is not transitioning to greater than 50% at year 10 then remedial actions to improve the prospect of maintain litter between 50% and 200% in 20 years will be applied. These include refining weed and fire control methods to ensure organic litter is maintained.
Large trees	10	10	10	10	10	Immediate	The number of large trees will be maintained between 0% and 50% of the benchmark as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	It is anticipated that the number of large trees will be maintained between 0% and 50%. Remedial actions are not anticipated.
Coarse woody debris	5	5	5	5	5	Immediate	Course woody debris greater than 50% and less than 200% of the benchmark will be achieved by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Coarse woody debris is currently 97.06% of the benchmark. It is not anticipated that coarse woody debris will reduce below 50% of the benchmark. Remedial actions are not anticipated.
Weed cover	3	5	10	10	10	10 Years	Weed coverage will reduce to less than 5% over the course of 10 years by specific management actions 2, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Weed cover is currently 27.5%. If improvement to 5% has not been achieved by year 10 then remedial actions to reduce weed cover will be applied. These include refining weed control methods.
Quality and availability of food and foraging habitat	10	10	10	10	10	Immediate	Quality and availability of food and foraging habitat will be maintained by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of food and foraging habitat is currently high (76.11% of the benchmark). All site condition remedial actions also apply to this criterium maintaining a high rating (*i.e.,* >66% of the benchmark).

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Quality and availability of shelter	10	10	10	10	10	Immediate	Quality and availability of shelter will be improved to high by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of shelter is currently high (76.11% of the benchmark). All site condition remedial actions also apply to this criterium maintaining a high rating (*i.e.,* >66% of the benchmark).
Site Condition Score	**75**	75	89	91.5	**92.5**				
Overall Site Condition Score out of 3	**2.25**	2.25	2.67	2.75	**2.78**				
Size of patch	10	10	10	10	10	NA	NA	NA	NA
Connectedness	2	2	2	2	2	NA	NA	NA	NA
Context	4	4	4	4	4	NA	NA	NA	NA
Ecological Corridors	4	4	4	4	4	NA	NA	NA	NA
Role of site location to species overall population in the state	5	5	5	5	5	NA	NA	NA	NA
Threats to the species	7	7	7	7	7	Immediate	Threats to species including barbed wire fencing and non-native predators will be suppressed through specific management actions 1, 2 & 3. No measurable improvement is anticipated.	Baseline attributes are established. This criterium is reliant upon the suppression and control of pest species. Pest monitoring will be evaluated as per the pest management program.	Non-native predators will be managed for life the offset through direction of pest management contractors and through interim milestone surveys. No measurable improvement is anticipated.
Species mobility capacity	10	10	10	10	10	Immediate	Species mobility capacity will be maintained as minor restriction (<25%) by specific management actions 1 to 8.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species mobility has minor restrictions. All site condition remedial actions, as well as threat reductions also apply to this criterium achieving a high rating.
Site Context Score	**42**	42	42	42	**42**				
Overall Site Context Score (out of 3)	**2.25**	2.25	2.25	2.25	**2.25**				
Presence	10	10	10	10	10	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Usage	15	15	15	15	15	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Approximate Density	10	10	10	10	10	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Role of the population	5	5	5	5	5	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
SSR Score (out of 70	**40**	40	40	40	**40**				
SSR Score out of 4	**2.29**	2.29	2.29	2.29	**2.29**				
Total Habitat Quality Scores	**6.79**	**6.76**	**7.21**	**7.28**	**7.31**				

Table 6: Koala Environmental Outcomes – Assessment Unit 6 / Environmental Management Zone 6 (Remnant RE12.11.14)

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Recruitment of woody perennial species	3	3	5	5	5	10 years	Recruitment of EDL dominant species will increase to >75% as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Establish photo monitoring points where remedial tree planting occurs at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Recruitment is currently 50% of the benchmark. If improvement to greater than 75% has not been achieved at year 10 then remedial actions to improve recruitment will be applied. These include refining weed and fire control methods and increasing remedial plantings.
Native plant species richness – Trees	2.5	2.5	5	5	5	10 years	All of the expected tree species to be present as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree species richness is currently at 66.67% of the benchmark. Recruitment of tree species is to be greater than 90% at year 10 as specified above. If the sub-canopy layer species richness has not improved to greater than 75% at year 10 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings of advanced stock.
Native plant species richness - Shrubs	2.5	2.5	2.5	5	5	15 years	All of the expected shrub species to be present as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub species richness is currently at 28.57% of the benchmark. If the shrub species richness has not improved to greater than 75% at year 10 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings.
Native plant species richness - Grasses	5	5	5	5	5	Immediate	All of the expected grass species to be present as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Grass species richness is currently at 112.5% of the benchmark. If the grass species richness has not maintained as greater than 75% then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings.
Native plant species richness - Forbs	2.5	2.5	2.5	2.5	2.5	Immediate	Native forb species richness between 25% and 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Forb species richness is currently at 30.43% of the benchmark. If the forb species richness has not been maintained between 25% and 90% then remedial actions will be applied. This includes remedial plantings.
Tree canopy height	5	5	5	5	5	Immediate	A median tree height maintained as greater than 70% of the benchmark will be achieved as a result of 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Median tree canopy height is currently at 84% (EDL) and 84.62% (sub-canopy) of the benchmark (average 84.31%). Tree canopy height is not anticipated to decrease.
Tree canopy cover	5	5	5	5	5	Immediate	Canopy cover to be between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree canopy cover is currently at 150.75% (EDL) and 125% (sub-canopy) of the benchmark, average 137.87%. Recruitment of tree species is to be greater than 50% at year 10 as specified above. Tree canopy cover is not anticipated to decrease.
Shrub canopy cover	0	2.5	2.5	5	5	15 years	Canopy cover to be between 50% and 200% of the benchmark as a result of specific	Baseline Site Condition attributes are established. Habitat quality transects to be completed by	Shrub canopy cover is currently at 0% of the benchmark. Remedial actions to ensure shrub

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
							management actions 1, 2, 3, 5, 6 & 7.	suitably qualified professionals at 5, 10, 15 and 20 years.	canopy is improved to between 50% and 200% in 20 years may be applied if monitoring results observe a significant decrease in cover. Remedial actions may include additional plantings.
Native perennial grass cover	1	1	3	5	5	15 years	Native grass cover to achieve at least 90% of the benchmark by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Native perennial grass cover is currently at 24.44% of the benchmark. If the native perennial grass cover has not improved to greater than 90% at year 15 then remedial actions will be applied. These include refining weed and fire control methods to ensure native grass cover is maintained.
Organic litter	3	3	5	5	5	Immediate	Organic litter to be between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Organic litter is currently at 220% of the benchmark. If organic litter has not reduced to less than 200% and greater than 50% at year 15 then remedial actions to improve the prospect of maintain litter between 50% and 200% in 20 years will be applied. These include refining weed and fire control methods.
Large trees	5	5	5	5	5	Immediate	The number of large trees will be maintained between 0% and 50% of the benchmark as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	It is anticipated that the number of large trees will be maintained between 0% and 50%. Remedial actions are not anticipated.
Coarse woody debris	5	5	5	5	5	Immediate	Course woody debris greater than 50% and less than 200% of the benchmark will be achieved by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Coarse woody debris is currently 195.77% of the benchmark with high variability between transects. If monitoring indicates that coarse woody debris is not maintained between 50 and 200% then remedial actions will be applied. These include a review of actions that impact on coarse woody debris such as fire regimes and importing native tree debris if necessary.
Weed cover	5	5	10	10	10	10 Years	Weed coverage will reduce to less than 5% over the course of 10 years by specific management actions 2, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Weed cover is currently 5%. If improvement to less than 5% has not been achieved by year 10 then remedial actions to reduce weed cover will be applied. These include refining weed control methods.
Quality and availability of food and foraging habitat	5	5	10	10	10	10 Years	Quality and availability of food and foraging habitat will be improved to high by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of food and foraging habitat is currently moderate (57.22% of the benchmark). All site condition remedial actions also apply to this criterium achieving a high rating (*i.e.,* >66% of the benchmark).
Quality and availability of shelter	5	5	10	10	10	10 Years	Quality and availability of shelter will be improved to high by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of shelter is currently moderate (57.22% of the benchmark). All site condition remedial actions also apply to this criterium achieving a high rating (*i.e.,* >66% of the benchmark).
Site Condition Score	**54.5**	57	78.5	87.5	**87.5**				
Overall Site Condition Score out of 3	**1.64**	1.71	2.36	2.63	**2.63**				
Size of patch	10	10	10	10	10	NA	NA	NA	NA

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Connectedness	2	2	2	2	2	NA	NA	NA	NA
Context	4	4	4	4	4	NA	NA	NA	NA
Ecological Corridors	4	4	4	4	4	NA	NA	NA	NA
Role of site location to species overall population in the state	5	5	5	5	5	NA	NA	NA	NA
Threats to the species	7	7	7	7	7	Immediate	Threats to species including barbed wire fencing and non-native predators will be suppressed through specific management actions 1, 2 & 3. No measurable improvement is anticipated.	Baseline attributes are established. This criterium is reliant upon the suppression and control of pest species. Pest monitoring will be evaluated as per the pest management program.	Non-native predators will be managed for life the offset through direction of pest management contractors and through interim milestone surveys. No measurable improvement is anticipated.
Species mobility capacity	10	10	10	10	10	Immediate	Species mobility capacity will be maintained as minor restriction (<25%) by specific management actions 1 to 8.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species mobility has a low restriction by the provision of consistent foraging habitat and lower incidence of weeds. All site condition remedial actions, as well as threat reductions also apply to this criterium achieving a high rating.
Site Context Score	**42**	42	42	42	**42**				
Overall Site Context Score (out of 3)	**2.25**	2.25	2.25	2.25	**2.25**				
Presence	10	10	10	10	10	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Usage (habitat type and evidenced usage)	15	15	15	15	15	20 Years	NA - Not anticipated to change	Baseline SAT attributes are established. Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Approximate Density	10	10	10	10	10	Immediate	NA - Not anticipated to change	Baseline SAT attributes are established. Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Role of the population	5	5	5	5	5	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
SSR Score (out of 70	**40**	40	40	40	**40**				
SSR Score out of 4	**2.29**	2.29	2.29	2.29	**2.29**				
Total Habitat Quality Scores	**6.17**	6.25	6.89	**7.16**	**7.16**				

Table 7: Grey-headed Flying-fox Environmental Outcomes – Assessment Unit 1 / Environmental Management Zone 1 (Non-remnant Open Paddock RE12.11.14)

Assessment Unit - Regional Ecosystem	AU 1 – Non-remnant Open Paddock RE12.11.14												
Site Reference	**Transect 2**	**Transect 4**	**Transect 13**	**Max Score**	**Average**	**AU Score**	**Year 5 Score**	**Year 10 Score**	**Year 15 Score**	**Year 20 Score**	**Justification / Management Actions / Timing**	**Monitoring**	**KPIs and Adaptive Management**
	Raw Data	**Raw Data**	**Raw Data**										
Vegetation Condition	Cat X	Cat X	Cat X	**20**	5.00	**5**	**5**	**5**	**10**	**20**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 the assessment unit 'Vegetation Condition' will readily attain Regrowth status within 15 years, and Remnant status within 20 years as defined under the Vegetation Management Act.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The assessment unit is to reach regrowth status in 15 years and remnant status at 20 years as per VMA definitions, which require 70% of height and 50% of expected cover to be reached. If the vegetation is not progressing toward regrowth status at Year 10, then remedial actions will be applied. These include remedial plantings of advanced stock.
Species Richness	2	2	0	**20**	1.33	**5**	**5**	**5**	**10**	**10**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 within the assessment unit 'Species Richness' will improve to at least four foraging species by year 20 including but not limited to *Eucalyptus tereticornis*, *Corymbia intermedia*, *Eucalyptus crebra* and *Corymbia tessellaris*.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species richness within the assessment unit is to achieve at least four foraging species by Year 20. If the species diversity does not reflect this requirement at Year 15, then remedial actions will be applied. These include remedial plantings of advanced stock.
Flower Score	0.755	0.755	0	**10**	0.50	**5**	**5**	**5**	**8**	**8**	It is anticipated that the flower score will improve through the planting of foraging tree species. Based on the above planting palette, it is anticipated this will achieve >0.51 by year 15.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If flower score does not improve to an 8 by year 15 then remedial actions will be implemented including advanced planting stock of foraging tree species with higher foraging potential.
Timing of Biological Shortages	8.5	8.5	0	**10**	5.67	**5.67**	**5.67**	**5.67**	**10**	**10**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 within the assessment unit 'Timing of Biological shortages' will improve to cover all shortages based on flora species presence by year 20.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Timing of biological shortages within the assessment unit is to cover all shortages by Year 20. If the species diversity does not approach this requirement at Year 15, then remedial actions will be applied. These include remedial plantings of advanced stock.

Quality of Foraging Habitat	2	2	0	**20**	1.33	**5**	**5**	**5**	**5**	**5**	It is not anticipated that the quality of foraging habitat in the form of significant foraging species count will decline.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Although unexpected, if the quality of foraging habitat shows decline then remedial actions will be implemented.
Non-native Plant Cover	55%	90%	95%	**20**	80.00%	**1**	**10**	**20**	**20**	**20**	Non-native Plant Cover' is currently relatively high consisting of *Lantana camara*, several herbaceous weed species and exotic grasses. It is anticipated that the weed management controls in actions 2, 6 & 7, will steadily improve 'Non-native Plant Cover' to below 5% within 10 years.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If improvement to 5% has not been achieved at Year 10 then then remedial actions to reduce weed cover will be applied. These include refining weed control methods.
Site Condition Score						**26.67**	**35.67**	**45.67**	**63**	**83**			
MAX Site Condition Score						***100***	***100***	***100***	***100***	***100***			
Site Condition Score - out of 4						**1.07**	**1.43**	**1.83**	**2.52**	**3.32**			
Size of patch	Patch size is greater than 200ha	Patch size is greater than 200ha	Patch size is greater than 200ha	**10**	**10**	**10**	**10**	**10**	**10**	**10**	NA	NA	NA
Connectedness	1 active camps within 20km	1 active camps within 20km	1 active camps within 20km	**10**	**3**	**3**	**3**	**3**	**3**	**3**	NA	NA	NA
Context	10-30%	10-30%	10-30%	**10**	**3**	**3**	**3**	**3**	**3**	**3**	NA	NA	NA
Ecological Corridors	Adjoining an ecological corridor	Adjoining an ecological corridor	Adjoining an ecological corridor	**10**	**6**	**6**	**6**	**6**	**6**	**6**	NA	NA	NA
Role of site location to species overall population in the state	1 active level 3 roost within 2km	1 active Level 3 roost within 20km	1 active level 3 roost within 2km	**10**	**0**	**0**	**0**	**0**	**0**	**0**	NA	NA	NA
Threats to the species	Low (barbed wire fencing)	Low (barbed wire fencing)	Low (barbed wire fencing)	**10**	**10**	**10**	**10**	**10**	**10**	**10**	The proposed offset site currently has barbed wire fencing, a recognised threat to Flying-foxes, delineating paddocks within the proposed offset area. Management action 8 will control and retrofit barbed wire. No measurable improvement is anticipated.	Baseline attributes have been established. This criterium is reliant upon the management of barbed wire fencing.	The control of barbed wire will provide reduction in threats. No measurable improvement is anticipated.
Site Context Score						**32**	**32**	**32**	**32**	**32**			
MAX Site Context Score						**60**	**60**	**60**	**60**	**60**			
Site Context Score - out of 3						**1.6**	**1.6**	**1.6**	**1.6**	**1.6**			
GHFF Foraging Tree Density / ha	50	25	0	**10**	**25.0**	**2**	**2**	**4**	**6**	**8**	Natural assisted regeneration and plantings as per management actions 1, 2, 3, 5, 6 & 7 will improve stem densities of foraging trees within the assessment unit to 221 per hectare by year 20.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The average stem density within the assessment unit is to achieve at 221 per hectare by Year 20. If the stem density does not achieve 200 by year 15, then remedial actions will be applied. These include remedial

													plantings of advanced stock.
Species Stocking Rate Score						**2**	**4**	**4**	**8**	**10**			
MAX Species Stocking Rate Score						**10**	**10**	**10**	**10**	**10**			
Species Stocking Rate Score - out of 3						**0.60**	**1.2**	**1.2**	**2.4**	**3.0**			
Total						**3.27**	**3.63**	**4.63**	**5.92**	**7.32**			

Table 8: Grey-headed Flying-fox Environmental Outcomes – Assessment Unit 2 / Environmental Management Zone 2 (Non-remnant Open Paddock RE12.3.3)

Assessment Unit - Regional Ecosystem	AU 2 – Non-remnant Open Paddock RE12.3.3											
Site Reference	Transect 3 Raw Data	Transect 5 Raw Data	Max Score	Average	AU Score	Year 5 Score	Year 10 Score	Year 15 Score	Year 20 Score	Justification / Management Actions / Timing	Monitoring	KPIs and Adaptive Management
Vegetation Condition	Cat X	Cat X	**20**	**5**	**5**	**5**	**5**	**10**	**20**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 the assessment unit 'Vegetation Condition' will readily attain Regrowth status within 15 years, and Remnant status within 20 years as defined under the Vegetation Management Act.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The assessment unit is to reach regrowth status in 15 years and remnant status at 20 years as per VMA definitions, which require 70% of height and 50% of expected cover to be reached. If the vegetation is not progressing toward regrowth status at Year 10, then remedial actions will be applied. These include remedial plantings of advanced stock.
Species Richness	0	0	**20**	**0**	**0**	**0**	**10**	**10**	**10**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 within the assessment unit 'Species Richness' will improve to at least four foraging species by year 20 including but not limited to *Eucalyptus tereticornis*, *Corymbia intermedia*, *Eucalyptus crebra* and *Corymbia tessellaris*.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species richness within the assessment unit is to achieve at least four foraging species by Year 20. If the species diversity does not reflect this requirement at Year 15, then remedial actions will be applied. These include remedial plantings of advanced stock.
Flower Score	0	0	**10**	**2**	**2**	**2**	**2**	**8**	**8**	It is anticipated that the flower score will improve through the planting of foraging tree species. Based on the above planting palette, it is anticipated this will achieve >0.51 by year 15.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If flower score does not improve to an 8 by year 15 then remedial actions will be implemented including advanced planting stock of foraging tree species with higher foraging potential.
Timing of Biological Shortages	0	0	**10**	**0**	**0**	**0**	**0**	**10**	**10**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 within the assessment unit 'Timing of Biological shortages' will improve to cover all shortages based on flora species presence by year 15.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Timing of biological shortages within the assessment unit is to cover all shortages by Year 20. If the species diversity does not approach this requirement at Year 15, then remedial actions will be applied. These include remedial plantings of advanced stock.
Quality of Foraging Habitat	0	0	**20**	**0**	**0**	**0**	**0**	**10**	**10**	It is anticipated that the quality of foraging habitat in the form of significant foraging species count will improve through the planting of significant foraging tree species *Eucalyptus tereticornis*, *Corymbia intermedia*,	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If the quality of foraging habitat does not improve to a 10, then remedial actions will be implemented including reviewing the abundance of significant foraging species and planting advanced stock of

										Eucalyptus crebra and *Corymbia tessellaris*.		species recognised as significant foraging tree species Eby and Law (2008).
Non-native Plant Cover	80%	90%	**20**	**85%**	**1**	**10**	**20**	**20**	**20**	Non-native Plant Cover' is currently relatively high consisting of *Lantana camara*, several herbaceous weed species and exotic grasses. It is anticipated that the weed management controls in actions 2, 6 & 7, will steadily improve 'Non-native Plant Cover' to below 5% within 10 years.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If improvement to 5% has not been achieved at Year 10 then then remedial actions to reduce weed cover will be applied. These include refining weed control methods.
Site Condition Score					**8**	**17**	**27**	**68**	**78**			
MAX Site Condition Score					**100**	**100**	**100**	**100**	**100**			
Site Condition Score - out of 4					**0.32**	**0.68**	**1.08**	**2.72**	**3.12**			
Size of patch	Patch size is greater than 200ha	Patch size is greater than 200ha	**10**	**10**	**10**	**10**	**10**	**10**	**10**	NA	NA	NA
Connectedness	1 active camps within 20km	1 active camps within 20km	**10**	**3**	**3**	**3**	**3**	**3**	**3**	NA	NA	NA
Context	10-30%	10-30%	**10**	**3**	**3**	**3**	**3**	**3**	**3**	NA	NA	NA
Ecological Corridors	Adjoining an ecological corridor	Adjoining an ecological corridor	**10**	**6**	**6**	**6**	**6**	**6**	**6**	NA	NA	NA
Role of site location to species overall population in the state	0 active Level 3 roost within 20km	0 active Level 3 roost within 20km	**10**	**0**	**0**	**0**	**0**	**0**	**0**	NA	NA	NA
Threats to the species	Low (barbed wire fencing)	Low (barbed wire fencing)	**10**	**10**	**10**	**10**	**10**	**10**	**10**	The proposed offset site currently has barbed wire fencing, a recognised threat to Flying-foxes, delineating paddocks within the proposed offset area. Management action 8 will control and retrofit barbed wire. No measurable improvement is anticipated.	Baseline attributes have been established. This criterium is reliant upon the management of barbed wire fencing.	The control of barbed wire will provide reduction in threats. No measurable improvement is anticipated.
Site Context Score					**32**	**32**	**32**	**32**	**32**			
MAX Site Context Score					**60**	**60**	**60**	**60**	**60**			
Site Context Score - out of 3					**1.6**	**1.6**	**1.6**	**1.6**	**1.6**			
GHFF Foraging Tree Density / ha	0	0	**10**	**0**	**2**	**2**	**2**	**6**	**8**	Natural assisted regeneration and plantings as per management actions 1, 2, 3, 5, 6 & 7 will improve stem densities of foraging trees within AU2 to greater than 201 per hectare by year 20.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Stem densities within the assessment unit is to achieve 201 stems per hectare by year 20. If the stem density does not achieve 180 by year 15, then remedial actions will be applied. These include remedial plantings of advanced stock.
Species Stocking Rate Score					**2**	**2**	**2**	**6**	**8**			
MAX Species Stocking Rate Score					**10**	**10**	**10**	**10**	**10**			
Species Stocking Rate Score - out of 3					**0.6**	**0.6**	**0.6**	**1.8**	**2.4**			
Total					**2.52**	**2.88**	**3.28**	**6.12**	**7.12**			

Table 9: Grey-headed Flying-fox Environmental Outcomes – Assessment Unit 3 / Environmental Management Zone 3 (Remnant Waterway RE12.3.7)

Assessment Unit - Regional Ecosystem	AU 3 – Remnant Waterway 12.3.7									
Site Reference	**Transect 6**	**Max Score**	**AU Score**	**Year 5 Score**	**Year 10 Score**	**Year 15 Score**	**Year 20 Score**	**Justification / Management Actions / Timing**	**Monitoring**	**KPIs and Adaptive Management**
	Raw Data									
Vegetation Condition	Cat B	**20**	**20**	**20**	**20**	**20**	**20**	It is not anticipated that the vegetation status will decline.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA – the assessment unit is remnant status.
Species Richness	3	**20**	**5**	**5**	**5**	**10**	**10**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 including minor infill planting within the assessment unit 'Species Richness' will improve to at least four foraging species by year 20 including but not limited to *Eucalyptus tereticornis*, *Corymbia intermedia* and *Corymbia tessellaris*.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species richness within the assessment unit is to achieve at least four foraging species by Year 20. If the species diversity does not reflect this requirement at Year 15, then remedial actions will be applied. These include remedial plantings of advanced stock.
Flower Score	0.63	**10**	**8**	**8**	**8**	**8**	**8**	It is anticipated that the flower score will be improved through the planting of foraging tree species. Based on the above planting palette, it is anticipated this will achieve 0.6 by year 15 maintaining a score of 8 out of 10.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	While not anticipated to occur due to the remnant status, if the flower score shows decline then remedial actions will be implemented. These include remedial plantings of advanced stock with higher foraging potential.
Timing of Biological Shortages	8.5	**10**	**8.5**	**8.5**	**8.5**	**10**	**10**	It is not anticipated that the timing of biological shortages will decline.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	While not anticipated to occur due to the remnant status, if the flower score shows decline then remedial actions will be implemented. These include remedial plantings of advanced stock.
Quality of Foraging Habitat	1	**20**	**5**	**5**	**5**	**5**	**5**	It is anticipated that the quality of foraging habitat in the form of significant foraging species count will be maintained or improved to two significant foraging species through the planting palette including *Eucalyptus tereticornis* and *Corymbia intermedia*.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If the quality of foraging habitat is not maintained as a 5 or improved, then remedial actions will be implemented including reviewing the abundance of significant foraging species and planting advanced stock of species recognised as significant foraging tree species Eby and Law (2008).
Non-native Plant Cover	90%	**20**	**1**	**10**	**20**	**20**	**20**	Non-native Plant Cover' is currently relatively high consisting of *Lantana camara*, several herbaceous weed species and exotic grasses. It is anticipated that the weed management controls in actions 2, 6 & 7, will steadily improve 'Non-native Plant Cover' to below 5% within 10 years.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If improvement to 5% has not been achieved at Year 10 then then remedial actions to reduce weed cover will be applied. These include refining weed control methods.
Site Condition Score			**47.5**	**56.5**	**66.5**	**73**	**73**			
MAX Site Condition Score			**100**	**100**	**100**	**100**	**100**			
Site Condition Score - out of 4			**1.90**	**2.26**	**2.66**	**2.92**	**2.92**			
Size of patch	Patch size is greater than 200ha	**10**	**10**	**10**	**10**	**10**	**10**	NA	NA	NA
Connectedness	1 active camps within 20km	**10**	**3**	**3**	**3**	**3**	**3**	NA	NA	NA
Context	10-30%	**10**	**3**	**3**	**3**	**3**	**3**	NA	NA	NA
Ecological Corridors	Adjoining an ecological corridor	**10**	**6**	**6**	**6**	**6**	**6**	NA	NA	NA
Role of site location to species overall population in the state	0 active Level 3 roost within 20km	**10**	**0**	**0**	**0**	**0**	**0**	NA	NA	NA

Threats to the species	Low (barbed wire fencing)	**10**	**10**	**10**	**10**	**10**	**10**	The proposed offset site currently has barbed wire fencing, a recognised threat to Flying-foxes, delineating paddocks within the proposed offset area. Management action 8 will control and retrofit barbed wire. No measurable improvement is anticipated.	Baseline attributes have been established. This criterium is reliant upon the management of barbed wire fencing.	The control of barbed wire will provide reduction in threats. No measurable improvement is anticipated.
Site Context Score			**32**	**32**	**32**	**32**	**32**			
MAX Site Context Score			**60**	**60**	**60**	**60**	**60**			
Site Context Score - out of 3			**1.6**	**1.6**	**1.6**	**1.6**	**1.6**			
GHFF Foraging Tree Density / ha	15	**10**	**2**	**2**	**2**	**6**	**6**	Natural assisted regeneration and plantings as per management actions 1, 2, 3, 5, 6 & 7 will improve stem densities of foraging trees within the assessment unit to greater than 221 per hectare by year 20.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Stem densities within the assessment unit is to achieve 221 stems per hectare by year 20. If the stem density is not transitioning to achieving 200 by year 10, then remedial actions will be applied. These include remedial plantings of advanced stock.
Species Stocking Rate Score			**2**	**2**	**2**	**6**	**6**			
MAX Species Stocking Rate Score			**10**	**10**	**10**	**10**	**10**			
Species Stocking Rate Score - out of 3			**0.6**	**0.6**	**0.6**	**1.8**	**1.8**			
Total			**4.10**	**4.46**	**4.86**	**6.32**	**6.32**			

Table 10: Grey-headed Flying-fox Environmental Outcomes – Assessment Unit 4 / Environmental Management Zone 4 (Non-remnant Open Paddock RE12.9-10.7)

Assessment Unit - Regional Ecosystem	AU 4 – Non-remnant Open Paddock RE12.9-10.7													
Site Reference	**Transect 9**	**Transect 10**	**Transect 11**	**Transect 12**	**Max Score**	**Average**	**AU Score**	**Year 5 Score**	**Year 10 Score**	**Year 15 Score**	**Year 20 Score**	**Justification / Management Actions / Timing**	**Monitoring**	**KPIs and Adaptive Management**
	Raw Data	**Raw Data**	**Raw Data**	**Raw Data**										
Vegetation Condition	Cat X	Cat X	Cat X	Cat X	**20**	**5**	**5**	**5**	**5**	**10**	**20**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 the assessment unit 'Vegetation Condition' will readily attain Regrowth status within 15 years, and Remnant status within 20 years as defined under the Vegetation Management Act.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The assessment unit is to reach regrowth status in 15 years and remnant status at 20 years as per VMA definitions, which require 70% of height and 50% of expected cover to be reached. If the vegetation is not progressing toward regrowth status at Year 10, then remedial actions will be applied. These include remedial plantings of advanced stock.
Species Richness	2	4	0	0	**20**	**1.5**	**5**	**5**	**5**	**20**	**20**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 within the assessment unit 'Species Richness' will improve to >6 species by year 20 including planting palette consisting of *Angophora leiocarpa, Eucalyptus tereticornis, Corymbia intermedia, Eucalyptus crebra, Corymbia tessellaris, Eucalyptus melanophloia, Eucalyptus siderophloia.*	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species richness within the assessment unit is to achieve >6 foraging species by Year 20. If the species diversity does not reflect this requirement at Year 15, then remedial actions will be applied. These include remedial plantings of advanced stock.
Flower Score	0.570	0.533	0	0	**10**	**0.28**	**5**	**5**	**5**	**8**	**8**	It is anticipated that the flower score will improve through the planting of foraging tree species. Based on the above planting palette, it is anticipated this will achieve >0.51 by year 15.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If flower score does not improve to an 8 by year 15 then remedial actions will be implemented including advanced planting stock of foraging tree species with higher foraging potential.
Timing of Biological Shortages	10	10	0	0	**10**	**5.00**	**5.00**	**5.00**	**5.00**	**10**	**10**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 within the assessment unit 'Timing of Biological shortages' will improve to cover all shortages based on flora species presence by year 15.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Timing of biological shortages within the assessment unit is to cover all shortages by Year 20. If the species diversity does not approach this requirement at Year 15, then remedial actions will be applied. These include remedial plantings of advanced stock.

Quality of Foraging Habitat	1	2	0	0	**20**	**0.75**	**0**	**0**	**0**	**10**	**10**	Quality of foraging habitat will increase with planting of 4 significant foraging species – *E. tereticornis, E. crebra, E. siderophloia* and *C. intermedia*.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Although unexpected, if the quality of foraging habitat shows decline then remedial actions will be implemented.
Non-native Plant Cover	70%	65%	20%	15%	**20**	**42.5%**	**5**	**10**	**20**	**20**	**20**	Non-native Plant Cover' is currently relatively high consisting of *Lantana camara*, several herbaceous weed species and exotic grasses. It is anticipated that the weed management controls in actions 2, 6 & 7, will steadily improve 'Non-native Plant Cover' to below 5% within 10 years.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If improvement to 5% has not been achieved at Year 10 then then remedial actions to reduce weed cover will be applied. These include refining weed control methods.
Site Condition Score							**25**	**30**	**40**	**78**	**88**			
MAX Site Condition Score							***100***	***100***	***100***	***100***	***100***			
Site Condition Score - out of 4							**1.00**	**1.20**	**1.60**	**3.12**	**3.52**			
Size of patch	Patch size is greater than 200ha	Patch size is greater than 200ha	Patch size is greater than 200ha	Patch size is greater than 200ha	**10**	**10**	**10**	**10**	**10**	**10**	**10**	NA	NA	NA
Connectedness	1 active camps within 20km	1 active camps within 20km	1 active camps within 20km	1 active camps within 20km	**10**	**3**	**3**	**3**	**3**	**3**	**3**	NA	NA	NA
Context	10-30%	10-30%	10-30%	10-30%	**10**	**3**	**3**	**3**	**3**	**3**	**3**	NA	NA	NA
Ecological Corridors	Adjoining an ecological corridor	Adjoining an ecological corridor	Adjoining an ecological corridor	Adjoining an ecological corridor	**10**	**6**	**6**	**6**	**6**	**6**	**6**	NA	NA	NA
Role of site location to species overall population in the state	0 active Level 3 roost within 20km	0 active Level 3 roost within 20km	0 active Level 3 roost within 20km	0 active Level 3 roost within 20km	**10**	**0**	**0**	**0**	**0**	**0**	**0**	NA	NA	NA
Threats to the species	Low (barbed wire fencing)	Low (barbed wire fencing)	Low (barbed wire fencing)	Low (barbed wire fencing)	**10**	**10**	**10**	**10**	**10**	**10**	**10**	The proposed offset site currently has barbed wire fencing, a recognised threat to Flying-foxes, delineating paddocks within the proposed offset area. Management action 8 will control and retrofit barbed wire. No measurable improvement is anticipated.	Baseline attributes have been established. This criterium is reliant upon the management of barbed wire fencing.	The control of barbed wire will provide reduction in threats. No measurable improvement is anticipated.
Site Context Score							**32**	**32**	**32**	**32**	**32**			
MAX Site Context Score							**60**	**60**	**60**	**60**	**60**			
Site Context Score - out of 3							**1.6**	**1.6**	**1.6**	**1.6**	**1.6**			
GHFF Foraging Tree Density / ha	10	40	0	0	**10**	**12.50**	**2**	**2**	**2**	**6**	**8**	Natural assisted regeneration and plantings as per management actions 1, 2, 3, 5, 6 & 7 will improve stem densities of foraging trees within the assessment unit to 241 stems per hectare by year 20.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The average stem density within the assessment unit is to achieve at 241 stems per hectare by Year 20. If the stem density does not achieve 200 by year 15, then remedial actions will be applied. These

														include remedial plantings of advanced stock.
Species Stocking Rate Score							**2**	**2**	**2**	**6**	**8**			
MAX Species Stocking Rate Score							**10**	**10**	**10**	**10**	**10**			
Species Stocking Rate Score - out of 3							**1.2**	**1.2**	**1.2**	**1.8**	**2.4**			
Total							**3.20**	**3.40**	**3.80**	**6.52**	**7.52**			

Table 11: Grey-headed Flying-fox Environmental Outcomes – Assessment Unit 5 / Environmental Management Zone 5 (Regrowth RE12.9-10.7)

Assessment Unit - Regional Ecosystem	AU 5 – Regrowth RE12.9-10.7												
Site Reference	**Transect 7**	**Transect 8**	**Transect 15**	**Max Score**	**Average**	**AU Score**	**Year 5 Score**	**Year 10 Score**	**Year 15 Score**	**Year 20 Score**	**Justification / Management Actions / Timing**	**Monitoring**	**KPIs and Adaptive Management**
	Raw Data	**Raw Data**	**Raw Data**										
Vegetation Condition	Cat C	Cat C	Cat C	**20**	**10**	**10**	**10**	**10**	**10**	**20**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 the assessment unit 'Vegetation Condition' will readily attain Regrowth status within 15 years, and Remnant status within 20 years as defined under the Vegetation Management Act.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The assessment unit is to reach regrowth status in 15 years and remnant status at 20 years as per VMA definitions, which require 70% of height and 50% of expected cover to be reached. If the vegetation is not progressing toward regrowth status at Year 10, then remedial actions will be applied. These include remedial plantings of advanced stock.
Species Richness	2	1	2	**20**	**1.50**	**5**	**5**	**5**	**20**	**20**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 within the assessment unit 'Species Richness' will improve to >6 species by year 20 through natural assisted regeneration and minor infill planting including planting palette consisting of *Angophora leiocarpa, Eucalyptus tereticornis, Corymbia intermedia, Eucalyptus crebra, Corymbia tessellaris, Eucalyptus melanophloia* and *Eucalyptus siderophloia.*	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species richness within the assessment unit is to achieve >6 foraging species by Year 20. If the species diversity does not reflect this requirement at Year 15, then remedial actions will be applied. These include remedial plantings of advanced stock.
Flower Score	0.755	0.65	0.525	**10**	**0.643**	**8**	**8**	**8**	**8**	**8**	It is not anticipated that the flower score will decline.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Although unexpected, if the flower score shows decline then remedial actions will be implemented including remedial planting of advanced stock containing species with higher foraging potential as denoted by individual flower scores.
Timing of Biological Shortages	8.5	4	8.5	**10**	**7.0**	**7.0**	**7.0**	**7.0**	**10**	**10**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 within the assessment unit 'Timing of Biological shortages' will improve to cover all shortages based on flora species presence by year 15.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Timing of biological shortages within the assessment unit is to cover all shortages by Year 20. If the species diversity does not approach this requirement at Year 15, then remedial actions will be applied. These include remedial plantings of advanced stock.
Quality of Foraging Habitat	2	1	1	**20**	**1.33**	**5**	**5**	**5**	**10**	**10**	It is anticipated that the quality of foraging habitat in the form of significant foraging species will improve to a 10 through minor infill planting of four significant foraging species including *Eucalyptus tereticornis, Corymbia intermedia, Eucalyptus siderophloia* and *Eucalyptus crebra.*	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If the quality of foraging habitat is not transitioning to improving to ≥4 significant foraging species then remedial actions will be implemented including reviewing the abundance of significant foraging species and planting of advanced stock of species recognised as significant foraging tree species Eby and Law (2008).

Non-native Plant Cover	20%	35%	1%	**20**	**18.67%**	**10**	**10**	**20**	**20**	**20**	Non-native Plant Cover' is currently relatively high consisting of *Lantana camara*, several herbaceous weed species and exotic grasses. It is anticipated that the weed management controls in actions 2, 6 & 7, will steadily improve 'Non-native Plant Cover' to below 5% within 10 years.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If improvement to 5% has not been achieved at Year 10 then then remedial actions to reduce weed cover will be applied. These include refining weed control methods.
Site Condition Score						**45**	**45**	**55**	**78**	**88**			
MAX Site Condition Score						***100***	***100***	***100***	***100***	***100***			
Site Condition Score - out of 4						**1.8**	**1.8**	**2.2**	**3.12**	**3.52**			
Size of patch	Patch size is greater than 200ha	Patch size is greater than 200ha	Patch size is greater than 200ha	**10**	**10**	**10**	**10**	**10**	**10**	**10**	NA	NA	NA
Connectedness	1 active camps within 20km	1 active camps within 20km	1 active camps within 20km	**10**	**3**	**3**	**3**	**3**	**3**	**3**	NA	NA	NA
Context	10-30%	10-30%	10-30%	**10**	**3**	**3**	**3**	**3**	**3**	**3**	NA	NA	NA
Ecological Corridors	Adjoining an ecological corridor	Adjoining an ecological corridor	Adjoining an ecological corridor	**10**	**6**	**6**	**6**	**6**	**6**	**6**	NA	NA	NA
Role of site location to species overall population in the state	0 active Level 3 roost within 20km	0 active Level 3 roost within 20km	0 active Level 3 roost within 20km	**10**	**0**	**0**	**0**	**0**	**0**	**0**	NA	NA	NA
Threats to the species	Low (barbed wire fencing)	Low (barbed wire fencing)	Low (barbed wire fencing)	**10**	**10**	**10**	**10**	**10**	**10**	**10**	The proposed offset site currently has barbed wire fencing, a recognised threat to Flying-foxes, delineating paddocks within the proposed offset area. Management action 8 will control and retrofit barbed wire. No measurable improvement is anticipated.	Baseline attributes have been established. This criterium is reliant upon the management of barbed wire fencing.	The control of barbed wire will provide reduction in threats. No measurable improvement is anticipated.
Site Context Score						**32**	**32**	**32**	**32**	**32**			
MAX Site Context Score						**60**	**60**	**60**	**60**	**60**			
Site Context Score - out of 3						**1.6**	**1.6**	**1.6**	**1.6**	**1.6**			
GHFF Foraging Tree Density / ha	75	30	165	**10**	**90.0**	**4**	**4**	**4**	**6**	**8**	Natural assisted regeneration and plantings as per management actions 1, 2, 3, 5, 6 & 7 will improve stem densities of foraging trees within the assessment unit to 331 stems per hectare by year 20.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The average stem density within the assessment unit is to achieve at 331 stems per hectare by Year 20. If the stem density does not achieve 221 by year 15, then remedial actions will be applied. These include remedial plantings of advanced stock.
Species Stocking Rate Score						**4**	**4**	**4**	**6**	**8**			
MAX Species Stocking Rate Score						**10**	**10**	**10**	**10**	**10**			
Species Stocking Rate Score - out of 3						**1.2**	**1.2**	**1.2**	**1.8**	**2.4**			
Total						**4.6**	**4.6**	**5.0**	**6.52**	**7.52**			

Table 12: Grey-headed Flying-fox Environmental Outcomes – Assessment Unit 6 / Environmental Management Zone 6 (Remnant RE12.11.14)

Assessment Unit - Regional Ecosystem	AU 1 – Non-remnant Open Paddock RE12.11.14										
Site Reference	**Transect 1**	**Max Score**	**Average**	**AU Score**	**Year 5 Score**	**Year 10 Score**	**Year 15 Score**	**Year 20 Score**	**Justification / Management Actions / Timing**	**Monitoring**	**KPIs and Adaptive Management**
	Raw Data										
Vegetation Condition	Cat B	**20**	**20**	**20**	**20**	**20**	**20**	**20**	It is not anticipated that the vegetation status will decline.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA – the assessment unit is remnant status.
Species Richness	4	**20**	**4**	**10**	**10**	**10**	**20**	**20**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 within the assessment unit 'Species Richness' will improve to at least four foraging species by year 20 including but not limited to *Eucalyptus tereticornis*, *Corymbia intermedia*, *Eucalyptus crebra* and *Corymbia tessellaris*.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species richness within the assessment unit is to achieve at least four foraging species by Year 20. If the species diversity does not reflect this requirement at Year 15, then remedial actions will be applied. These include remedial plantings of advanced stock.
Flower Score	0.61	**10**	**0.61**	**8**	**8**	**8**	**8**	**8**	It is not anticipated that the flower score will decline.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Although unexpected, if the flower score shows decline then remedial actions will be implemented.
Timing of Biological Shortages	10	**10**	**10**	**10**	**10**	**10**	**10**	**10**	It is not anticipated that the timing of biological shortages will decline.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	While not anticipated to occur due to the remnant status, if the flower score shows decline then remedial actions will be implemented. These include remedial plantings of advanced stock.
Quality of Foraging Habitat	2	**20**	**2.0**	**5**	**5**	**5**	**5**	**5**	It is not anticipated that the quality of foraging habitat in the form of significant foraging species count will decline.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Although unexpected, if the quality of foraging habitat shows decline then remedial actions will be implemented.

Non-native Plant Cover	5%	**20**	**5%**	**20**	**20**	**20**	**20**	**20**	Non-native Plant Cover' is low consisting of *Lantana camara*, several herbaceous weed species and exotic grasses. It is anticipated that the weed management controls in actions 2, 6 & 7, will maintain 'Non-native Plant Cover' at or below 5%.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If 5% has not been maintained remedial actions to reduce weed cover will be applied. These include refining weed control methods.
Site Condition Score				**73**	**73**	**73**	**83**	**83**			
MAX Site Condition Score				***100***	***100***	***100***	***100***	***100***			
Site Condition Score - out of 4				**2.92**	**2.92**	**2.92**	**3.32**	**3.32**			
Size of patch	Patch size is greater than 200ha	**10**	**10**	**10**	**10**	**10**	**10**	**10**	NA	NA	NA
Connectedness	1 active camps within 20km	**10**	**3**	**3**	**3**	**3**	**3**	**3**	NA	NA	NA
Context	10-30%	**10**	**3**	**3**	**3**	**3**	**3**	**3**	NA	NA	NA
Ecological Corridors	Adjoining an ecological corridor	**10**	**6**	**6**	**6**	**6**	**6**	**6**	NA	NA	NA
Role of site location to species overall population in the state	1 active Level 3 roost within 20km	**10**	**0**	**0**	**0**	**0**	**0**	**0**	NA	NA	NA
Threats to the species	Low (barbed wire fencing)	**10**	**10**	**10**	**10**	**10**	**10**	**10**	The proposed offset site currently has barbed wire fencing, a recognised threat to Flying-foxes, delineating paddocks within the proposed offset area. Management action 8 will control and retrofit barbed wire. No measurable improvement is anticipated.	Baseline attributes have been established. This criterium is reliant upon the management of barbed wire fencing.	The control of barbed wire will provide reduction in threats. No measurable improvement is anticipated.
Site Context Score				**32**	**32**	**32**	**32**	**32**			
MAX Site Context Score				**60**	**60**	**60**	**60**	**60**			
Site Context Score - out of 3				**1.6**	**1.6**	**1.6**	**1.6**	**1.6**			
GHFF Foraging Tree Density / ha	475	**10**	**475**	**6**	**6**	**6**	**8**	**8**	Natural assisted regeneration and plantings as per management actions 1, 2, 3, 5, 6 & 7 will improve stem densities of foraging trees within the assessment unit to 221 per hectare by year 20.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The average stem density within the assessment unit is to achieve at 221 per hectare by Year 20. If the stem density does not achieve 200 by year 15, then remedial actions will be applied. These include remedial plantings of advanced stock.
Species Stocking Rate Score				**6**	**6**	**6**	**8**	**8**			
MAX Species Stocking Rate Score				**10**	**10**	**10**	**10**	**10**			
Species Stocking Rate Score - out of 3				**1.8**	**1.8**	**1.8**	**2.4**	**2.4**			
Total				**6.32**	**6.32**	**6.32**	**7.32**	**7.32**			

Appendix B: Offset Assessment Guidelines Calculator Sheets

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Koala
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Koala	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Avonvale Offset AU1	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	46.6	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	10.07	11.24%	No		
									Future area without offset (adjusted hectares)	46.6	**Future area with offset (adjusted hectares)**	46.6								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**4**	**Future quality without offset (scale of 0-10)**	**4**	**Future quality with offset (scale of 0-10)**	**7**	3.00	75%	2.25	2.16				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Koala
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Koala	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Avonvale Offset AU2	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	17.9	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	5.16	5.76%	No	
									Future area without offset (adjusted hectares)	17.9	**Future area with offset (adjusted hectares)**	17.9								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**3**	**Future quality without offset (scale of 0-10)**	**3**	**Future quality with offset (scale of 0-10)**	**7**	4.00	75%	3.00	2.88				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Koala
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Koala	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Avonvale Offset AU3	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	2	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	0.16	0.18%	No	
									Future area without offset (adjusted hectares)	2.0	**Future area with offset (adjusted hectares)**	2.0								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**6**	**Future quality without offset (scale of 0-10)**	**6**	**Future quality with offset (scale of 0-10)**	**7**	1.00	85%	0.85	0.82				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Koala
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Koala	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Avonvale Offset AU4	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	86.8	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	12.51	13.96%	No		
									Future area without offset (adjusted hectares)	86.8	**Future area with offset (adjusted hectares)**	86.8								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**5**	**Future quality without offset (scale of 0-10)**	**5**	**Future quality with offset (scale of 0-10)**	**7**	2.00	75%	1.50	1.44				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Koala
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Koala	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Avonvale Offset AU5	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	11	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	0.00	0.00%	No		
									Future area without offset (adjusted hectares)	11.0	**Future area with offset (adjusted hectares)**	11.0								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**7**	**Future quality without offset (scale of 0-10)**	**7**	**Future quality with offset (scale of 0-10)**	**7**	0.00	85%	0.00	0.00				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Koala
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Koala	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Avonvale Offset AU1	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	3.7	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	0.30	0.34%	No		
									Future area without offset (adjusted hectares)	3.7	**Future area with offset (adjusted hectares)**	3.7								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**6**	**Future quality without offset (scale of 0-10)**	**6**	**Future quality with offset (scale of 0-10)**	**7**	1.00	85%	0.85	0.82				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	GHFF
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	GHFF	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Avonvale Offset AU1	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	46.6	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	13.43	14.99%	No		
									Future area without offset (adjusted hectares)	46.6	**Future area with offset (adjusted hectares)**	46.6								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**3**	**Future quality without offset (scale of 0-10)**	**3**	**Future quality with offset (scale of 0-10)**	**7**	4.00	75%	3.00	2.88				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	GHFF
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	GHFF	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Avonvale Offset AU2	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	17.9	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	6.45	7.20%	No		
									Future area without offset (adjusted hectares)	17.9	**Future area with offset (adjusted hectares)**	17.9								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**3**	**Future quality without offset (scale of 0-10)**	**3**	**Future quality with offset (scale of 0-10)**	**8**	5.00	75%	3.75	3.60				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	GHFF
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	GHFF	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Threatened species						
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start area and quality	Future area and quality without offset	Future area and quality with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																
Area of community	No				**Risk-related time horizon (max. 20 years)**	Start area (hectares)	**Risk of loss (%) without offset**	**Risk of loss (%) with offset**								
							Future area without offset (adjusted hectares) 0.0	**Future area with offset (adjusted hectares)** 0.0								
					Time until ecological benefit	Start quality (scale 0-10)	**Future quality without offset (scale of 0-10)**	**Future quality with offset (scale of 0-10)**								
Threatened species habitat																
Area of habitat	Yes	89.60	Adjusted hectares	Avonvale Offset AU3	**Time over which loss is averted (max. 20 years)** 20	Start area (hectares) 2	**Risk of loss (%) without offset** 0%	**Risk of loss (%) with offset** 0%	0.00	90%	0.00	0.00	0.33	0.36%	No		
							Future area without offset (adjusted hectares) 2.0	**Future area with offset (adjusted hectares)** 2.0								
					Time until ecological benefit 20	Start quality (scale 0-10) **4**	**Future quality without offset (scale of 0-10)** **4**	**Future quality with offset (scale of 0-10)** **6**	2.00	85%	1.70	1.63				
Threatened species																
Number of features e.g. Nest hollows, habitat trees	No															
Condition of habitat Change in habitat condition, but no change in extent	No															
Birth rate e.g. Change in nest success	No															
Mortality rate e.g Change in number of road kills per year	No															
Number of individuals e.g. Individual plants/animals	No															

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	GHFF
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	GHFF	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Avonvale Offset AU4	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	86.8	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	31.27	34.91%	No		
									Future area without offset (adjusted hectares)	86.8	**Future area with offset (adjusted hectares)**	86.8								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**3**	**Future quality without offset (scale of 0-10)**	**3**	**Future quality with offset (scale of 0-10)**	**8**	5.00	75%	3.75	3.60				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*

2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	GHFF
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	GHFF	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Avonvale Offset AU5	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	11	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	2.70	3.01%	No		
									Future area without offset (adjusted hectares)	11.0	**Future area with offset (adjusted hectares)**	11.0								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**5**	**Future quality without offset (scale of 0-10)**	**5**	**Future quality with offset (scale of 0-10)**	**8**	3.00	85%	2.55	2.45				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	GHFF
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	GHFF	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Avonvale Offset AU6	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	3.7	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	0.30	0.34%	No		
									Future area without offset (adjusted hectares)	3.7	**Future area with offset (adjusted hectares)**	3.7								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**6**	**Future quality without offset (scale of 0-10)**	**6**	**Future quality with offset (scale of 0-10)**	**7**	1.00	85%	0.85	0.82				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Swift Parrot
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	Swift parrot	9,983		Count	
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	9983	Count	AU1	20		0		0		9320		9320	75%	6990.00	1875.22	18.78%	No		
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Swift Parrot
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact	Units	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	Swift parrot	9,983	Count	
Condition of habitat Change in habitat condition, but no change in extent	No				
Threatened species					
Birth rate e.g. Change in nest success	No				
Mortality rate e.g Change in number of road kills per year	No				
Number of individuals e.g. Individual plants/animals	No				

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start value	Future value without offset	Future value with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	9983	Count	AU1	20	0	0	7160	7160	75%	5370.00	1440.62	14.43%	No		
Condition of habitat Change in habitat condition, but no change in extent	No															
Threatened species																
Birth rate e.g. Change in nest success	No															
Mortality rate e.g Change in number of road kills per year	No															
Number of individuals e.g. Individual plants/animals	No															

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Swift Parrot
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	Swift parrot	9,983		Count	
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	9983	Count	AU1	20		30		30		34		4	75%	3.00	0.80	0.01%	No		
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Swift Parrot
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact	Units	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	Swift parrot	9,983	Count	
Condition of habitat Change in habitat condition, but no change in extent	No				
Threatened species					
Birth rate e.g. Change in nest success	No				
Mortality rate e.g Change in number of road kills per year	No				
Number of individuals e.g. Individual plants/animals	No				

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start value	Future value without offset	Future value with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	9983	Count	AU1	20	109	109	10441	10332	75%	7749.00	2078.84	20.82%	No		
Condition of habitat Change in habitat condition, but no change in extent	No															
Threatened species																
Birth rate e.g. Change in nest success	No															
Mortality rate e.g Change in number of road kills per year	No															
Number of individuals e.g. Individual plants/animals	No															

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Swift Parrot
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	Swift parrot	9,983		Count	
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	9983	Count	AU1	20		0		0		264		264	75%	198.00	53.12	0.53%	No		
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Swift Parrot
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	Swift parrot	9,983		Count	
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	Yes	9983	Count	AU1	20		0		0		7		7	75%	5.25	1.41	0.01%	No		
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Regent Honeyeater
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact	Units	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	Regent honeyeater	9868	Count	
Condition of habitat Change in habitat condition, but no change in extent	No				
Threatened species					
Birth rate e.g. Change in nest success	No				
Mortality rate e.g Change in number of road kills per year	No				
Number of individuals e.g. Individual plants/animals	No				

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start value	Future value without offset	Future value with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	9868	Count	AU1	20	0	0	5596	5596	75%	4197.00	1125.94	11.41%	No		
Condition of habitat Change in habitat condition, but no change in extent	No															
Threatened species																
Birth rate e.g. Change in nest success	No															
Mortality rate e.g Change in number of road kills per year	No															
Number of individuals e.g. Individual plants/animals	No															

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Regent Honeyeater
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact	Units	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	Regent honeyeater	9868	Count	
Condition of habitat Change in habitat condition, but no change in extent	No				
Threatened species					
Birth rate e.g. Change in nest success	No				
Mortality rate e.g Change in number of road kills per year	No				
Number of individuals e.g. Individual plants/animals	No				

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start value	Future value without offset	Future value with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	9868	Count	AU6	20	0	0	4	4	75%	3.00	0.80	0.01%	No		
Condition of habitat Change in habitat condition, but no change in extent	No															
Threatened species																
Birth rate e.g. Change in nest success	No															
Mortality rate e.g Change in number of road kills per year	No															
Number of individuals e.g. Individual plants/animals	No															

Appendix C: Suitably qualified ecologists – CVs

Curricula Vitae

Principal Ecologist - David Havill

David Havill has significant practical experience in the areas of ecological site assessments (flora and fauna), weed management programs, large scale revegetation projects, wetland rehabilitation and waterway restoration spanning over 20 years.

He has a strong understanding of the intricate workings of the *Vegetation Management Act 1999* and the complex codes and policies which influence site vegetation constraints.

David's expertise relates to the on-site identification and spatial mapping of fauna and flora species including endangered, rare and vulnerable plants and animals. He has an accurate understanding of site survey processes and standards developed by the State and Commonwealth Governments. This provides the ability to challenge the various inaccuracies that occur within broad scale vegetation mapping developed by these Government agencies.

David works closely with our in house team of GIS, environmental planning, and landscape rehabilitation specialists to document findings of ecological survey and prepare targeted restoration and rehabilitation strategies. He has a strong understanding of construction techniques associated with development projects and has the ability to prepare practical flora and fauna management plans to assist in guiding the construction process within sensitive areas.

Qualifications

Diploma of Arboriculture, Training for Trees Pty Ltd, #04453 (2019)
Bachelor of Applied Science (Natural Systems and Wildlife Management), The University of Queensland (1998)

Short Courses

Snake Handling Course, Geckoes Wildlife Pty Ltd ATF Fingland/Roberts Family Trust (2014)
Business Etiquette Training, pd Training (2011)

Senior Ecologist - Amy Westman

Amy is a Senior Ecologist with six year's experience as an ecologist and environmental consultant specialising in conducting ecological surveys and preparing technical reports. Amy has a strong understanding of Local, State and Federal legislation triggers and has worked on a diverse range of development projects across South East Queensland and manages a portfolio of major development projects and post approvals projects with specific experience in annual compliance monitoring, reporting and auditing under the *Environmental Protection and Biodiversity Act 1999*.

Amy has a varied skillset which includes flora and flora surveys in accordance with State and Federal survey guidelines, impact assessment and analysis, auditing, technical report writing, compiling offset management plans and compliance.

Qualifications

Bachelor of Science with Honours Class I in the Field of Ecology, The University of Queensland (2018)
Bachelor of Science with a Major in Zoology, The University of Queensland (2016)

Short Courses

BioCondition v2.2 - Application, Assessment and Scoring, Oberonia Botanical Services (2019)

Appendix D: Baseline Scoring Koala

Assessment Unit - Regional Ecosystem	AU 1 - Non-remnant paddock with scattered trees RE12.11.14						
	RE12.11.14 Benchmark	Transect 2	Transect 4	Transect 13	Average of Transect(s)	% Benchmark	Score
SITE CONDITION							
Recruitment of woody perennial species in EDL	100	67	50	100	72.33	72.33	3
Native plant species richness - trees	6	3	2	1	2.00	33.33	2.5
Native plant species richness - shrubs	7	3	1	1	1.67	23.81	0
Native plant species richness - grasses	8	6	5	2	4.33	54.17	2.5
Native plant species richness - forbs	23	7	4	3	4.67	20.29	0
Tree canopy height (Canopy)*	25	17	19	18	18.00	72.00	5
Tree canopy height (Sub-canopy)*	13	12	9	0	7.00	53.85	3
						*Average tree canopy height	4
Tree canopy cover (Canopy)**	40	13.5	2.6	0	5.37	13.42	2
Tree canopy cover (Sub-canopy)**	22	6.9	0	0	2.30	10.45	2
						**Average tree canopy cover	2
Shrub canopy cover	4	12.7	0.8	0	4.50	112.50	5
Native grass cover*	45	85	15	0	33.33	74.07	3
Organic litter*	30	13	0	0	4.33	14.44	3
Large trees (euc plus non-euc) (per ha)	36	0	12	2	4.67	12.96	5
Coarse woody debris (per ha)	260	224	71	0	98.33	37.82	2
Non-native plant cover	0	55	90	95	80.00	80.00	0
Quality and availability of food and foraging habitat	NA	5	5	5	5.00	-	5
Quality and availability of shelter	NA	5	5	5	5.00	-	5
						Site Condition Score (/100)	42
						Overall Site Condition Score - out of 3	1.26
SITE CONTEXT							
Size of patch	10	10	10	10	10		10
Connectedness	5	2	2	2	2		2
Context	5	4	4	4	4		4
Ecological Corridors	6	4	4	4	4		4
Role of site location to species overall population in the state	5	5	5	5	5		5
Threats to the species	15	7	7	7	7		7
Species mobility capacity	10	4	4	4	4		4
Site Context Score (/56)							36
Overall Site Context Score - out of 3							1.93
SPECIES STOCKING RATE							
Koala Stocking Rate (utilising SSR & SSR Supplementary Table(s)	70	20	20	20	20		20
						Species Stocking Rate Score (/70)	20.00
						Overall Species Stocking Rate Score - out of 4	1.14
Overall Assessment Unit Score							4.33

Species Stocking Rate (SSR)							
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5		10	10	Koala observed on-site
		No	Yes - adjacent		Yes - on site		
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15	5	Dispersal
		Not habitat	Dispersal	Foraging	Breeding		
Approximate density (per ha)	Score	0	10	20	30	0	0% no SAT
		0%	low	med	high		
Role/importance of species population on site*	Score (*Total from supplementary table below*)	0	5	10	15	5	See below
		0	5 - 15	20 - 35	40 - 45		
Total SRR score (out of 70)		20					
SRR Score (out of 4)	**1.142857143**						

*SSR Supplementary Table				
*Key source population for breeding	Score	0	10	0
		No	Yes/ Possibly	
*Key source population for dispersal	Score	0	5	5
		No	Yes/ Possibly	
*Necessary for maintaining genetic diversity	Score	0	15	0
		No	Yes/ Possibly	
*Near the limit of the species range	Score	0	15	0
		No	Yes	

Assessment Unit - Regional Ecosystem	AU 2 - Non-remnant paddock RE12.3.3					
	RE12.3.3 Benchmark	Transect 3	Transect 5	Average of Transect(s)	% Benchmark	Score
SITE CONDITION						
Recruitment of woody perennial species in EDL	100	0	0	0	0	0
Native plant species richness - trees	5	0	0	0	0.00	0
Native plant species richness - shrubs	5	1	0	0.5	10.00	0
Native plant species richness - grasses	9	3	3	3	33.33	2.5
Native plant species richness - forbs	25	4	1	2.5	10.00	0
Tree canopy height (Canopy)*	25	0	0	0	0.00	0
Tree canopy height (Sub-canopy)*	9	0	0	0	0.00	0
					*Average tree canopy height	0
Tree canopy cover (Canopy)**	40	0	0	0	0.00	0
Tree canopy cover (Sub-canopy)**	8	0	0	0.00	0.00	0
					**Average tree canopy cover	0
Shrub canopy cover	4	0.7	0	0.35	8.75	0
Native grass cover*	52	5	0	2.50	4.81	0
Organic litter*	20	5	0	2.50	12.50	3
Large trees (euc plus non-euc) (per ha)	14	0	0	0.00	0.00	0
Coarse woody debris (per ha)	588	0	0	0.00	0.00	0
Non-native plant cover	0	80	90	85.00	85.00	0
Quality and availability of food and foraging habitat	NA	1	1	1.00	-	1
Quality and availability of shelter	NA	1	1	1.00	-	1
					Site Condition Score (/100)	7.5
					Overall Site Condition Score - out of 3	0.23
SITE CONTEXT						
Size of patch	10	10	10	10		10
Connectedness	5	2	2	2		2
Context	5	4	4	4		4
Ecological Corridors	6	4	4	4		4
Role of site location to species overall population in the state	5	5	5	5		5
Threats to the species	15	7	7	7		7
Species mobility capacity	10	4	4	4		4
Site Context Score (/56)						36
Overall Site Context Score - out of 3						1.93
SPECIES STOCKING RATE						
Koala Stocking Rate (utilising SSR & SSR Supplementary Table(s)	70	20	20	20		20
					Species Stocking Rate Score (/70)	20.00
					Overall Species Stocking Rate Score - out of 4	1.14
Overall Assessment Unit Score						3.30

Species Stocking Rate (SSR)							
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5		10	10	Koala observed on-site
		No	Yes - adjacent		Yes - on site		
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15	5	Dispersal
		Not habitat	Dispersal	Foraging	Breeding		
Approximate density (per ha)	Score	0	10	20	30	0	0% no SAT
		0%	low	med	high		
Role/importance of species population on site*	Score (*Total from supplementary table below*)	0	5	10	15	5	See below
		0	5 - 15	20 - 35	40 - 45		
Total SRR score (out of 70)		20					
SRR Score (out of 4)	**1.142857143**						

*SSR Supplementary Table				
*Key source population for breeding	Score	0	10	0
		No	Yes/ Possibly	
*Key source population for dispersal	Score	0	5	5
		No	Yes/ Possibly	
*Necessary for maintaining genetic diversity	Score	0	15	0
		No	Yes/ Possibly	
*Near the limit of the species range	Score	0	15	0
		No	Yes	

Assessment Unit - Regional Ecosystem	AU 3 - Remnant RE12.3.7			
	RE12.3.7 Benchmark	Transect 6	% Benchmark	Score
SITE CONDITION				
Recruitment of woody perennial species in EDL	100	33	33	3
Native plant species richness - trees	6	5	83.33	2.5
Native plant species richness - shrubs	8	3	37.5	2.5
Native plant species richness - grasses	6	4	66.67	2.5
Native plant species richness - forbs	17	4	23.52941176	0
Tree canopy height (Canopy)*	22	23	104.55	5
Tree canopy height (Sub-canopy)*	12	9	75	5
			*Average tree canopy height	5
Tree canopy cover (Canopy)**	31	34.6	111.61	5
Tree canopy cover (Sub-canopy)**	23	0	0.00	0
			**Average tree canopy cover	2.5
Shrub canopy cover	22	6.7	30.45	3
Native grass cover*	8	11	137.50	5
Organic litter*	27	11	40.74	3
Large trees (euc plus non-euc) (per ha)	60	26	43.33	5
Coarse woody debris (per ha)	667	0	0.00	0
Non-native plant cover	0	90	90.00	0
Quality and availability of food and foraging habitat	NA	5	-	5
Quality and availability of shelter	NA	5	-	5
			Site Condition Score (/100)	44
			Overall Site Condition Score - out of 3	1.32
SITE CONTEXT				
Size of patch	10	10		10
Connectedness	5	2		2
Context	5	4		4
Ecological Corridors	6	4		4
Role of site location to species overall population in the state	5	5		5
Threats to the species	15	7		7
Species mobility capacity	10	7		7
Site Context Score (/56)				39
Overall Site Context Score - out of 3				2.09
SPECIES STOCKING RATE				
Koala Stocking Rate (utilising SSR & SSR Supplementary Table(s)	70	40		40
			Species Stocking Rate Score (/70)	40.00
			Overall Species Stocking Rate Score - out of 4	2.29
Overall Assessment Unit Score				5.70

Species Stocking Rate (SSR)							
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5		10	10	Koala observed on-site
		No	Yes - adjacent		Yes - on site		
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15	15	Foraging/Breeding
		Not habitat	Dispersal	Foraging	Breeding		
Approximate density (per ha)	Score	0	10	20	30	10	Low density
		0%	low	med	high		
Role/importance of species population on site*	Score (*Total from supplementary table below)*	0	5	10	15	5	See below
		0	5 - 15	20 - 35	40 - 45		
Total SRR score (out of 70)		40					
SRR Score (out of 4)	**2.285714286**						

*SSR Supplementary Table				
*Key source population for breeding	Score	0	10	0
		No	Yes/ Possibly	
*Key source population for dispersal	Score	0	5	5
		No	Yes/ Possibly	
*Necessary for maintaining genetic diversity	Score	0	15	0
		No	Yes/ Possibly	
*Near the limit of the species range	Score	0	15	0
		No	Yes	

Assessment Unit - Regional Ecosystem	AU 4 - Non-remnant grazing land wth scattered trees RE12.9-10.7							
	RE12.9-10.7 Benchmark	Transect 9	Transect 10	Transect 11	Transect 12	Average of Transect(s)	% Benchmark	Score
SITE CONDITION								
Recruitment of woody perennial species in EDL	100	100	75	100	100	93.75	93.75	5
Native plant species richness - trees	3	2	4	1	0	1.75	58.33	2.5
Native plant species richness - shrubs	5	2	0	1	1	1	20.00	0
Native plant species richness - grasses	8	9	7	5	6	6.75	84.38	2.5
Native plant species richness - forbs	26	7	2	12	11	8	30.77	2.5
Tree canopy height (Canopy)*	21	22	22	0	0	11	52.38	3
Tree canopy height (Sub-canopy)*	10	0	9	0	0	2.25	22.50	0
							*Average tree canopy height	1.5
Tree canopy cover (Canopy)**	40	19.1	11	0	0	7.525	18.81	2
Tree canopy cover (Sub-canopy)**	8	0	6.9	0	0	1.725	21.56	2
							**Average tree canopy cover	2
Shrub canopy cover	3	1.6	11.5	0	0	3.28	109.17	5
Native grass cover*	61	41	17	94	85.4	59.35	97.30	5
Organic litter*	20	0	2	1.6	2	1.40	7.00	0
Large trees (euc plus non-euc) (per ha)	18	4	4	0	0	2.00	11.11	5
Coarse woody debris (per ha)	272	0	15	0	0	3.75	1.38	0
Non-native plant cover	0	70	65	20	15	42.50	42.50	3
Quality and availability of food and foraging habitat	NA	5	5	5	5	5.00	-	5
Quality and availability of shelter	NA	5	5	5	5	5.00	-	5
							Site Condition Score (/100)	44
							Overall Site Condition Score - out of 3	1.32
SITE CONTEXT								
Size of patch	10	10	10	10	10	10		10
Connectedness	5	2	2	2	2	2		2
Context	5	4	4	4	4	4		4
Ecological Corridors	6	4	4	4	4	4		4
Role of site location to species overall population in the state	5	5	5	5	5	5		5
Threats to the species	15	7	7	7	7	7		7
Species mobility capacity	10	4	4	4	4	4		4
Site Context Score (/56)								36
Overall Site Context Score - out of 3								1.93
SPECIES STOCKING RATE								
Koala Stocking Rate (utilising SSR & SSR Supplementary Table(s)	70	30	30	30	30	30		30
							Species Stocking Rate Score (/70)	30.00
							Overall Species Stocking Rate Score - out of 4	1.71
Overall Assessment Unit Score								4.96

Species Stocking Rate (SSR)							
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5		10	10	Koala observed on-site
		No	Yes - adjacent		Yes - on site		
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15	5	Dispersal
		Not habitat	Dispersal	Foraging	Breeding		
Approximate density (per ha)	Score	0	10	20	30	10	Low density - 1 scat
		0%	low	med	high		
Role/importance of species population on site*	Score (*Total from supplementary table below)*	0	5	10	15	5	See below
		0	5 - 15	20 - 35	40 - 45		
Total SRR score (out of 70)		30					
SRR Score (out of 4)	**1.714285714**						

*SSR Supplementary Table				
*Key source population for breeding	Score	0	10	0
		No	Yes/ Possibly	
*Key source population for dispersal	Score	0	5	5
		No	Yes/ Possibly	
*Necessary for maintaining genetic diversity	Score	0	15	0
		No	Yes/ Possibly	
*Near the limit of the species range	Score	0	15	0
		No	Yes	

Assessment Unit - Regional Ecosystem	AU 5 - Regrowth RE12.9-10.7						
	RE12.9-10.7 Benchmark	Transect 7	Transect 8	Transect 15	Average of Transect(s)	% Benchmark	Score
SITE CONDITION							
Recruitment of woody perennial species in EDL	100	67	100	100	89	89	5
Native plant species richness - trees	3	3	1	3	2.33	77.78	2.5
Native plant species richness - shrubs	5	4	4	2	3.33	66.67	2.5
Native plant species richness - grasses	8	5	9	6	6.67	83.33	2.5
Native plant species richness - forbs	26	7	7	15	9.67	37.18	2.5
Tree canopy height (Canopy)*	21	21	21	18	20	95.24	5
Tree canopy height (Sub-canopy)*	10	9	10	0	6.33	63.33	3
						*Average tree canopy height	4
Tree canopy cover (Canopy)**	40	52.9	31.9	10.2	31.67	79.17	5
Tree canopy cover (Sub-canopy)**	8	0	0	39.6	13.2	165.00	5
						**Average tree canopy cover	5
Shrub canopy cover	3	0.5	2.3	2.5	0.00	46.67	3
Native grass cover*	61	67	78	50	65.00	106.56	5
Organic litter*	20	0	4	23	9.00	45.00	3
Large trees (euc plus non-euc) (per ha)	18	10	6	18	11.33	62.96	10
Coarse woody debris (per ha)	272	246	236	310	264.00	97.06	5
Non-native plant cover	0	20	35	1	18.67	18.67	5
Quality and availability of food and foraging habitat	NA	10	10	10	10.00	-	10
Quality and availability of shelter	NA	10	10	10	10.00	-	10
						Site Condition Score (/100)	75
						Overall Site Condition Score - out of 3	2.25
SITE CONTEXT							
Size of patch	10	10	10	10	10		10
Connectedness	5	2	2	2	2		2
Context	5	4	4	4	4		4
Ecological Corridors	6	4	4	4	4		4
Role of site location to species overall population in the state	5	5	5	5	5		5
Threats to the species	15	7	7	7	7		7
Species mobility capacity	10	10	10	10	10		10
Site Context Score (/56)							42
Overall Site Context Score - out of 3							2.25
SPECIES STOCKING RATE							
Koala Stocking Rate (utilising SSR & SSR Supplementary Table(s)	70	40	40	40	40		40
						Species Stocking Rate Score (/70)	40.00
						Overall Species Stocking Rate Score - out of 4	2.29
Overall Assessment Unit Score							6.79

Species Stocking Rate (SSR)							
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5		10	10	Koala observed on-site
		No	Yes - adjacent		Yes - on site		
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15	15	Foraging/Breeding
		Not habitat	Dispersal	Foraging	Breeding		
Approximate density (per ha)	Score	0	10	20	30	10	Low usage
		0%	low	med	high		
Role/importance of species population on site*	Score (*Total from supplementary table below*)	0	5	10	15	5	See below
		0	5 - 15	20 - 35	40 - 45		
Total SRR score (out of 70)		40					
SRR Score (out of 4)	**2.285714286**						

*SSR Supplementary Table				
*Key source population for breeding	Score	0	10	0
		No	Yes/ Possibly	
*Key source population for dispersal	Score	0	5	5
		No	Yes/ Possibly	
*Necessary for maintaining genetic diversity	Score	0	15	0
		No	Yes/ Possibly	
*Near the limit of the species range	Score	0	15	0
		No	Yes	

Assessment Unit - Regional Ecosystem	AU 6 - Remnant RE12.11.14			
	RE12.11.14 Benchmark	Transect 1	% Benchmark	Score
SITE CONDITION				
Recruitment of woody perennial species in EDL	100	50	50.00	3
Native plant species richness - trees	6	4	66.67	2.5
Native plant species richness - shrubs	7	2	28.57	2.5
Native plant species richness - grasses	8	9	112.50	5
Native plant species richness - forbs	23	7	30.43	2.5
Tree canopy height (Canopy)*	25	21	84.00	5
Tree canopy height (Sub-canopy)*	13	11	84.62	5
			*Average tree canopy height	5
Tree canopy cover (Canopy)**	40	60.3	150.75	5
Tree canopy cover (Sub-canopy)**	22	27.5	125.00	5
			**Average tree canopy cover	5
Shrub canopy cover	4	0	0.00	0
Native grass cover*	45	11	24.44	1
Organic litter*	30	66	220.00	3
Large trees (euc plus non-euc) (per ha)	36	10	27.78	5
Coarse woody debris (per ha)	260	509	195.77	5
Non-native plant cover	0	5	5.00	5
Quality and availability of food and foraging habitat	NA	5	-	5
Quality and availability of shelter	NA	5	-	5
			Site Condition Score (/100)	54.5
			Overall Site Condition Score - out of 3	1.64
SITE CONTEXT				
Size of patch	10	10		10
Connectedness	5	2		2
Context	5	4		4
Ecological Corridors	6	4		4
Role of site location to species overall population in the state	5	5		5
Threats to the species	15	7		7
Species mobility capacity	10	10		10
Site Context Score (/56)				42
Overall Site Context Score - out of 3				2.25
SPECIES STOCKING RATE				
Koala Stocking Rate (utilising SSR & SSR Supplementary Table(s)	70	40		40
			Species Stocking Rate Score (/70)	40.00
			Overall Species Stocking Rate Score - out of 4	2.29
Overall Assessment Unit Score				6.17

Species Stocking Rate (SSR)							
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5		10	10	Koala observed on-site
		No	Yes - adjacent		Yes - on site		
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15	15	Foraging/breeding
		Not habitat	Dispersal	Foraging	Breeding		
Approximate density (per ha)	Score	0	10	20	30	10	Low density - patch within centre of AU contains multiple scats
		0%	low	med	high		
Role/importance of species population on site*	Score (*Total from supplementary table below*)	0	5	10	15	5	See below
		0	5 - 15	20 - 35	40 - 45		
Total SRR score (out of 70)		40					
SRR Score (out of 4)	**2.285714286**						

*SSR Supplementary Table				
*Key source population for breeding	Score	0	10	0
		No	Yes/ Possibly	
*Key source population for dispersal	Score	0	5	5
		No	Yes/ Possibly	
*Necessary for maintaining genetic diversity	Score	0	15	0
		No	Yes/ Possibly	
*Near the limit of the species range	Score	0	15	0
		No	Yes	

Appendix E:Transects – Raw Data

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	1	Job Number / Property	11894 / Toogoolawah Offset

Part B - Site Data

Recorders	DH & CM	Date	22/02/2024

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
na		12.11.14	12

Site description and Location (including details of discrete polygons within the assessment unit)
Evidence of old logging and recent weed control (ie. Lantana). Exposed sulfate rocks.

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	4			EDL / Dom / R
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow-leaved Ironbark	Dom / R
Scientific Name	*Corymbia intermedia*	Common Name	Pink Bloodwood	R
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash	
Scientific Name	*Eucalyptus carnea*	Common Name	Broad-leaved White Mahogany	
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	2		
Scientific Name	*Alphitonia excelsia*	Common Name	Soap Tree
Scientific Name	*Grewia latifolia*	Common Name	Dogs Balls
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	9		
Scientific Name	*Aristida calycina*	Common Name	Dark Wiregrass
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name	*Cymbopogon refractus*	Common Name	Barbed Wire Grass
Scientific Name	*Eragrostis brownii*	Common Name	Brown's Love Grass
Scientific Name	*Cynodon dactylon*	Common Name	Green Couch
Scientific Name	*Panicum decompositum*	Common Name	Native panic
Scientific Name	*Alloteropsis semialata*	Common Name	Cockatoo Grass
Scientific Name	*Themeda triandra*	Common Name	Kangaroo Grass
Scientific Name	*Aristida vagans*	Common Name	Three awn speargrass
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	7		
Scientific Name	*Eremophila debilis*	Common Name	Winter Apple
Scientific Name	*Einadia nutans*	Common Name	Climbing Saltbush
Scientific Name	*Cheilanthes distans*	Common Name	Bristle Cloak Fern
Scientific Name	*Lomandra longifolia*	Common Name	spiny-headed mat rush
Scientific Name	*Lomandra multiflora*	Common Name	Many-flowered mat rush
Scientific Name	*Cyperus gracilis*	Common Name	Slender Sedge
Scientific Name	*Dianella caerulea*	Common Name	Blue Flax Lily
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	5%		
Scientific Name	*Lantana camara*	Common Name	Lantana
Scientific Name	*Cyperus polystachyos*	Common Name	Bunchy Sedge
Scientific Name	*Sporobolus africanus*	Common Name	Parramatta grass
Scientific Name	*Megathyrsus maximus*	Common Name	Guinea grass
Scientific Name	*Opuntia tomentosa*	Common Name	Velvety tree pear
Scientific Name	*Tradescantia albiflora*	Common Name	Wandering Trad
Scientific Name	*Melinis repens*	Common Name	Red Natal
Scientific Name		Common Name	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)	509.00		
1	0.90	26	
2	3.80	27	
3	1.10	28	
4	5.10	29	
5	0.50	30	
6	1.80	31	
7	0.50	32	
8	2.20	33	
9	2.80	34	
10	0.70	35	
11	1.30	36	
12	1.60	37	
13	4.50	38	
14	1.30	39	
15	0.90	40	
16	4.10	41	
17	1.30	42	
18	4.70	43	
19	1.30	44	
20	3.80	45	
21	2.70	46	
22	4.00	47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	5%	15%	10%	5%	20%	11%
Native other grass						
Native forbs and other species					5%	5%
Native shrubs						
Non-native grass	5%	5%			30%	13%
Non native forbs and shrubs		5%	25%	25%	15%	18%
Litter	75%	65%	65%	60%		66%
Rock	15%	10%		10%	5%	10%
Bare Ground					25%	25%
Cryptogram						
Total	100%	100%	100%	100%	100%	148%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	410	Number of large eucalypt trees:	5
Non- Eucalypt Large tree DBH benchmark used:	250	Number of large non eucalypt trees:	0
Total number of large trees recorded:	5		
Total Number Large Trees per ha:	10		

Median Tree Canopy Height Measurements	Canopy:	21	Sub-canopy:	11	Emergent:	NA

Percentage of ecologically dominant layer species regenerating:	50

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	60.3%	Sub-canopy:	27.50%	Emergent:	
Shrub canopy cover %	0.00%					

Layer	Start	End	Interval	Layer	Start	End	Interval
T1	0.0	5.4	5.4	T2	3.4	8.3	4.9
T1	6.0	12.6	6.6	T2	13.6	18.0	4.4
T1	12.6	18.0	5.4	T2	22.3	24.5	2.2
T1	26.1	34.5	8.4	T2	35.0	41.5	6.5
T1	35.3	38.8	3.5	T2	44.0	45.4	1.4
T1	51.3	59.1	7.8	T2	45.4	48.8	3.4
T1	66.2	70.8	4.6	T2	80.6	85.3	4.7
T1	70.8	77.0	6.2	T2			0.0
T1	87.6	94.0	6.4	T2			0.0
T1	94.0	100.0	6.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0

Layer	Start	End	Interval	Layer	Start	End	Interval
Shrub			0.0	Shrub			0.0
Shrub			0.0	Shrub			0.0
Shrub			0.0	Shrub			0.0
Shrub			0.0	Shrub			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count

Eucalyptus crebra	64
Corymbia tesselaris	4
Corymbia intermedia	16
Eucalyptus carnea	11
Total	95

Part J: SAT Survey Results

SAT Survey ID	1			
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
1	*E. carnea*	Broad-leaved White Mahogany	310	Yes
2	*E. carnea*	Broad-leaved White Mahogany	220	No
3	*E. carnea*	Broad-leaved White Mahogany	270	Yes
4	*E. carnea*	Broad-leaved White Mahogany	260	Yes
5	*C. intermedia*	Pink Bloodwood	140	No
6	*E. carnea*	Broad-leaved White Mahogany	300/260	Yes
7	*C. intermedia*	Pink Bloodwood	150	No
8	*E. carnea*	Broad-leaved White Mahogany	270	Yes
9	*E. crebra*	Narrow-leaved Ironbark	190	Yes
10	*E. crebra*	Narrow-leaved Ironbark	260	Yes
11	*E. crebra*	Narrow-leaved Ironbark	220	No
12	*E. crebra*	Narrow-leaved Ironbark	460	Yes
13	*E. crebra*	Narrow-leaved Ironbark	220	No
14	*E. crebra*	Narrow-leaved Ironbark	210	No
15	*E. crebra*	Narrow-leaved Ironbark	210	No
16	C. tessellaris	Moreton Bay Ash	120	No
17	C. tessellaris	Moreton Bay Ash	160	No
18	*E. crebra*	Narrow-leaved Ironbark	240	No
19	*E. crebra*	Narrow-leaved Ironbark	260	No
20	*C. intermedia*	Pink Bloodwood	160	No
21	*E. crebra*	Narrow-leaved Ironbark	160	Yes
22	*E. crebra*	Narrow-leaved Ironbark	190	No
23	*C. intermedia*	Pink Bloodwood	110	No
24	*E. crebra*	Narrow-leaved Ironbark	320	Yes
25	*E. crebra*	Narrow-leaved Ironbark	180	No
26	*C. intermedia*	Pink Bloodwood	270	Yes
27	*E. crebra*	Narrow-leaved Ironbark	260	No
28	*E. crebra*	Narrow-leaved Ironbark	300/320	No
29	*E. crebra*	Narrow-leaved Ironbark	390	No
30	*C. intermedia*	Pink Bloodwood	140	No
Total				11/30

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	2	Job Number / Property	11894 / Toogoolawah Offset

Part B - Site Data

Recorders	DH & CM	Date	22/02/2024

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
na		12.11.14	12

Site description and Location (including details of discrete polygons within the assessment unit)
Non-rem with some regeneration. Evidence of old logging. Recent weed control.

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	3			EDL / Dom / R
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow-leaved Ironbark	Dom / R
Scientific Name	*Corymbia intermedia*	Common Name	Pink Bloodwood	R
Scientific Name	*Eucalyptus carnea*	Common Name	Broad-leaved White Mahogany	
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	3		
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow-leaved Ironbark
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash
Scientific Name	*Tabernaemontana pandacaqui*	Common Name	Banana bush
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	6		
Scientific Name	*Cymbopogon refractus*	Common Name	Barbed Wire Grass
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name	*Aristida vagans*	Common Name	Three awn speargrass
Scientific Name	*Cynodon dactylon*	Common Name	Green Couch
Scientific Name	*Panicum decompositum*	Common Name	Native panic
Scientific Name	*Eragrostis brownii*	Common Name	Brown's Love Grass
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	7		
Scientific Name	*Chrysocephalum apiculatum*	Common Name	Yellow Buttons
Scientific Name	*Fimbristylis ferruginea*	Common Name	Fringe Rush
Scientific Name	*Hybanthus stellarioides*	Common Name	Spade Flower
Scientific Name	*Sida cordifolia*	Common Name	Flannel Weed
Scientific Name	*Cyperus gracilis*	Common Name	Slender Sedge
Scientific Name	*Wahlenbergia queenslandica*	Common Name	Queensland bluebell
Scientific Name	*Hibbertia vestita*	Common Name	Hairy guinea-flower
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	55.00%		
Scientific Name	*Elymus hystrix*	Common Name	Bottlebrush Grass
Scientific Name	*Lantana camara*	Common Name	Lantana
Scientific Name	*Melinis repens*	Common Name	Red Natal
Scientific Name	*Sporobolus africanus*	Common Name	Parramatta grass
Scientific Name	*Cyperus polystachyos*	Common Name	Bunchy Sedge
Scientific Name	*Emilia sonchifolia*	Common Name	Emilia
Scientific Name	*Ageratum houstonianum*	Common Name	Blue billygoat weed
Scientific Name	*Bidens pilosa*	Common Name	Cobbler's pegs

Scientific Name	*Conyza sumatrensis*	**Common Name**	Tall fleabane
Scientific Name	*Verbena bonariensis*	**Common Name**	Purple top Verbena
Scientific Name	*Oxalis*	**Common Name**	Wood sorrels
Scientific Name	*Opuntia tomentosa*	**Common Name**	Velvety tree pear

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)	**224.00**		
1	2.60	**26**	
2	1.80	**27**	
3	1.60	**28**	
4	1.50	**29**	
5	4.80	**30**	
6	5.30	**31**	
7	0.90	**32**	
8	0.50	**33**	
9	1.80	**34**	
10	1.60	**35**	
11		**36**	
12		**37**	
13		**38**	
14		**39**	
15		**40**	
16		**41**	
17		**42**	
18		**43**	
19		**44**	
20		**45**	
21		**46**	
22		**47**	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	**Quadrat 1**	**Quadrat 2**	**Quadrat 3**	**Quadrat 4**	**Quadrat 5**	**Average**
Native perennial grass cover				85%		85%
Native other grass						
Native forbs and other species						
Native shrubs						
Non-native grass	85%	35%	40%	10%	95%	53%
Non native forbs and shrubs	15%	30%	40%		5%	23%
Litter		15%	10%			13%
Rock						
Bare Ground		20%	10%	5%		12%
Cryptogram						
Total	100%	100%	100%	100%	100%	185%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	410	**Number of large eucalypt trees:**	0
Non- Eucalypt Large tree DBH benchmark used:	250	**Number of large non eucalypt trees:**	0
Total number of large trees recorded:	0		
Total Number Large Trees per ha:	0		

Median Tree Canopy Height Measurements	**Canopy:**	17	**Sub-canopy:**	12	**Emergent:**	NA

Percentage of ecologically dominant layer species regenerating:	**67**

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	**Canopy:**	13.5%	**Sub-canopy:**	6.90%	**Emergent:**	
Shrub canopy cover %	12.70%					

Layer	**Start**	**End**	**Interval**	**Layer**	**Start**	**End**	**Interval**
T1	79.1	85.6	6.5	**T2**	22.6	29.5	6.9
T1	93.0	100.0	7.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0

Layer	**Start**	**End**	**Interval**	**Layer**	**Start**	**End**	**Interval**
Shrub	0.0	0.9	0.9	**Shrub**	19.4	21.6	2.2
Shrub	8.0	8.8	0.8	**Shrub**	54.1	56.2	2.1
Shrub	13.1	15.8	2.7	**Shrub**	57.1	59.0	1.9
Shrub	16.5	17.9	1.4	**Shrub**	71.3	72.0	0.7

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Eucalyptus crebra	9
Corymbia intermedia	1

Part J: SAT Survey Results

SAT Survey ID	2			
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
1	*E. crebra*	Narrow-leaved Ironbark	230	No
2	*E. crebra*	Narrow-leaved Ironbark	220	No
3	*E. crebra*	Narrow-leaved Ironbark	260	No
4	*E. crebra*	Narrow-leaved Ironbark	230	No
5	*E. crebra*	Narrow-leaved Ironbark	200	No
6	*E. crebra*	Narrow-leaved Ironbark	410	No
7	*E. crebra*	Narrow-leaved Ironbark	260	No
8	*E. crebra*	Narrow-leaved Ironbark	310	No
9	*E. crebra*	Narrow-leaved Ironbark	370	No
10	*C. intermedia*	Pink Bloodwood	270	No
11	*E. crebra*	Narrow-leaved Ironbark	230	No
12	*E. crebra*	Narrow-leaved Ironbark	470	No
13	*E. crebra*	Narrow-leaved Ironbark	440	No
14	*E. carnea*	Broad-leaved White Mahogany	280	No
15	*E. crebra*	Narrow-leaved Ironbark	410	No
16	*E. crebra*	Narrow-leaved Ironbark	270	No
17	*E. crebra*	Narrow-leaved Ironbark	270	No
18	*E. carnea*	Broad-leaved White Mahogany	240	Yes
19	*E. carnea*	Broad-leaved White Mahogany	290	Yes
20	*E. crebra*	Narrow-leaved Ironbark	380	No
21	*E. crebra*	Narrow-leaved Ironbark	450	No
22	*E. crebra*	Narrow-leaved Ironbark	300	No
23	*E. crebra*	Narrow-leaved Ironbark	430	No
24	*E. crebra*	Narrow-leaved Ironbark	250	No
25	*E. crebra*	Narrow-leaved Ironbark	250	No
26	*E. crebra*	Narrow-leaved Ironbark	420	No
27	*E. crebra*	Narrow-leaved Ironbark	430	No
28	*C. intermedia*	Pink Bloodwood	140	No
29	*E. crebra*	Narrow-leaved Ironbark	390	No
30	*E. crebra*	Narrow-leaved Ironbark	420	No
Total				2/30

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	3	Job Number / Property	11894 / Toogoolawah Offset

Part B - Site Data

Recorders	DH & CM	Date	22/02/2024

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
na		12.3.3	12

Site description and Location (including details of discrete polygons within the assessment unit)
Non-rem, Landzone 3 Floodplain. Old grazing area.

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	0			EDL / Dom / R
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	1		
Scientific Name	*Corymbia tesselaris*	Common Name	Moreton Bay Ash
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	3		
Scientific Name	*Cynodon dactylon*	Common Name	Green Couch
Scientific Name	*Aristida vagans*	Common Name	Three awn speargrass
Scientific Name	*Chloris truncate*	Common Name	Windmill Grass
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	4		
Scientific Name	*Fimbristylis ferruginea*	Common Name	Fringe Rush
Scientific Name	*Sida cordifolia*	Common Name	Flannel Weed
Scientific Name	*Lobelia purpurascens*	Common Name	Whiteroot
Scientific Name	*Murdannia graminea*	Common Name	Slug Herb
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	80.00%		
Scientific Name	*Sporobolus africanus*	Common Name	Parramatta grass
Scientific Name	*Cyperus polystachyos*	Common Name	Bunchy Sedge
Scientific Name	*Verbena bonariensis*	Common Name	Purple top Verbena
Scientific Name	*Bidens pilosa*	Common Name	Cobbler's pegs
Scientific Name	*Conyza sumatrensis*	Common Name	Tall fleabane
Scientific Name	*Sorghum halepense*	Common Name	Johnson Grass
Scientific Name	*Gomphrena celosioides*	Common Name	Gomphrena Weed
Scientific Name	*Rubus fruticosus*	Common Name	Blackberry

Scientific Name	*Gomphocarpus physocarpus*	**Common Name**	Balloon Cotton Bush
Scientific Name	*Sida rhombifolia*	**Common Name**	arrowleaf sida
Scientific Name	*Verbena aristigera*	**Common Name**	Maynes Pest

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)			
1	Nil	**26**	
2		**27**	
3		**28**	
4		**29**	
5		**30**	
6		**31**	
7		**32**	
8		**33**	
9		**34**	
10		**35**	
11		**36**	
12		**37**	
13		**38**	
14		**39**	
15		**40**	
16		**41**	
17		**42**	
18		**43**	
19		**44**	
20		**45**	
21		**46**	
22		**47**	
23		**48**	
24		**49**	
25		**50**	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	**Quadrat 1**	**Quadrat 2**	**Quadrat 3**	**Quadrat 4**	**Quadrat 5**	**Average**
Native perennial grass cover	5%					5%
Native other grass						
Native forbs and other species	15%	20%	45%	5%	15%	20%
Native shrubs						
Non-native grass	80%	70%	45%	90%	10%	59%
Non native forbs and shrubs		10%	10%	5%	70%	24%
Litter					5%	5%
Rock						
Bare Ground						
Cryptogram						
Total	100%	100%	100%	100%	100%	113%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	540	**Number of large eucalypt trees:**	0
Non- Eucalypt Large tree DBH benchmark used:	200	**Number of large non eucalypt trees:**	0
Total number of large trees recorded:	0		
Total Number Large Trees per ha:	0		

Median Tree Canopy Height Measurements	**Canopy:**	N/A	**Sub-canopy:**	N/A	**Emergent:**	NA

Percentage of ecologically dominant layer species regenerating:	**0**

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	**Canopy:**	0.0%	**Sub-canopy:**	0.00%	**Emergent:**	
Shrub canopy cover %	0.70%					

Layer	**Start**	**End**	**Interval**	**Layer**	**Start**	**End**	**Interval**
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0

Layer	**Start**	**End**	**Interval**	**Layer**	**Start**	**End**	**Interval**
Shrub	24.3	25.0	0.7	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0

Shrub			0.0	**Shrub**			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
	NA - no trees

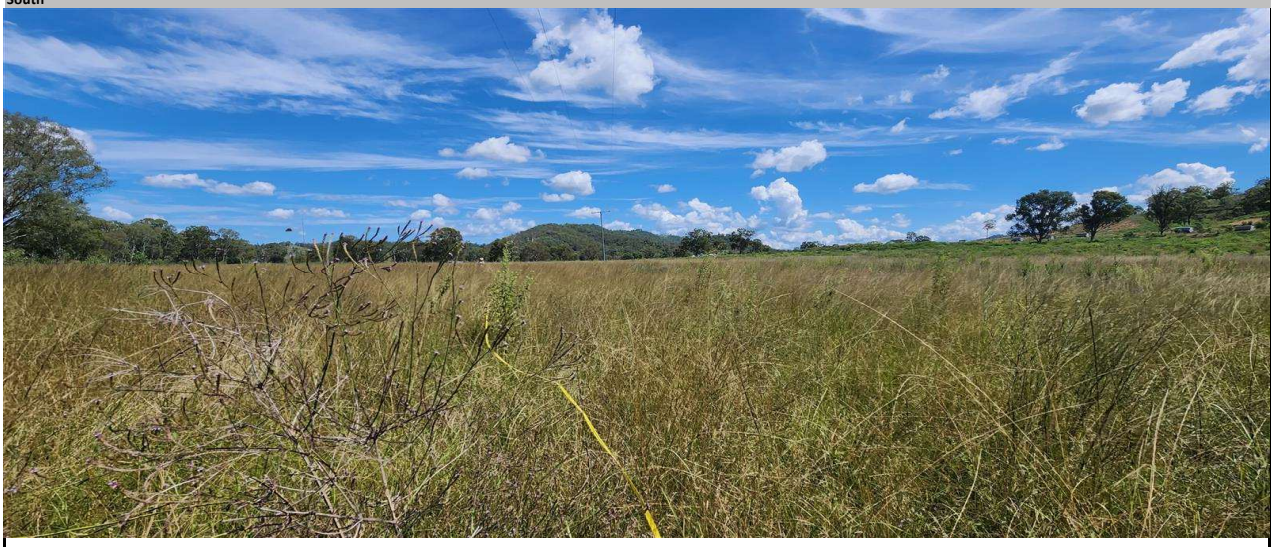
Part J: SAT Survey Results

SAT Survey ID	NA - no trees			
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
Total				

Attach Landscape Photos Here

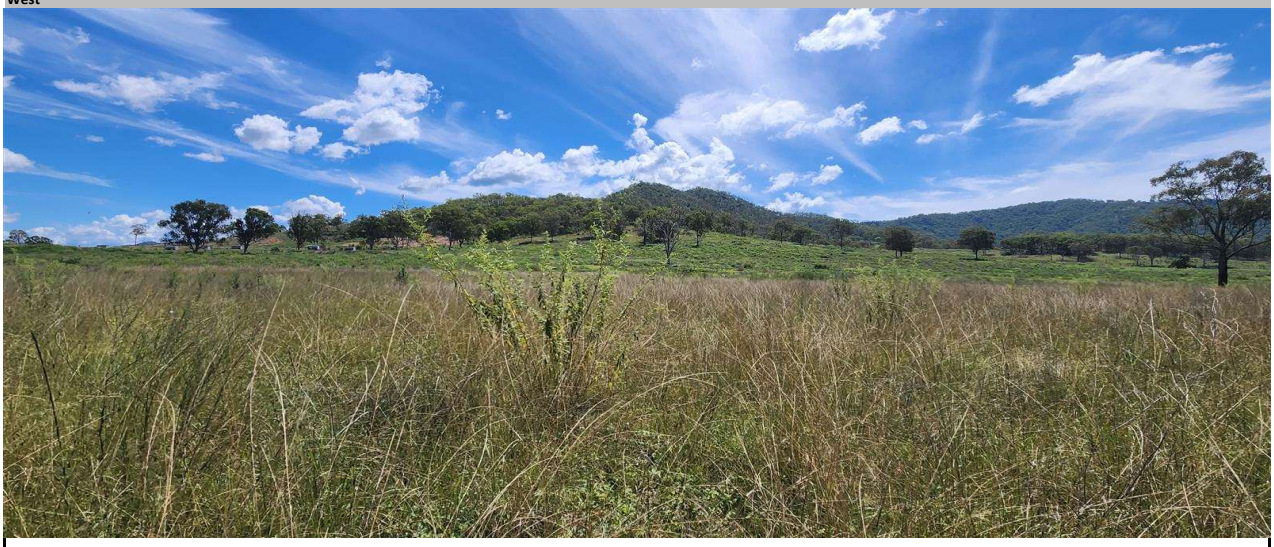
North

South



East

West



Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	4	Job Number / Property	11894 / Toogoolawah Offset

Part B - Site Data

Recorders	DH & AW & LF	Date	23/02/2024

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
na		12.11.14	12

Site description and Location (including details of discrete polygons within the assessment unit)
Non-rem

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	2			EDL / Dom / R
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow-leaved Ironbark	D/R
Scientific Name	*Corymbia intermedia*	Common Name	Pink Bloodwood	
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	1		
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow-leaved Ironbark
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	5		
Scientific Name	*Cynodon dactylon*	Common Name	Green Couch
Scientific Name	*Cymbopogon refractus*	Common Name	Barbed Wire Grass
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name	*Aristida vagans*	Common Name	Three awn speargrass
Scientific Name	*Panicum decompositum*	Common Name	Native panic
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	4		
Scientific Name	*Fimbristylis ferruginea*	Common Name	Fringe Rush
Scientific Name	*Sida cordifolia*	Common Name	Flannel Weed
Scientific Name	*Chrysocephalum apiculatum*	Common Name	Yellow buttons
Scientific Name	*Wahlenbergia queenslandica*	Common Name	Blue Star
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	90.00%		
Scientific Name	*Sporobolus africanus*	Common Name	Parramatta grass
Scientific Name	*Cyperus polystachyos*	Common Name	Bunchy Sedge
Scientific Name	*Verbena bonariensis*	Common Name	Purple top Verbena
Scientific Name	*Phytolacca octandra*	Common Name	Ink Weed
Scientific Name	*Conyza sumatrensis*	Common Name	Tall fleabane
Scientific Name	*Lantana camara*	Common Name	Lantana
Scientific Name	*Lantana montevidensis*	Common Name	Creeping lantana
Scientific Name	*Rubus fruticosus*	Common Name	Blackberry

Scientific Name	*Asclepias curassavica*	**Common Name**	Red-head cotton bush
Scientific Name	*Sida rhombifolia*	**Common Name**	Arrowleaf sida
Scientific Name	*Melinis repens*	**Common Name**	Red Natal
Scientific Name	*Oxalis*	**Common Name**	Wood sorrels
Scientific Name	*Opuntia tomentosa*	**Common Name**	Velvet tree pear
Scientific Name	*Chloris gayana*	**Common Name**	Rhodes Grass
Scientific Name	*Verbena aristigera*	**Common Name**	Maynes Pest

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)	**71.00**		
1	1.20	**26**	
2	1.30	**27**	
3	4.60	**28**	
4		**29**	
5		**30**	
6		**31**	
7		**32**	
8		**33**	
9		**34**	
10		**35**	
11		**36**	
12		**37**	
13		**38**	
14		**39**	
15		**40**	
16		**41**	
17		**42**	
18		**43**	
19		**44**	
20		**45**	
21		**46**	
22		**47**	
23		**48**	
24		**49**	
25		**50**	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	**Quadrat 1**	**Quadrat 2**	**Quadrat 3**	**Quadrat 4**	**Quadrat 5**	**Average**
Native perennial grass cover	20%	10%				15%
Native other grass						
Native forbs and other species						
Native shrubs						
Non-native grass	55%		25%			40%
Non native forbs and shrubs		90%	75%	100%	100%	91%
Litter						
Rock						
Bare Ground	25%					25%
Cryptogram						
Total	100%	100%	100%	100%	100%	171%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	410	**Number of large eucalypt trees:**	6
Non- Eucalypt Large tree DBH benchmark used:	250	**Number of large non eucalypt trees:**	0
Total number of large trees recorded:	6		
Total Number Large Trees per ha:	12		

Median Tree Canopy Height Measurements	**Canopy:**	19	**Sub-canopy:**	9	**Emergent:**	NA

Percentage of ecologically dominant layer species regenerating:	**50**

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	**Canopy:**	2.6%	**Sub-canopy:**	0.00%	**Emergent:**	
Shrub canopy cover %	0.80%					

Layer	**Start**	**End**	**Interval**	**Layer**	**Start**	**End**	**Interval**
T1	97.4	100.0	2.6	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0

Layer	**Start**	**End**	**Interval**	**Layer**	**Start**	**End**	**Interval**
Shrub	3.5	4.0	0.5	**Shrub**			0.0

Shrub	14.4	14.7	0.3	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Eucalyptus crebra	4
Corymbia intermedia	1

Part J: SAT Survey Results

SAT Survey ID	NA			
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
Total				

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet			

Part A - Administrative

Transect ID	5	Job Number / Property	11894 / Toogoolawah Offset

Part B - Site Data

Recorders	DH & AW & LF	Date	23/02/2024

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
na		12.3.3	12

Site description and Location (including details of discrete polygons within the assessment unit)
Open grazing paddock - no trees.

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	0			EDL / Dom / R
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	0		
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	3		
Scientific Name	*Cynodon dactylon*	Common Name	Green Couch
Scientific Name	*Eragrostis brownii*	Common Name	Brown's Love Grass
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	1		
Scientific Name	*Wahlenbergia queenslandica*	Common Name	Queensland bluebell
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	90.00%		
Scientific Name	*Sporobolus africanus*	Common Name	Parramatta grass
Scientific Name	*Dichondra argentea*	Common Name	Kidney Weed
Scientific Name	*Ficinia Nodosa*	Common Name	Knobby Club Rush
Scientific Name	*Phytolacca octandra*	Common Name	Ink Weed
Scientific Name	*Bidens pilosa*	Common Name	Cobbler's pegs
Scientific Name	*Tagetes minuta*	Common Name	Stinking Rodger
Scientific Name	*Physalis alkekengi*	Common Name	Chinese Lantern
Scientific Name	*Rubus fruticosus*	Common Name	Blackberry

Scientific Name	*Conyza sumatrensis*	**Common Name**	Tall fleabane
Scientific Name	*Sida rhombifolia*	**Common Name**	Arrowleaf sida
Scientific Name	*Cyperus polystachyos*	**Common Name**	Bunchy sedge
Scientific Name	*Oxalis*	**Common Name**	Wood sorrels
Scientific Name	*Tradescantia Spathacea*	**Common Name**	Sitara
Scientific Name	*Cirsium vulgare*	**Common Name**	Spear Thistle
Scientific Name	*Heliotropium amplexicaule*	**Common Name**	Blue heliotrope
Scientific Name	*Cucumis metuliferus*	**Common Name**	Horned Melon
Scientific Name	*Verbena aristigera*	**Common Name**	Maynes Pest

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)			
1	Nil	**26**	
2		**27**	
3		**28**	
4		**29**	
5		**30**	
6		**31**	
7		**32**	
8		**33**	
9		**34**	
10		**35**	
11		**36**	
12		**37**	
13		**38**	
14		**39**	
15		**40**	
16		**41**	
17		**42**	
18		**43**	
19		**44**	
20		**45**	
21		**46**	
22		**47**	
23		**48**	
24		**49**	
25		**50**	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	**Quadrat 1**	**Quadrat 2**	**Quadrat 3**	**Quadrat 4**	**Quadrat 5**	**Average**
Native perennial grass cover						
Native other grass						
Native forbs and other species						
Native shrubs						
Non-native grass						
Non native forbs and shrubs	100%	100%	100%	100%	100%	100%
Litter						
Rock						
Bare Ground						
Cryptogram						
Total	100%	100%	100%	100%	100%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	540	**Number of large eucalypt trees:**	0
Non- Eucalypt Large tree DBH benchmark used:	200	**Number of large non eucalypt trees:**	0
Total number of large trees recorded:	0		
Total Number Large Trees per ha:	0		

Median Tree Canopy Height Measurements	**Canopy:**	N/A	**Sub-canopy:**	N/A	**Emergent:**	NA

Percentage of ecologically dominant layer species regenerating:	**0**

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	**Canopy:**	0.0%	**Sub-canopy:**	0.00%	**Emergent:**	
Shrub canopy cover %	0.00%					

Layer	**Start**	**End**	**Interval**	**Layer**	**Start**	**End**	**Interval**
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0

Layer	Start	End	Interval	Layer	Start	End	Interval
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
	NA - no trees

Part J: SAT Survey Results

SAT Survey ID	NA - no trees			
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
Total				

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	6	Job Number / Property	11894 / Toogoolawah Offset

Part B - Site Data

Recorders	DH & AW & LF	Date	23/02/2024

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
na		12.3.7	12

Site description and Location (including details of discrete polygons within the assessment unit)
Waterway, very large habitat trees with large hollows

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	5			EDL / Dom / R
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash	
Scientific Name	*Acacia salicina*	Common Name	Sally Wattle	
Scientific Name	*Eucalyptus melanophloia*	Common Name	Silver-leaved Ironbark	
Scientific Name	*Eucalyptus tereticornis*	Common Name	Forest Red Gum	Dom, R
Scientific Name	*Melaleuca bracteata*	Common Name	Black Tea-tree	
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	3		
Scientific Name	*Ficus opposita*	Common Name	*Sand Paper Fig*
Scientific Name	*Eucalyptus tereticornis*	Common Name	*Forest Red Gum*
Scientific Name	*Melia azedarach*	Common Name	*White Cedar*
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	4		
Scientific Name	*Cynodon dactylon*	Common Name	Green Couch
Scientific Name	*Eragrostis brownii*	Common Name	Brown's Love Grass
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name	*Panicum decompositum*	Common Name	Native panic
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	4		
Scientific Name	*Fimbristylis ferruginea*	Common Name	Fringe Rush
Scientific Name	*Sida cordifolia*	Common Name	Flannel Weed
Scientific Name	*Chrysocephalum apiculatum*	Common Name	Yellow buttons
Scientific Name	*Wahlenbergia queenslandica*	Common Name	Queensland bluebell
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	90.00%		
Scientific Name	*Sporobolus africanus*	Common Name	Parramatta grass
Scientific Name	*Corymbia torelliana*	Common Name	Cadaghi
Scientific Name	*Verbena bonariensis*	Common Name	Purple top Verbena
Scientific Name	*Megathyrsus maximus*	Common Name	Guinea Grass
Scientific Name	*Brachiaria decumbens*	Common Name	signal grass
Scientific Name	*Lantana camara*	Common Name	Lantana
Scientific Name	*Solanum mauritianum*	Common Name	wild tobacco
Scientific Name	*Solanum nigrum*	Common Name	Blackberry nightshade

Scientific Name	*Celtis sinensis*	**Common Name**	chinese elm
Scientific Name	*Sida rhombifolia*	**Common Name**	Arrowleaf sida
Scientific Name	*Hydrocotyle acutiloba*	**Common Name**	Pennywort
Scientific Name	*Oxalis*	**Common Name**	Wood sorrels
Scientific Name	*Cirsium vulgare*	**Common Name**	Spear Thistle
Scientific Name	*Chloris gayana*	**Common Name**	Rhodes Grass
Scientific Name	*Gomphocarpus physocarpus*	**Common Name**	Balloon Cotton Bush
Scientific Name	*Verbena aristigera*	**Common Name**	Maynes Pest

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)			
1	Nil	**26**	
2		**27**	
3		**28**	
4		**29**	
5		**30**	
6		**31**	
7		**32**	
8		**33**	
9		**34**	
10		**35**	
11		**36**	
12		**37**	
13		**38**	
14		**39**	
15		**40**	
16		**41**	
17		**42**	
18		**43**	
19		**44**	
20		**45**	
21		**46**	
22		**47**	
23		**48**	
24		**49**	
25		**50**	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	**Quadrat 1**	**Quadrat 2**	**Quadrat 3**	**Quadrat 4**	**Quadrat 5**	**Average**
Native perennial grass cover	5%	25%	0%	0%	25%	11%
Native other grass						
Native forbs and other species						
Native shrubs						
Non-native grass						
Non native forbs and shrubs	70%	65%	100%	100%	55%	78%
Litter	25%	10%	0%	0%	20%	11%
Rock						
Bare Ground		0%	0%	0%	0%	
Cryptogram						
Total	100%	100%	100%	100%	100%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	510	**Number of large eucalypt trees:**	12
Non- Eucalypt Large tree DBH benchmark used:	360	**Number of large non eucalypt trees:**	1
Total number of large trees recorded:	13		
Total Number Large Trees per ha:	26		

Median Tree Canopy Height Measurements	**Canopy:**	23	**Sub-canopy:**	9	**Emergent:**	NA

Percentage of ecologically dominant layer species regenerating:	**33**

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	**Canopy:**	34.6%	**Sub-canopy:**	0.00%	**Emergent:**	
Shrub canopy cover %	6.70%					

Layer	**Start**	**End**	**Interval**	**Layer**	**Start**	**End**	**Interval**
T1 23m	0.0	9.7	9.7	**T2**			0.0
T1 23m	9.7	31.6	21.9	**T2**			0.0
T1 24m	97.0	100.0	3.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0

Layer	**Start**	**End**	**Interval**	**Layer**	**Start**	**End**	**Interval**

Shrub	0.0	0.7	0.7	**Shrub**	21.1	22.7	1.6
Shrub	2.8	3.2	0.4	**Shrub**	90.2	90.9	0.7
Shrub	7.0	9.7	2.7	**Shrub**			0.0
Shrub	19.4	20.0	0.6	**Shrub**			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Eucalyptus tereticornis	3

Part J: SAT Survey Results

SAT Survey ID	NA			
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
1	Eucalyptus melaniphloia	Silver-leaved Ironbark	385	N
2	Eucalyptus tereticornis	Forest Red Gum	785	N
3	Eucalyptus tereticornis	Forest Red Gum	1240	N
4	Eucalyptus melaniphloia	Silver-leaved Ironbark	450	N
5	Eucalyptus melaniphloia	Silver-leaved Ironbark	380	N
6	Eucalyptus tereticornis	Forest Red Gum	520	y
7	Eucalyptus tereticornis	Forest Red Gum	585	y
8	Eucalyptus tereticornis	Forest Red Gum	980	N
9	Eucalyptus tereticornis	Forest Red Gum	610	N
10	Eucalyptus melaniphloia	Silver-leaved Ironbark	300	N
11	Eucalyptus tereticornis	Forest Red Gum	580	N
12	Eucalyptus tereticornis	Forest Red Gum	640	N
13	Eucalyptus tereticornis	Forest Red Gum	1560	N
14	Eucalyptus tereticornis	Forest Red Gum	1360	N
15	Eucalyptus melaniphloia	Silver-leaved Ironbark	380	N
16	Eucalyptus tereticornis	Forest Red Gum	1180	N
17	Eucalyptus tereticornis	Forest Red Gum	620	y
18	Eucalyptus melaniphloia	Silver-leaved Ironbark	430	N
19	Eucalyptus melaniphloia	Silver-leaved Ironbark	370	y
20	Eucalyptus tereticornis	Forest Red Gum	570	N
21	Eucalyptus tereticornis	Forest Red Gum	580	y
22	Eucalyptus tereticornis	Forest Red Gum	1300	N
23	Eucalyptus tereticornis	Forest Red Gum	15600	N
24	Eucalyptus tereticornis	Forest Red Gum	580	N
25	Eucalyptus tereticornis	Forest Red Gum	910	N
26	Eucalyptus tereticornis	Forest Red Gum	1160	N
27	Eucalyptus tereticornis	Forest Red Gum	1050	N
28	Ficus opposita	Sandpaper Fig	380	N
29	Melaleuca bracteata	Black Tea-tree	280	N
30	Melaleuca bracteata	Black Tea-tree	230	N
Total				5/30

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	7	Job Number / Property	11894 / Toogoolawah Offset

Part B - Site Data

Recorders	DH & AW & LF	Date	23/02/2024

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
na		12.9-10.7	12

Site description and Location (including details of discrete polygons within the assessment unit)
Cat C, limited holliows

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	3			EDL / Dom / R
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow-leaved Ironbark	D/R
Scientific Name	*Corymbia intermedia*	Common Name	Pink Bloodwood	
Scientific Name	*Eucalyptus melanophloia*	Common Name	Silver-leaved Ironbark	
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	4		
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow-leaved Ironbark
Scientific Name	*Corymbia intermedia*	Common Name	Pink Bloodwood
Scientific Name	*Alphitonia excelsa*	Common Name	Soap Tree
Scientific Name	*Grewia latifolia*	Common Name	Dogs balls
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	5		
Scientific Name	*Capillipedium parviflorum*	Common Name	Scented-top Grass
Scientific Name	*Imperata cylindrica*	Common Name	Blady Grass
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name	*Aristida vagans*	Common Name	Three awn speargrass
Scientific Name	*Panicum decompositum*	Common Name	Native panic
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	7		
Scientific Name	*Dianella caerulea*	Common Name	Blue flax-lily
Scientific Name	*Sida cordifolia*	Common Name	Flannel Weed
Scientific Name	*Chrysocephalum apiculatum*	Common Name	Yellow buttons
Scientific Name	*Wahlenbergia queenslandica*	Common Name	Blue Star
Scientific Name	*Hybanthus stellarioides*	Common Name	spade flower
Scientific Name	*Eustrephus latifolius*	Common Name	Wombat Berry
Scientific Name	*Glycine clandestina*	Common Name	Twining Glycine
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	20.00%		
Scientific Name	*Opuntia tomentosa*	Common Name	Velvet tree pear
Scientific Name	*Bidens pilosa*	Common Name	Cobbler's pegs
Scientific Name	*Chloris gayana*	Common Name	Rhodes Grass
Scientific Name	*Lantana camara*	Common Name	Lantana
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)	246.00		
1	1.00	26	
2	0.90	27	
3	0.70	28	
4	2.20	29	
5	1.50	30	
6	4.20	31	
7	1.10	32	
8	2.10	33	
9	1.70	34	
10	5.60	35	
11	3.60	36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	25%	85%	75%	75%	75%	67%
Native other grass						
Native forbs and other species	0%	5%	0%	5%	0%	2%
Native shrubs						
Non-native grass						
Non native forbs and shrubs	75%	10%	25%	20%	45%	35%
Litter						
Rock						
Bare Ground						
Cryptogram						
Total	100%	100%	100%	100%	120%	104%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	390	Number of large eucalypt trees:	5
Non- Eucalypt Large tree DBH benchmark used:	200	Number of large non eucalypt trees:	0
Total number of large trees recorded:	5		
Total Number Large Trees per ha:	10		

Median Tree Canopy Height Measurements	Canopy:	21	Sub-canopy:	9	Emergent:	NA

Percentage of ecologically dominant layer species regenerating:	67

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	52.9%	Sub-canopy:	0.00%	Emergent:	
Shrub canopy cover %	0.50%					

Layer	Start	End	Interval	Layer	Start	End	Interval
T1	0.0	7.5	7.5	T2			0.0
T1	30.0	35.5	5.5	T2			0.0
T1	39.3	50.0	10.7	T2			0.0
T1	56.2	68.0	11.8	T2			0.0
T1	82.6	88.4	5.8	T2			0.0
T1	88.4	100.0	11.6	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0

Layer	Start	End	Interval	Layer	Start	End	Interval
Shrub	7.9	8.4	0.5	Shrub			0.0

Shrub	61.8	62.3	0.5	**Shrub**			0.0
Shrub	8.4	7.9	-0.5	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Eucalyptus crebra	14
Corymbia intermedia	1

Part J: SAT Survey Results

SAT Survey ID	NA			
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
1	Eucalyptus melaniphloia	Silver-leaved Ironbark	350	N
2	Eucalyptus crebra	Narrow-leaved Ironbark	310	N
3	Eucalyptus crebra	Narrow-leaved Ironbark	160	N
4	Eucalyptus crebra	Narrow-leaved Ironbark	190	N
5	Eucalyptus crebra	Narrow-leaved Ironbark	350	N
6	Eucalyptus crebra	Narrow-leaved Ironbark	290	N
7	Eucalyptus crebra	Narrow-leaved Ironbark	300	N
8	Eucalyptus crebra	Narrow-leaved Ironbark	300	N
9	Eucalyptus crebra	Narrow-leaved Ironbark	320	N
10	Eucalyptus crebra	Narrow-leaved Ironbark	355	N
11	Eucalyptus crebra	Narrow-leaved Ironbark	280	N
12	Eucalyptus crebra	Narrow-leaved Ironbark	400	N
13	Corymbia intermedia	Pink Bloodwood	160	N
14	Eucalyptus crebra	Narrow-leaved Ironbark	385	N
15	Eucalyptus crebra	Narrow-leaved Ironbark	300	N
16	Eucalyptus crebra	Narrow-leaved Ironbark	345	N
17	Eucalyptus crebra	Narrow-leaved Ironbark	390	N
18	Eucalyptus crebra	Narrow-leaved Ironbark	280	N
19	Eucalyptus crebra	Narrow-leaved Ironbark	200	N
20	Eucalyptus crebra	Narrow-leaved Ironbark	350	N
21	Eucalyptus crebra	Narrow-leaved Ironbark	420	N
22	Eucalyptus crebra	Narrow-leaved Ironbark	285	N
23	Eucalyptus crebra	Narrow-leaved Ironbark	295	N
24	Eucalyptus crebra	Narrow-leaved Ironbark	400	N
25	Eucalyptus crebra	Narrow-leaved Ironbark	300	N
26	Eucalyptus crebra	Narrow-leaved Ironbark	330	N
27	Eucalyptus crebra	Narrow-leaved Ironbark	360	N
28	Eucalyptus crebra	Narrow-leaved Ironbark	300	N
29	Eucalyptus crebra	Narrow-leaved Ironbark	400	N
30	Eucalyptus crebra	Narrow-leaved Ironbark	590	N
Total				0/30

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	8	Job Number / Property	11894 / Toogoolawah Offset

Part B - Site Data

Recorders	DH & AW & LF	Date	23/02/2024

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
na		12.9-10.7	12

Site description and Location (including details of discrete polygons within the assessment unit)
Category C, minimal subcanopy / shrubs

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	1			EDL / Dom / R
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow-leaved Ironbark	D/R
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	4		
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow-leaved Ironbark
Scientific Name	*Eucalyptus tereticornis*	Common Name	Forest Red Gum
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash
Scientific Name	*Corymbia intermedia*	Common Name	Pink Bloodwood
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	9		
Scientific Name	*Cynodon dactylon*	Common Name	Green Couch
Scientific Name	*Eragrostis brownii*	Common Name	Brown's Love Grass
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name	*Aristida vagans*	Common Name	Three awn aristida
Scientific Name	*Panicum decompositum*	Common Name	Native panic
Scientific Name	*Capillipedium parviflorum*	Common Name	Scented-top Grass
Scientific Name	*Imperata cylindrica*	Common Name	Blady Grass
Scientific Name	*Elymus hystrix*	Common Name	Bottlebrush Grass
Scientific Name	*Themeda triandra*	Common Name	Kangaroo Grass
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	7		
Scientific Name	*Fimbristylis ferruginea*	Common Name	Fringe Rush
Scientific Name	*Eremophila debilis*	Common Name	Winter Apple
Scientific Name	*Chrysocephalum apiculatum*	Common Name	Yellow buttons
Scientific Name	*Wahlenbergia queenslandica*	Common Name	Blue Star
Scientific Name	*Eustrephus latifolius*	Common Name	Wombat Berry
Scientific Name	*Glycine clandestina*	Common Name	Twining Glycine
Scientific Name	*Hybanthus stellarioides*	Common Name	Spade Flower
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	35.00%		
Scientific Name	*Sporobolus africanus*	Common Name	Parramatta grass
Scientific Name	*Bidens pilosa*	Common Name	Cobbler's pegs
Scientific Name	*Opuntia tomentosa*	Common Name	Velvet tree pear
Scientific Name	*Gomphocarpus physocarpus*	Common Name	Balloon Cotton Bush
Scientific Name	*Verbena bonariensis*	Common Name	Purple top Verbena
Scientific Name	*Lantana camara*	Common Name	Lantana
Scientific Name	*Isolepis nodosa*	Common Name	Knobbly club-rush
Scientific Name	*Cirsium vulgare*	Common Name	Spear Thistle

Scientific Name	*Asclepias curassavica*	**Common Name**	Red-head cotton bush
Scientific Name	*Sida rhombifolia*	**Common Name**	Arrowleaf sida
Scientific Name	*Melinis repens*	**Common Name**	Red Natal
Scientific Name	*Verbena aristigera*	**Common Name**	Maynes Pest
Scientific Name		**Common Name**	
Scientific Name		**Common Name**	
Scientific Name		**Common Name**	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)	**236.00**		
1	1.20	**26**	
2	2.10	**27**	
3	5.30	**28**	
4	8.60	**29**	
5	6.40	**30**	
6		**31**	
7		**32**	
8		**33**	
9		**34**	
10		**35**	
11		**36**	
12		**37**	
13		**38**	
14		**39**	
15		**40**	
16		**41**	
17		**42**	
18		**43**	
19		**44**	
20		**45**	
21		**46**	
22		**47**	
23		**48**	
24		**49**	
25		**50**	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	**Quadrat 1**	**Quadrat 2**	**Quadrat 3**	**Quadrat 4**	**Quadrat 5**	**Average**
Native perennial grass cover	65%	65%	90%	95%	75%	78%
Native other grass						
Native forbs and other species	0%	0%	0%	0%	10%	2%
Native shrubs						
Non-native grass						
Non native forbs and shrubs	30%	15%	10%	5%	15%	15%
Litter	0%	20%	0%	0%	0%	4%
Rock						
Bare Ground	5%	0%	0%	0%	0%	1%
Cryptogram						
Total	100%	100%	100%	100%	100%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	390	**Number of large eucalypt trees:**	3
Non- Eucalypt Large tree DBH benchmark used:	290	**Number of large non eucalypt trees:**	0
Total number of large trees recorded:	3		
Total Number Large Trees per ha:	6		

Median Tree Canopy Height Measurements	**Canopy:**	21	**Sub-canopy:**	10	**Emergent:**	NA

Percentage of ecologically dominant layer species regenerating:	**100**

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	**Canopy:**	31.9%	**Sub-canopy:**	0.00%	**Emergent:**	
Shrub canopy cover %	2.30%					

Layer	**Start**	**End**	**Interval**	**Layer**	**Start**	**End**	**Interval**
T1 crebra	0.0	10.6	10.6	**T2**			0.0
T1 crebra	66.6	75.0	8.4	**T2**			0.0
T1 crebra	87.1	93.7	6.6	**T2**			0.0
T1 crebra	93.7	100.0	6.3	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0

Layer	**Start**	**End**	**Interval**	**Layer**	**Start**	**End**	**Interval**
Shrub	93.7	94.2	0.5	**Shrub**			0.0

Shrub	94.9	95.4	0.5	**Shrub**			0.0
Shrub	98.7	100.0	1.3	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Eucalyptus crebra	6

Part J: SAT Survey Results

SAT Survey ID	NA			
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
1	Eucalyptus crebra	Narrow-leaved Ironbark	340	N
2	Eucalyptus crebra	Narrow-leaved Ironbark	340	N
3	Eucalyptus crebra	Narrow-leaved Ironbark	480	N
4	Eucalyptus crebra	Narrow-leaved Ironbark	620	N
5	Eucalyptus crebra	Narrow-leaved Ironbark	420	N
6	Eucalyptus crebra	Narrow-leaved Ironbark	340	N
7	Eucalyptus crebra	Narrow-leaved Ironbark	300	N
8	Eucalyptus crebra	Narrow-leaved Ironbark	340	N
9	Eucalyptus crebra	Narrow-leaved Ironbark	130	N
10	Eucalyptus crebra	Narrow-leaved Ironbark	380	N
11	Eucalyptus crebra	Narrow-leaved Ironbark	320	N
12	Eucalyptus crebra	Narrow-leaved Ironbark	390	N
13	Eucalyptus crebra	Narrow-leaved Ironbark	420	N
14	Eucalyptus crebra	Narrow-leaved Ironbark	430	N
15	Eucalyptus crebra	Narrow-leaved Ironbark	355	N
16	Eucalyptus crebra	Narrow-leaved Ironbark	400	N
17	Eucalyptus crebra	Narrow-leaved Ironbark	520	N
18	Eucalyptus crebra	Narrow-leaved Ironbark	500	N
19	Eucalyptus crebra	Narrow-leaved Ironbark	340	N
20	Eucalyptus crebra	Narrow-leaved Ironbark	390	N
21	Eucalyptus crebra	Narrow-leaved Ironbark	580	N
22	Eucalyptus crebra	Narrow-leaved Ironbark	100	N
23	Corymbia intermedia	Pink Bloodwood	180	N
24	Eucalyptus crebra	Narrow-leaved Ironbark	120	N
25	Eucalyptus crebra	Narrow-leaved Ironbark	140	N
26	Eucalyptus crebra	Narrow-leaved Ironbark	340	N
27	Eucalyptus crebra	Narrow-leaved Ironbark	120	N
28	Eucalyptus crebra	Narrow-leaved Ironbark	390	N
29	Eucalyptus crebra	Narrow-leaved Ironbark	380	N
30	Eucalyptus crebra	Narrow-leaved Ironbark	380	N
Total				0/30

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	9	Job Number / Property	11894 / Toogoolawah Offset

Part B - Site Data

Recorders	DH & AW & LF	Date	23/02/2024

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
na		12.9-10.7	12

Site description and Location (including details of discrete polygons within the assessment unit)
Non-rem, open grazing pasture

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	2			EDL / Dom / R
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow-leaved Ironbark	D/R
Scientific Name	*Eucalyptus melanophloia*	Common Name	Silver-leaved Ironbark	r
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	2		
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow-leaved Ironbark
Scientific Name	*Eucalyptus melanophloia*	Common Name	Silver-leaved Ironbark
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	9		
Scientific Name	*Themeda triandra*	Common Name	Kangaroo Grass
Scientific Name	*Cymbopogon refractus*	Common Name	Barbed Wire Grass
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name	*Aristida vagans*	Common Name	Three awn aristida
Scientific Name	*Panicum decompositum*	Common Name	Native Panic
Scientific Name	*Imperata cylindrica*	Common Name	Blady Grass
Scientific Name	*Alloteropsis semialata*	Common Name	Cockatoo Grass
Scientific Name	*Aristida calycina*	Common Name	Dark Wiregrass
Scientific Name	*Capillipedium parviflorum*	Common Name	Scented-top Grass
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	7		
Scientific Name	*Cyperus gracilis*	Common Name	Slender Sedge
Scientific Name	*Sida cordifolia*	Common Name	Flannel Weed
Scientific Name	*Chrysocephalum apiculatum*	Common Name	Yellow buttons
Scientific Name	*Hybanthus stellarioides*	Common Name	spade flower
Scientific Name	*Cheilanthes distans*	Common Name	Bristle Cloak Fern
Scientific Name	*Delwynia retorta*	Common Name	Delwynia
Scientific Name	*Glycine clandestina*	Common Name	Twining Glycine
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	70.00%		
Scientific Name	*Sporobolus africanus*	Common Name	Parramatta grass
Scientific Name	*Cyperus polystachyos*	Common Name	Bunchy Sedge
Scientific Name	*Verbena bonariensis*	Common Name	Purple top Verbena
Scientific Name	*Hydrocotyle acutiloba*	Common Name	Pennywort
Scientific Name	*Conyza sumatrensis*	Common Name	Tall fleabane
Scientific Name	*Lantana camara*	Common Name	Lantana
Scientific Name	*Emilia sonchifolia*	Common Name	Emilia
Scientific Name	*Opuntia tomentosa*	Common Name	Velvet tree pear

Scientific Name	*Sorghum halepense*	**Common Name**	Johnson Grass
Scientific Name	*Sida rhombifolia*	**Common Name**	Arrowleaf sida
Scientific Name	*Gomphocarpus physocarpus*	**Common Name**	Balloon Cotton Bush
Scientific Name	*Oxalis stricta*	**Common Name**	Common Wood Sorrel
Scientific Name	*Verbena aristigera*	**Common Name**	Maynes Pest
Scientific Name		**Common Name**	
Scientific Name		**Common Name**	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)			
1	Nil	**26**	
2		**27**	
3		**28**	
4		**29**	
5		**30**	
6		**31**	
7		**32**	
8		**33**	
9		**34**	
10		**35**	
11		**36**	
12		**37**	
13		**38**	
14		**39**	
15		**40**	
16		**41**	
17		**42**	
18		**43**	
19		**44**	
20		**45**	
21		**46**	
22		**47**	
23		**48**	
24		**49**	
25		**50**	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	**Quadrat 1**	**Quadrat 2**	**Quadrat 3**	**Quadrat 4**	**Quadrat 5**	**Average**
Native perennial grass cover	15%	10%	60%	50%	70%	41%
Native other grass						
Native forbs and other species						
Native shrubs						
Non-native grass						
Non native forbs and shrubs	85%	90%	40%	50%	30%	59%
Litter						
Rock						
Bare Ground						
Cryptogram						
Total	100%	100%	100%	100%	100%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	410	**Number of large eucalypt trees:**	2
Non- Eucalypt Large tree DBH benchmark used:	250	**Number of large non eucalypt trees:**	0
Total number of large trees recorded:	2		
Total Number Large Trees per ha:	4		

Median Tree Canopy Height Measurements	**Canopy:**	22	**Sub-canopy:**	N/A	**Emergent:**	NA

Percentage of ecologically dominant layer species regenerating:	**100**

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	**Canopy:**	19.1%	**Sub-canopy:**	0.00%	**Emergent:**	
Shrub canopy cover %	1.60%					

Layer	**Start**	**End**	**Interval**	**Layer**	**Start**	**End**	**Interval**
T1	0.0	7.1	7.1	**T2**			0.0
T1	88.0	100.0	12.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0
T1			0.0	**T2**			0.0

Layer	**Start**	**End**	**Interval**	**Layer**	**Start**	**End**	**Interval**
Shrub	18.5	19.5	1.0	**Shrub**			0.0

Shrub	20.4	21.0	0.6	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0
Shrub			0.0	**Shrub**			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Eucalyptus tereticornis	1
Eucalyptus melanophloia	1

Part J: SAT Survey Results

SAT Survey ID	NA			
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
Total				

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	10	Job Number / Property	11894 / Toogoolawah Offset

Part B - Site Data

Recorders	DH & AW & LF	Date	23/02/2024

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
na		12.9-10.7	12

Site description and Location (including details of discrete polygons within the assessment unit)
Non-rem, regrowth towards ridge line, som larger trees with hollows

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	4			EDL / Dom / R
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow-leaved Ironbark	D/R
Scientific Name	*Eucalyptus tereticornis*	Common Name	Forest Red Gum	
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash	r
Scientific Name	*Corymbia erythrophloia*	Common Name	Variable Bark Bloodwood	r
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	0		
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	7		
Scientific Name	*Cynodon dactylon*	Common Name	Green Couch
Scientific Name	*Cymbopogon refractus*	Common Name	Barbed Wire Grass
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name	*Aristida vagans*	Common Name	Three awn speargrass
Scientific Name	*Panicum decompositum*	Common Name	Native panic
Scientific Name	*Capillipedium parviflorum*	Common Name	Scented-top Grass
Scientific Name	*Eragrostis brownii*	Common Name	Brown's Love Grass
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	2		
Scientific Name	*Chrysocephalum apiculatum*	Common Name	Yellow buttons
Scientific Name	*Glycine clandestina*	Common Name	Twining Glycine
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	65.00%		
Scientific Name	*Sporobolus africanus*	Common Name	Parramatta grass
Scientific Name	*Opuntia tomentosa*	Common Name	Velvet tree pear
Scientific Name	*Bidens pilosa*	Common Name	Cobbler's pegs
Scientific Name	*Melinis repens*	Common Name	Red Natal
Scientific Name	*Conyza sumatrensis*	Common Name	Tall fleabane
Scientific Name	*Lantana camara*	Common Name	Lantana
Scientific Name	*Sida rhombifolia*	Common Name	Arrowleaf sida
Scientific Name	*Verbena aristigera*	Common Name	Maynes Pest

Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)	15.00		
1	1.50	26	
2		27	
3		28	
4		29	
5		30	
6		31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	30%	30%	10%	0%	15%	17%
Native other grass						
Native forbs and other species	15%	0%	65%	0%	55%	27%
Native shrubs						
Non-native grass	20%	40%	10%	0%	5%	15%
Non native forbs and shrubs	35%	30%	15%	90%	25%	39%
Litter	0%	0%	0%	10%	0%	2%
Rock						
Bare Ground						
Cryptogram						
Total	100%	100%	100%	100%	100%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	390	Number of large eucalypt trees:	2
Non- Eucalypt Large tree DBH benchmark used:	200	Number of large non eucalypt trees:	0
Total number of large trees recorded:	2		
Total Number Large Trees per ha:	4		

Median Tree Canopy Height Measurements	Canopy:	22	Sub-canopy:	9	Emergent:	NA

Percentage of ecologically dominant layer species regenerating:	75

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	11.0%	Sub-canopy:	6.90%	Emergent:	
Shrub canopy cover %	11.50%					

Layer	Start	End	Interval	Layer	Start	End	Interval
T1	89.0	100.0	11.0	T2	25.0	31.0	6.0
T1			0.0	T2	31.0	31.9	0.9
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0

Layer	Start	End	Interval	Layer	Start	End	Interval
Shrub	0.0	2.7	2.7	Shrub	75.3	76.0	0.7

Shrub	14.0	18.5	4.5	**Shrub**	76.6	77.7	1.1
Shrub	33.4	34.1	0.7	**Shrub**	78.3	79.3	1.0
Shrub	48.0	48.8	0.8	**Shrub**			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Eucalyptus crebra	3
Corymbia intermedia	2
Corymbia tessellaris	1
Corymbia erythrophloia	2

Part J: SAT Survey Results

SAT Survey ID	NA			
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
1	Eucalyptus tereticornis	Forest Red Gum	720	Y
2	Corymbia erythrophloia	Variable Bark Bloodwood	220	N
3	Corymbia erythrophloia	Variable Bark Bloodwood	190	N
4	Corymbia erythrophloia	Variable Bark Bloodwood	225	N
5	Corymbia erythrophloia	Variable Bark Bloodwood	220	N
6	Corymbia erythrophloia	Variable Bark Bloodwood	220	N
7	Corybia tessellaris	Moreton Bay Ash	260	N
8	Eucalyptus tereticornis	Forest Red Gum	270	N
9	Corymbia erythrophloia	Variable Bark Bloodwood	230	N
10	Corymbia erythrophloia	Variable Bark Bloodwood	410	N
11	Corymbia erythrophloia	Variable Bark Bloodwood	160	N
12	Corymbia erythrophloia	Variable Bark Bloodwood	160	N
13	Corymbia erythrophloia	Variable Bark Bloodwood	130	N
14	Corymbia erythrophloia	Variable Bark Bloodwood	160	N
15	Corymbia erythrophloia	Variable Bark Bloodwood	155	N
16	Corymbia erythrophloia	Variable Bark Bloodwood	120	N
17	Corymbia erythrophloia	Variable Bark Bloodwood	160	N
18	Corymbia erythrophloia	Variable Bark Bloodwood	170	N
19	Corymbia erythrophloia	Variable Bark Bloodwood	100	N
20	Corymbia erythrophloia	Variable Bark Bloodwood	130	N
21	Corymbia erythrophloia	Variable Bark Bloodwood	135	N
22	Eucalyptus crebra	Narrow-leaved Ironbark	180	N
23	Eucalyptus crebra	Narrow-leaved Ironbark	170	N
24	Corymbia erythrophloia	Variable Bark Bloodwood	275	N
25	Corymbia erythrophloia	Variable Bark Bloodwood	150	N
26	Eucalyptus crebra	Narrow-leaved Ironbark	100	N
27	Eucalyptus crebra	Narrow-leaved Ironbark	600	N
28	Corymbia erythrophloia	Variable Bark Bloodwood	300	N
29	Eucalyptus crebra	Narrow-leaved Ironbark	340	N
30	Eucalyptus crebra	Narrow-leaved Ironbark	190	N
Total				1/30

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	BC15 Long: Lat:	Job Number / Property	11894 / Toogoolawah Offset

Part B - Site Data

Recorders	N. Bonney, C. O'Brien	Date	5/12/2024

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
AU5	Regrowth	12.9-10.7	12

Site description and Location (including details of discrete polygons within the assessment unit)
Open woodland. Euc crebra dominated . Native grass ground cover layer dominated by Aristida sp. Most weed free site in offset site

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	3			EDL / Dom / R
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow-leaved Ironbark	EDL / Dom
Scientific Name	*Eucalyptus melanophloia*	Common Name	Silver-leaved ironbark	
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash	
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	2		
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow-leaved Ironbark
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	6		
Scientific Name	*Aristida vagans*	Common Name	Three Awned Speargrass
Scientific Name	*Cynodon dactylon*	Common Name	Green couch
Scientific Name	*Eragrostis brownii*	Common Name	Browns Love Grass
Scientific Name	*Panicum decompositum*	Common Name	Native Panic
Scientific Name	*Cymbopogon refractus*	Common Name	Barbed Wire Grass
Scientific Name	*Themedia triandra*	Common Name	Kangaroo Grass
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	15		
Scientific Name	*Glycine clandestina*	Common Name	Twining glycine
Scientific Name	*Murdannia graminea*	Common Name	Slug Herb
Scientific Name	*Lobelia concolor*	Common Name	Poison Pratia
Scientific Name	*Desmodium varians*	Common Name	Slender Desmodium
Scientific Name	*Chrysocephalum apiculatum*	Common Name	Yellow Buttons
Scientific Name	*Cheilanthes distans*	Common Name	Bristle Cloak Fern
Scientific Name	*Schenkia australis*	Common Name	Spike Centuary
Scientific Name	*Hydrocotle sp*	Common Name	Pennywort
Scientific Name	*Wahlenbergia queenslandica*	Common Name	QLD Bluebell
Scientific Name	*Fimbristillis ferruginea*	Common Name	Fringe Rush
Scientific Name	*Cyperus gracillis*	Common Name	Slender Sedge
Scientific Name	*Neptunia gracilis*	Common Name	Native Sensitive Plant

Scientific Name	*Rostellularia ansendens*	**Common Name**	Purple Pipe Cleaner
Scientific Name	*Brunonelia australis*	**Common Name**	Blue trumpet
Scientific Name	*Emophila debilis*	**Common Name**	Winter Apple
Scientific Name		**Common Name**	
Scientific Name		**Common Name**	
Scientific Name		**Common Name**	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	1.00%		
Scientific Name	*Bidens pilosa*	**Common Name**	Coblers Peg
Scientific Name	*Conyza sumatrensis*	**Common Name**	Tall Fleabane
Scientific Name	*Sida sumatrensis*	**Common Name**	Flannel Weed
Scientific Name	*Mimosa sp (pudica)*	**Common Name**	Sensitive Weed
Scientific Name	*Heliotropium amplexicaule*	**Common Name**	Heliotrope
Scientific Name		**Common Name**	
Scientific Name		**Common Name**	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)	**310.00**		
1	31.00	**26**	
2		**27**	
3		**28**	
4		**29**	
5		**30**	
6		**31**	
7		**32**	
8		**33**	
9		**34**	
10		**35**	
11		**36**	
12		**37**	
13		**38**	
14		**39**	
15		**40**	
16		**41**	
17		**42**	
18		**43**	
19		**44**	
20		**45**	
21		**46**	
22		**47**	
23		**48**	
24		**49**	
25		**50**	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	30.00%	60.00%	30.00%	60.00%	70.00%	50.0%
Native other grass	0%	0%	0%	0%	0%	
Native forbs and other species	15%	20%	10%	5%	10%	12.0%
Native shrubs	0%	0%	0%	0%	0%	
Non-native grass	0%	0%	0%	0%	0%	
Non native forbs and shrubs	30%	10%	20%	2%	10%	14.4%
Litter	25%	10%	40%	30%	10%	23.0%
Rock	0%	0%	0%	0%	0%	
Bare Ground	0%	0%	0%	3%	0%	0.6%
Cryptogram	0%	0%	0%	0%	0%	
Total	0%	0%	0%	0%	0%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	39	**Number of large eucalypt trees:**	9
Non- Eucalypt Large tree DBH benchmark used:		**Number of large non eucalypt trees:**	
Total number of large trees recorded:	9		
Total Number Large Trees per ha:	18		

Appendix F:Baseline Scoring Grey-headed Flying-fox

Assessment Unit - Regional Ecosystem	AU 1 - non-remnant paddock RE12.11.14					
Site Reference	Transect 2	Transect 4	Transect 13	Average	AU Score	OUT OF
	Raw Data	Raw Data	Raw Data	Score		(X/X)
Vegetation Condition	5.0	5.0	5.0	5.00	5	20
Species Richness	2.0	2.0	0.0	1.33	5	20
Flower Score	0.755	0.755	0.000	0.50	5	10
Timing of Biological Shortages	8.5	8.5	0	5.67	5.67	10
Quality of Foraging Habitat	2	2	0	1.33	5	20
Non-native Plant Cover	55.00	90.00	95.00	80.00	1	20
Site Condition Score					26.67	X
MAX Site Condition Score					100	X
Site Condition Score - out of 4					1.07	X
Size of patch	10	10	10	10	10	10
Connectedness	3	3	3	3	3	10
Context	3	3	3	3	3	10
Ecological Corridors	6	6	6	6	6	10
Role of site location to species overall population in the state	0	0	0	0	0	10
Threats to the species	10	10	10	10	10	10
Site Context Score					32	X
MAX Site Context Score					60	X
Site Context Score - out of 3					1.60	X
GHFF Foraging Tree Density - Recorded	10	5	0	5.00		
GHFF Foraging Tree Density - per hectare	50	25	0	25.00	2	10
Species Stocking Rate Score					2	X
MAX Species Stocking Rate Score					10	X
Species Stocking Rate Score - out of 3					0.60	X
Total					3.27	

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		8.5
T2									
Eucalyptus crebra	0.65	x	x					1	
Corymbia intermedia	0.86			x	x		x	1	
Average	**0.755**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**2**	
Total Species:	2								
GHFF Species:	2								
Important Species:	2								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		8.5
T4									
Eucalyptus crebra	0.65	x	x					1	
Corymbia intermedia	0.86			x	x		x	1	
Average	**0.755**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**2**	
Total Species:	2								
GHFF Species:	2								
Important Species:	2								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		0
T13									
Nil	0								
Average	**0.000**	**No**	**No**	**No**	**No**	**No**	**No**	**0**	
Total Species:	0								
GHFF Species:	0								
Important Species:	0								

Listed as a Significant Food Tree
Listed under the recovery plan

Assessment Unit - Regional Ecosystem	AU 2 - Non-remnant paddock RE12.3.3				
Site Reference	Transect 3	Transect 5	Average	AU Score	OUT OF
	Raw Data	Raw Data	Score		(X/X)
Vegetation Condition	5.0	5.0	5.00	**5**	**20**
Species Richness	0.0	0.0	0.00	**0**	**20**
Flower Score	0.000	0.000	0.0000	**2**	**10**
Timing of Biological Shortages	0	0	0.00	**0**	**10**
Quality of Foraging Habitat	0	0	0.00	**0**	**20**
Non-native Plant Cover	80.00	90.00	85.00	**1**	**20**
Site Condition Score				**8**	***X***
MAX Site Condition Score				***100***	***X***
Site Condition Score - out of 4				**0.32**	***X***
Size of patch	10	10	**10**	**10**	**10**
Connectedness	3	3	**3**	**3**	**10**
Context	3	3	**3**	**3**	**10**
Ecological Corridors	6	6	**6**	**6**	**10**
Role of site location to species overall population in the state	0	0	**0**	**0**	**10**
Threats to the species	10	10	**10**	**10**	**10**
Site Context Score				**32**	***X***
MAX Site Context Score				***60***	***X***
Site Context Score - out of 3				**1.60**	***X***
GHFF Foraging Tree Density - Recorded	0	0	**0.00**		
GHFF Foraging Tree Density - per hectare	0	0	**0.00**	**2**	**10**
Species Stocking Rate Score				***2***	***X***
MAX Species Stocking Rate Score				***10***	***X***
Species Stocking Rate Score - out of 3				**0.60**	***X***
Total				**2.52**	

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		0
T3									
Nil	0								
Average	**0.000**	**No**	**No**	**No**	**No**	**No**	**No**	**0**	
Total Species:	0								
GHFF Species:	0								
Important Species:	0								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		0
T5									
Nil	0								
Average	**0.000**	**No**	**No**	**No**	**No**	**No**	**No**	**0**	
Total Species:	0								
GHFF Species:	0								
Important Species:	0								

Listed as a Significant Food Tree
Listed under the recovery plan

Assessment Unit - Regional Ecosystem	AU 3 - Waterway Remnant RE12.3.7			
Site Reference	Transect 6	Average	AU Score	OUT OF
	Raw Data	Score		(X/X)
Vegetation Condition	20.0	20.00	**20**	**20**
Species Richness	1.0	1.00	**5**	**20**
Flower Score	0.630	0.6300	**8**	**10**
Timing of Biological Shortages	8.5	8.50	**8.5**	**10**
Quality of Foraging Habitat	1	1.00	**5**	**20**
Non-native Plant Cover	90.00	90.00	**1**	**20**
Site Condition Score			**47.5**	***X***
MAX Site Condition Score			***100***	***X***
Site Condition Score - out of 4			**1.90**	***X***
Size of patch	10	**10**	**10**	**10**
Connectedness	3	**3**	**3**	**10**
Context	3	**3**	**3**	**10**
Ecological Corridors	6	**6**	**6**	**10**
Role of site location to species overall population in the state	0	**0**	**0**	**10**
Threats to the species	10	**10**	**10**	**10**
Site Context Score			**32**	***X***
MAX Site Context Score			***60***	***X***
Site Context Score - out of 3			**1.60**	***X***
GHFF Foraging Tree Density - Recorded	3	**3.00**		
GHFF Foraging Tree Density - per hectare	15	**15.00**	**2**	**10**
Species Stocking Rate Score			***2***	***X***
MAX Species Stocking Rate Score			***10***	***X***
Species Stocking Rate Score - out of 3			**0.60**	***X***
Total			**4.10**	

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
Flower Scores	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating and conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		8.5
T6									
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Average	**0.6300**	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**	**1**	
Total Species:	1								
GHFF Species:	1								
Important Species:	1								

Listed as a Significant Food Tree
Listed under the recovery plan

Assessment Unit - Regional Ecosystem	AU 4 - Non-remnant paddock with scattered trees RE12.9-10.7						
Site Reference	Transect 9	Transect 10	Transect 11	Transect 12	Average	AU Score	OUT OF
	Raw Data	Raw Data	Raw Data	Raw Data	Score		(X/X)
Vegetation Condition	5.0	5.0	5.0	5.0	5.00	5	20
Species Richness	2.0	4.0	0.0	0.0	1.50	5	20
Flower Score	0.570	0.533	0.000	0.000	0.28	5	10
Timing of Biological Shortages	10	10	0	0	5.00	5	10
Quality of Foraging Habitat	1	2	0	0	0.75	0	20
Non-native Plant Cover	70.00	65.00	20.00	15.00	42.50	5	20
Site Condition Score						25	X
MAX Site Condition Score						*100*	X
Site Condition Score - out of 4						1.00	X
Size of patch	10	10	10	10	10	10	10
Connectedness	3	3	3	3	3	3	10
Context	3	3	3	3	3	3	10
Ecological Corridors	6	6	6	6	6	6	10
Role of site location to species overall population in the state	0	0	0	0	0	0	10
Threats to the species	10	10	10	10	10	10	10
Site Context Score						32	X
MAX Site Context Score						*60*	X
Site Context Score - out of 3						1.60	X
GHFF Foraging Tree Density - Recorded	2	8	0	0	2.50		
GHFF Foraging Tree Density - per hectare	10	40	0	0	12.50	2	10
Species Stocking Rate Score						*2*	X
MAX Species Stocking Rate Score						*10*	X
Species Stocking Rate Score - out of 3						0.60	X
Total						3.20	

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
T9									
Eucalyptus crebra	0.65	x	x					1	
Eucalyptus melanophloia	0.49	x	x	x	x	x	x		
Average	**0.570**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**1**	
Total Species:	2								
GHFF Species:	2								
Important Species:	1								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
T10									
Eucalyptus crebra	0.65	x	x					1	
Corymbia erythrophloia	0.45			x	x		x		
Corymbia tessellaris	0.4			x	x		x		
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Average	**0.533**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**2**	
Total Species:	4								
GHFF Species:	4								
Important Species:	2								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		0
T11									
Nil	0								
Average	**0.000**	**No**	**No**	**No**	**No**	**No**	**No**	**0**	
Total Species:	0								
GHFF Species:	0								
Important Species:	0								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		0
T12									
Nil	0								
Average	**0.000**	**No**	**No**	**No**	**No**	**No**	**No**	**0**	
Total Species:	0								
GHFF Species:	0								
Important Species:	0								

Listed as a Significant Food Tree
Listed under the recovery plan

Assessment Unit - Regional Ecosystem	AU 5 - Regrowth RE12.9-10.7					
Site Reference	Transect 7	Transect 8	Transect 15	Average	AU Score	OUT OF
	Raw Data	Raw Data	Raw Data	Score		(X/X)
Vegetation Condition	10.0	10.0	10.0	10.00	**10**	**20**
Species Richness	2.0	1.0	2.0	1.67	**5**	**20**
Flower Score	0.755	0.650	0.525	0.6433	**8**	**10**
Timing of Biological Shortages	8.5	4	8.5	7.00	**7**	**10**
Quality of Foraging Habitat	2	1	1	1.33	**5**	**20**
Non-native Plant Cover	20.00	35.00	1.00	18.67	**10**	**20**
Site Condition Score					**45**	***X***
MAX Site Condition Score					***100***	***X***
Site Condition Score - out of 4					**1.80**	***X***
Size of patch	10	10	10	**10**	**10**	**10**
Connectedness	3	3	3	**3**	**3**	**10**
Context	3	3	3	**3**	**3**	**10**
Ecological Corridors	6	6	6	**6**	**6**	**10**
Role of site location to species overall population in the state	0	0	0	**0**	**0**	**10**
Threats to the species	10	10	10	**10**	**10**	**10**
Site Context Score					**32**	***X***
MAX Site Context Score					***60***	***X***
Site Context Score - out of 3					**1.60**	***X***
GHFF Foraging Tree Density - Recorded	15	6	33	**18.00**		
GHFF Foraging Tree Density - per hectare	75	30	165	**90.00**	**4**	**10**
Species Stocking Rate Score					***4***	***X***
MAX Species Stocking Rate Score					***10***	***X***
Species Stocking Rate Score - out of 3					**1.20**	***X***
Total					**4.60**	

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		8.5
T7									
Eucalyptus crebra	0.65	x	x					1	
Corymbia intermedia	0.86			x	x		x	1	
Average	**0.755**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**2**	
Total Species:	2								
GHFF Species:	2								
Important Species:	2								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		4
T8									
Eucalyptus crebra	0.65	x	x					1	
Average	**0.650**	**Yes**	**Yes**	**No**	**No**	**No**	**No**	**1**	
Total Species:	1								
GHFF Species:	1								
Important Species:	1								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		8.5
T15									
Eucalyptus crebra	0.65	x	x					1	
Corymbia tessellaris	0.4			x	x		x		
Average	**0.525**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**1**	
Total Species:	2								
GHFF Species:	2								
Important Species:	1								

Listed as a Significant Food Tree
Listed under the recovery plan

Assessment Unit - Regional Ecosystem	AU 6 - Remnant RE12.11.14			
Site Reference	Transect 1	Average	AU Score	OUT OF
	Raw Data	Score		(X/X)
Vegetation Condition	20.0	20.00	**20**	**20**
Species Richness	4.0	4.00	**10**	**20**
Flower Score	0.610	0.61	**8**	**10**
Timing of Biological Shortages	10	10.00	**10**	**10**
Quality of Foraging Habitat	2	2.00	**5**	**20**
Non-native Plant Cover	5.00	5.00	**20**	**20**
Site Condition Score			**73**	***X***
MAX Site Condition Score			***100***	***X***
Site Condition Score - out of 4			**2.92**	***X***
Size of patch	10	**10**	**10**	**10**
Connectedness	3	**3**	**3**	**10**
Context	3	**3**	**3**	**10**
Ecological Corridors	6	**6**	**6**	**10**
Role of site location to species overall population in the state	0	**0**	**0**	**10**
Threats to the species	5	**5**	**5**	**10**
Site Context Score			**27**	***X***
MAX Site Context Score			***60***	***X***
Site Context Score - out of 3			**1.35**	***X***
GHFF Foraging Tree Density - Recorded	95	**95.00**		
GHFF Foraging Tree Density - per hectare	475	**475.00**	**6**	**10**
Species Stocking Rate Score			***6***	***X***
MAX Species Stocking Rate Score			***10***	***X***
Species Stocking Rate Score - out of 3			**1.80**	***X***
Total			**6.07**	

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
T1									
Eucalyptus crebra	0.65	x	x					1	
Corymbia intermedia	0.86			x	x		x	1	
Eucalyptus carnea	0.53		x	x		x	x		
Corymbia tessellaris	0.4			x	x		x		
Average	**0.610**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**2**	
Total Species:	4								
GHFF Species:	4								
Important Species:	2								

Listed as a Significant Food Tree
Listed under the recovery plan

Appendix G: Rehabilitation Management Plan

Avonvale Offset Area

Rehabilitation Management Plan

Springfield Residential Development (EPBC 2019/8575)

DWG NO.	DRAWING TITLE	ISSUE	DATE
9612 E 01 AVONVALE RMP	COVER SHEET	B	10/06/2026
9612 E 02 AVONVALE RMP	INTRODUCTION AND NOTES	B	10/06/2026
9612 E 03 AVONVALE RMP	REHABILITATION ZONES	B	10/06/2026
9612 E 04 AVONVALE RMP	DETAIL SHEET	B	10/06/2026
9612 E 05-09 AVONVALE RMP	PLANTING SPECIES SCHEDULES	B	10/06/2026
9612 E 10 AVONVALE RMP	SITE PREPARATION	B	10/06/2026
9612 E 11 AVONVALE RMP	PLANTING NOTES	B	10/06/2026
9612 E 12 AVONVALE RMP	MAINTENANCE AND MONITORING	B	10/06/2026
9612 E A01 AVONVALE RMP	APPENDIX 1. WEED TREATMENT AND REMOVAL	A	1/12/2025

Saunders Havill

PATHWAYS TO SUCCESS

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Introduction and Notes*

Introduction

This Avonvale Rehabilitation Management Plan (Avonvale RMP) has been prepared by Saunders Havill (SH) for Cherish Enterprises and forms part of the Avonvale Offset Area Management Plan (OAMP) for the Springfield Residential Development (EPBC 2019/8575).

The Avonvale Offset Area forms part of the Avonvale Station Offset Property located at Littles Road, Ivory Creek, Queensland within the Somerset Regional Council Local Government Area (LGA). The offset property includes a combination of approved and proposed offset areas for Matters of National Environmental Significance.

The primary objective of this RMP is to provide a detailed guide for the creation of resilient, fully-functioning vegetation communities that achieve the Environmental Outcomes proposed under the OAMP. Vegetation communities are to be rehabilitated in accordance with the composition and structure of the delineated Regional Ecosystems within each Environmental Management Zone to support the koala, grey-headed flying-fox, regent honeyeater and swift parrot.

This RMP is to function as a guide and reference document for the proposed rehabilitation techniques, planting palettes and monitoring program proposed for the EPBC 2019/8575 offset area.

This document should be read in conjunction with the Avonvale Offset Area Management Plan for EPBC 2019/8575.

BACKGROUND

The Avonvale Station offset property is located at Littles Road, Ivory Creek. The Avonvale Station offset property is located approximately 5.8 km west of the township of Toogoolawah within the Somerset Regional Council LGA. The offset area associated with this property is located 84.3 km south-west of the Springfield Residential Development project area, where MNES habitat impacts are proposed. The offset area is 168 ha in size comprising predominantly cleared or degraded grazing land and is located over all or part of the following land parcels:

- Lot 2 on SP330365
- Lot 3 on SP327519
- Lot 1 on RP75222
- Lot 98 on CA31786
- Lot 61 on CA31716

The offset area contains multiple constructed farm dams which will be retained and utilised as part of the management of the offset.

Vegetation

The Avonvale offset area is mapped as containing multiple regional ecosystems and land zones including RE12.11.14, RE12.3.3, RE12.3.7 and RE12.9-10.7 with vegetation structure varying from open paddock to sparse regrowth and remnant.

RE12.11.14 is described as: Eucalyptus crebra, E. tereticornis, Corymbia intermedia grassy woodland. Other species including Eucalyptus melanophloia, Corymbia clarksoniana, C. erythrophloia, C. tessellaris, E. siderophloia, Angophora spp. May be present in low densities or in patches. Mid-layer generally sparse but can include low trees such as Vachellia bidwillii, Capparis spp., Dodonaea triquetra, Alphitonia excelsa and Xanthorrhoea spp. Occurs on mid and lower slopes on Palaeozoic and older moderately to strongly deformed and metamorphosed sediments and interbedded volcanics. Not a Wetland. (BVG1M: 13c).

RE12.3.3 is described as: Narrow fringing woodland of Eucalyptus tereticornis, Casuarina cunninghamiana subsp. cunninghamiana +/- Melaleuca viminalis. Other species associated with this RE include Melaleuca bracteata, M. trichostachya, M. linariifolia. North of Brisbane Waterhousea floribunda commonly occurs and may at times dominate this RE. Melaleuca fluviatilis occurs in this RE in the north of the bioregion. Lomandra hystrix often present in stream beds. Occurs on fringing levees and banks of rivers and drainage lines of alluvial plains throughout the region. Riverine. (BVG1M: 16a).

RE12.3.7 is described as: Narrow fringing woodland of Eucalyptus tereticornis, Casuarina cunninghamiana subsp. cunninghamiana +/- Melaleuca viminalis. Other species associated with this RE include Melaleuca bracteata, M. trichostachya, M. linariifolia. North of Brisbane Waterhousea floribunda commonly occurs and may at times dominate this RE. Melaleuca fluviatilis occurs in this RE in the north of the bioregion. Lomandra hystrix often present in stream beds. Occurs on fringing levees and banks of rivers and drainage lines of alluvial plains throughout the region. Riverine. (BVG1M: 16a).

RE12.9-10.7 is described as: Eucalyptus crebra +/- E. tereticornis, Corymbia tessellaris, Angophora leiocarpa, E. melanophloia woodland. Occurs on Cainozoic and Mesozoic sediments. Not a Wetland. (BVG1M: 13c).

Planting species the above regional ecosystems is proposed as part of the overall planting outcome with the dominant regional ecosystem as defined by Environmental Management Zones.

The majority of the offset area has been cleared for grazing with areas of sparse regrowth and remnant vegetation located in patches within the offset area.

Soils

The Atlas of Australia soils map the site as predominantly comprising Sodosols, Kurosols and Rudosols as defined by the Australian Soils Classification (ASC).

Sodosols are texture-contrast soils with impermeable subsoils due to the concentration of sodium. These soils occupy a large area of inland Queensland. Generally, Sodosols have a low-nutrient status and are very vulnerable to erosion and dryland salinity when vegetation is removed.

Rudosols generally have a low fertility and low water-holding capacity. These are often shallow, stony soils with little more than some minor organic matter accumulation on the surface and weathered parent material.

Kurosols are texture-contrast soils. They are strongly acid (pH below 5.5). Kurosols occur along the coast, mainly in southern Queensland.

REHABILITATION – APPROACHES

Rehabilitation or "Ecological Restoration" can be described as "the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed" (source: Society for Ecological Restoration International). The following four ecological restoration approaches are listed under the SEQERF guidelines and are described in further detail on Sheet 03.

Ecological Restoration Approaches	
Natural Regeneration	
Applies:	To relatively large, intact and weed-free areas of native vegetation. Where native plants are healthy and capable of regenerating without human intervention. When native plant seed is stored in the soil or will be able to reach the site from nearby natural areas, by birds or other animals, wind or water. Where the plant community has a high potential for recovery after any short-live disturbance such as a fire or cyclonic winds. When preventative action is all that is required to avert on-going disturbances e.g. erection of fencing to prevent intrusion by cattle.
Role of planting:	Planting in such areas can work against the aims of restoration by interfering with natural regeneration.
Goal vegetation community:	The re-establishing plant community will be similar in structure, composition and diversity to the original vegetation.
Assisted Natural Regeneration	
Applies:	To natural areas where the native plant community is largely healthy and functioning. When native plant seed is still stored in the soil or will be able to reach the site from nearby natural areas, by birds or other animals, wind or water. Where the natural regeneration processes (seedling germination, root suckering, etc.) are being inhibited by external factors, such as weed invasion, soil compaction, cattle grazing, mechanical slashing, etc. When limited human intervention, such as weed control, minor amelioration of soil conditions, erection of fencing, cessation of slashing, etc. will be enough to trigger the recovery processes through natural regeneration. When the main management issue is weed infestation and/or current land use practices.
Role of planting:	Planting in such areas can work against the aims of restoration by interfering with natural regeneration except where species cannot return to site without direct intervention.
Goal vegetation community:	The re-establishing plant community will be substantially similar in structure, composition and diversity to the original vegetation.
Reconstruction	
Applies:	Where the site is highly degraded or altered. When the degree of disturbance has been so great and long-standing that the pre-existing native plant community cannot recover by natural means. To sites such as areas of fill, sites affected by stormwater flow, areas that have been drastically cleared, even though there may be a few remaining native trees or shrubs. When a greater degree of human intervention is required, such as weed control, cessation of grazing and/or slashing, amelioration of soil conditions such as importation of soils, drainage works or re-shaping of the landscape.
Role of planting:	Importation of native species to the area is required, either through planting or direct seeding (in some situations). natural regeneration and recruitment is insufficient to initially re-establish the original vegetation. Depending on the prevailing circumstances, the planting of a broad diversity of species from the target ecosystem may be unnecessary and the use of pioneers may be sufficient to re-establish ecological processes.
Goal vegetation community:	The re-establishing planted community should be similar to the original vegetation in structure, composition and diversity.
Fabrication (Type Conversion)	
Applies:	Where site conditions have been irreversibly changed. When it is not possible to restore the original native plant community. Where a better-adapted local plant community can be planted that will function within the changed conditions. In situations such as the construction of a wetland plant community to mitigate increased urban storm-water run-off.
Role of planting:	Revegetation (planting) is the major component in a fabrication program.
Goal vegetation community:	The re-establishing planted community should be similar to a naturally occurring plant community of the same type (e.g. a constructed freshwater wetland should resemble a natural system in terms of structure, composition and diversity).

Adapted from Gold Coast Council's 'Guideline for the preparation of a Rehabilitation Plan'

REHABILITATION - METHODOLOGY

Detailed assessment of site conditions prior to commencement of documentation is essential. As part of most rehabilitation scopes, it is worth considering an appropriate methodology for both compiling documentation and site works. This can be broken down into the following items:

- Site assessment
- Rehabilitation Design Documentation (this plan)
- Site Works
- Maintenance and monitoring

METHODOLOGY – SITE ASSESSMENT

Detailed assessment of site conditions prior to commencement of documentation is essential in the establishment of a site-specific ecological restoration methodology. In accordance with the SEQERF. The following checklist has formed part of the site assessment process and is detailed in the OAMP:

- Describe the history and background of the site
- Describe the soil, drainage, topography and aspect
- Describe the native vegetation on the site and along site boundaries
- Describe the weeds on site
- Describe the vegetation dispersal and structure
- Describe the fauna use onsite
- Describe estimated native regeneration response.

The responses to the above checklist provides the basis of the proposed restoration approach primarily using reconstruction with elements of assisted natural regeneration for each management zone within this RMP.

Consideration should be made in the importance of integrating site-specific measures for fauna habitat and movement. With many fauna species having specific habitat requirements, foraging patterns and movement patterns. During the site assessment process, the following provisions should be taken into consideration:

- Fauna movement opportunities via easements, tracts, utility corridors and or infrastructure pathways;
- Diversity and type of fauna and distribution on site;
- Habitat opportunities e.g. Dense foliage, roosting areas, log hollows and potential nesting boxes;
- Fauna disturbance and vicinity of works to significant nesting areas and or fauna movement;
- Distribution of significant specialized food resources e.g. Koala trees; and
- Stage weed removal and or altering of weed control technique if the weeds are currently forming a significant fauna habitat.

For the sake of keeping this plan concise, site analysis results are compiled under a separate template, and may or may not be included in this set, however the analysis outcomes derive the Rehabilitation design methodology.

METHODOLOGY – REHABILITATION DESIGN

This documentation has been compiled through processes outlined in the SEQERF, site analysis and previous rehabilitation project experiences. The rehabilitation design—comprising distinct management zones—provides assessment managers, clients and contractors a clear methodology to assist the recovery of an ecosystem(s) that has been degraded, damaged or destroyed. Rehabilitation zones were identified through detailed site analysis and are described on *Sheet 03.*

REHABILITATION TIMELINE

Specific timeframes for rehabilitation are described within the following sections of this RMP. The following timeframes for each phase of rehabilitation is recommended. It is noted timeframes may be subject to change depending on climate and site conditions. Where timeframes are required to change, the proposed schedule will be updated accordingly. Timing is taken from the legal securement of the offset area.

- Source and propagate seed – Years 1-2
- Site preparation (initial weed treatment, soil cultivation, controlled burns) – Years 1-2
- Broadscale planting works – Years 2-3
- Maintenance (watering, follow-up weed works) – Years 2-5 with potential to extend to Year 7 (minimum of 2-5 years for establishment)

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER
DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:
South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
B	10/06/2026	OE boundary update	TC	AW

CLIENT
Cherish Enterprises

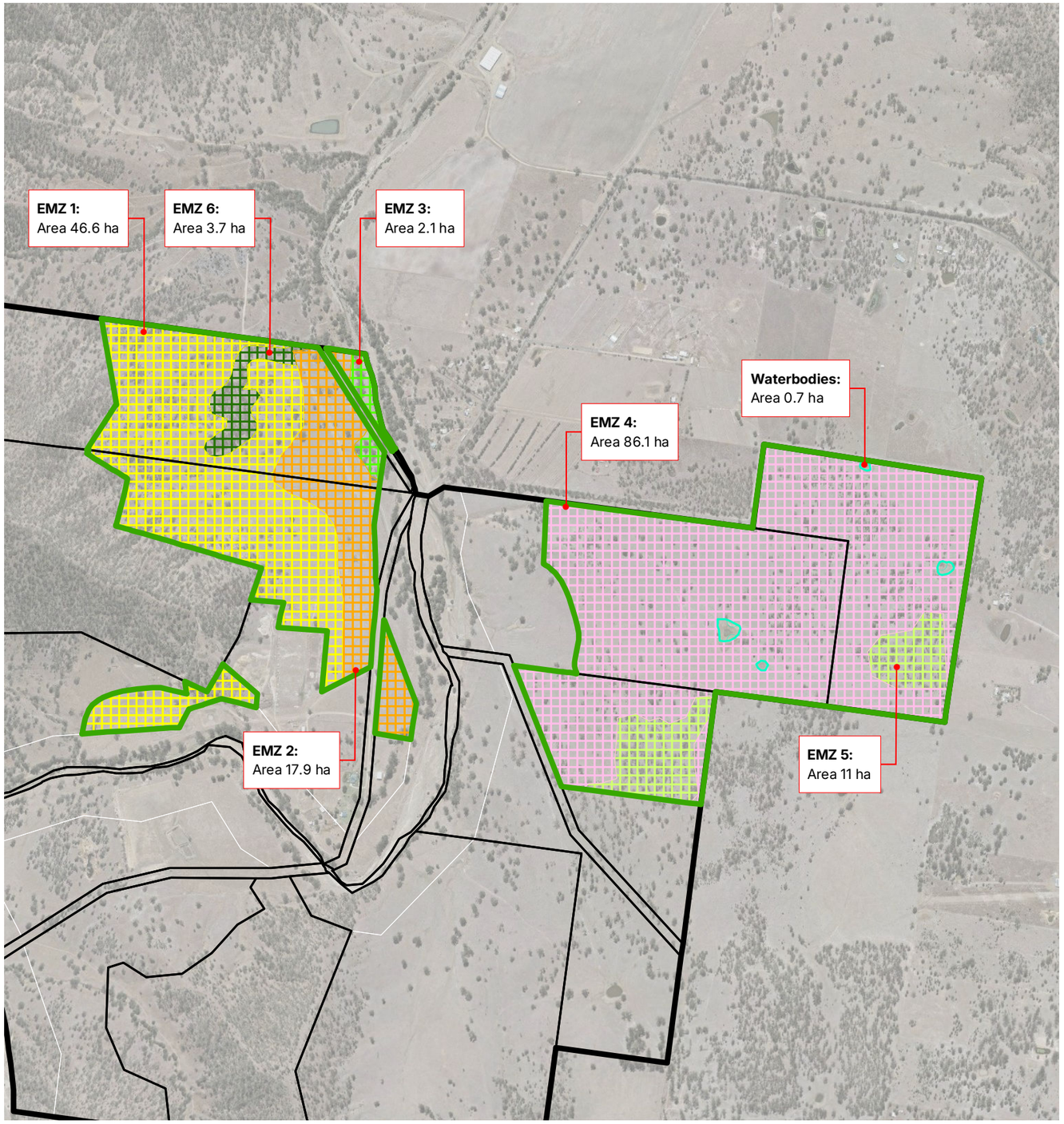
PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 02 AVONVALE RMP B

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Rehabilitation Zones*



ENVIRONMENTAL MANAGEMENT ZONES LEGEND

Environmental Management Zones 1, 2 and 4 – Non-remnant Paddock RE 12.11.14, 12.3.3 and 12.9-10.7 (Reconstruction)

Existing native trees, shrubs and groundcovers to be protected and retained where possible.

Appropriate (sensitive) weed management methodology within this zone to encourage natural regeneration, minimise damage to existing native vegetation, stabilise soil and minimise impacts to aquatic / semi-aquatic fauna.

Entire zone to be planted with trees following weed management works at densities appropriate for providing foraging habitat for koala, grey-headed flying-fox, regent honeyeater and swift parrot. Any planting on creek bank to comply with 'Categories of channel vegetation' figure on Sheet 10. Species to be of local provenance and consistent with native species occurring naturally on site and/or mapped regional ecosystem.

Refer to Rehabilitation Notes for additional details, plant species and densities.

Environmental Management Zone 3 – Remnant RE 12.3.7 (Assisted Natural Regeneration with Infill Planting)

Existing native trees, shrubs and groundcovers to be protected and retained where possible.

Appropriate (sensitive) weed management methodology within this zone to encourage natural regeneration, minimise damage to existing native vegetation, stabilise soil and minimise impacts to aquatic / semi-aquatic fauna.

Infill planting in cleared patches to be planted with trees throughout at a rate of 1 per 1000 m^2, and trees installed at locations >3m from existing tree trunks. Infill planting is to occur utilising seedling trees where required to supplement density of foraging tree species for koala, grey-headed flying-fox, regent honeyeater and swift parrot. Species to be of local provenance and consistent with native species occurring naturally on site and/or regional ecosystems 12.3.7.

Refer to Rehabilitation Notes for additional details, plant species and densities.

Environmental Management Zone 5 – Sparse to Dense Regrowth RE 12.9-10.7 (Assisted Natural Regeneration with Infill Planting)

Existing native trees, shrubs and groundcovers to be protected and retained where possible.

Appropriate (sensitive) weed management methodology within this zone to encourage natural regeneration, minimise damage to existing native vegetation, stabilise soil and minimise impacts to aquatic / semi-aquatic fauna.

All rehabilitation works within creek riparian zone to adhere to Natural Channel Design guidelines. Weed management to comprise hand/manual removal techniques near waterway, or in lead up to rainfall to minimise harm to broader estuarine environment. Ongoing weed management throughout the maintenance period to reinforce primary weed removal. Any planting on creek bank to comply with 'Categories of channel vegetation' figure on Sheet 10.

Infill planting in cleared patches to be planted with trees throughout at a rate of 1 per 10 m^2, and trees installed at locations >3m from existing tree trunks. Infill planting is to occur utilising seedling trees where required to supplement density of foraging tree species for koala, grey-headed flying-fox, regent honeyeater and swift parrot. Species to be of local provenance and consistent with native species occurring naturally on site and/or regional ecosystems 12.9-10.7.

Refer to Rehabilitation Notes for additional details, plant species and densities.

Environmental Management Zone 6 – Remnant RE 12.11.14 (Assisted Natural Regeneration with Infill Planting)

Existing native trees, shrubs and groundcovers to be protected and retained where possible.

Infill planting in cleared patches to be planted with trees throughout at a rate of 1 per 1000 m^2, and trees installed at locations >3m from existing tree trunks. Infill planting is to occur utilising seedling trees where required to supplement density of foraging tree species for koala, grey-headed flying-fox, regent honeyeater and swift parrot. Species to be of local provenance and consistent with native species occurring naturally on site and/or regional ecosystems 12.11.14.

Refer to Rehabilitation Notes for additional details, plant species and densities.

Waterbodies

No rehabilitation measures are proposed within this zone.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

N

SCALE (A3)
1:15,000

Service Layer Credits: Includes material © State of Queensland (Department of Resources); © Planet Labs Netherlands B.V. reproduced under licence from Planet and Geoplex, all rights reserved, 2025.

0 50 100 200 300 400 500 m

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
B	10/06/2026	OE boundary update	TC	AW

CLIENT
Cherish Enterprises

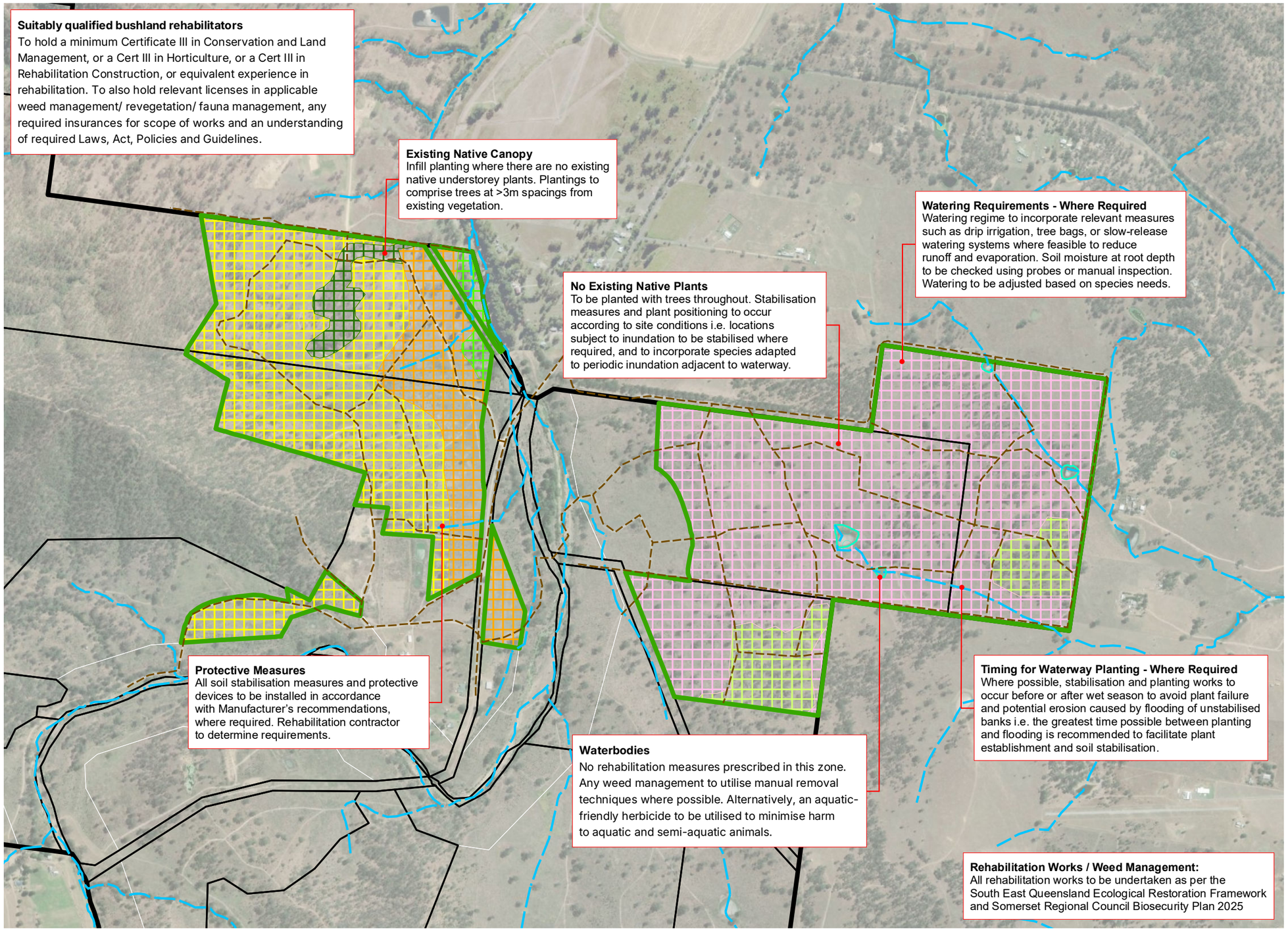
PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 03 AVONVALE RMP B

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Detail Sheet*



LEGEND

- Mapped Fisheries Waterways
- Access Tracks (indicative - to be maintained)
- Avonvale Station
- Avonvale Offset Area [168 ha]
- Waterbodies [0.7 ha]

Environmental Management Zones

- **Environmental Management Zone 1:** Non-remnant Paddock RE12.11.14 (Reconstruction) [46.6 ha]
- **Environmental Management Zone 2:** Non-remnant Paddock RE12.3.3 (Reconstruction) [17.9 ha]
- **Environmental Management Zone 3:** Remnant Vegetation RE12.3.7 (Assisted Natural Regeneration with Infill Planting) [2.1 ha]
- **Environmental Management Zone 4:** Non-remnant Paddock RE12.9-10.7 (Reconstruction) [86.1 ha]
- **Environmental Management Zone 5:** Sparse Regrowth RE12.9-10.7 (Assisted Natural Regeneration with Infill Planting) [11 ha]
- **Environmental Management Zone 6:** Remnant Vegetation RE12.11.14 (Assisted Natural Regeneration with Infill Planting) [3.7 ha]

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER
DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

N

SCALE (A3)
1:12,000

Service Layer Credits: Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community

0 50 100 200 300 400 m

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
B	10/06/2026	OE boundary update	TC	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 04 AVONVALE RMP B

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Planting Species Schedule (i)*

FINAL SPECIES PALETTE TO COMPRISE MAXIMUM DIVERSITY OF SPECIES FROM SCHEDULES. TO BE APPROVED BY ENVIRONMENTAL COORDINATOR.

NOTES

- Final species palette to comprise maximum diversity of species from schedules.
- Area calculations are a maximum calculation for use as needed.
- Final on-ground planting numbers and densities may be subject to change based on planting requirements and seed stock availability except for densities and volumes prescribed for swift parrot and regent honeyeater foraging species.

Environmental Management Zone 1 – Non-remnant Paddock RE 12.11.14(Reconstruction)

Notes:

1) Trees 1 to be planted at a density of 1 tree per 10 m^2.
2) Setback trees 3 metres minimum from all property boundaries and services
3) Distribute plants in groups on site in random arrangement - to be confirmed with super-intendent on site
4) Plant species according to tolerances and site conditions
5) Plant quantities to be confirmed by rehabilitation supervisor according to site conditions. Unsuitable or unavailable species to be substituted with other species from this schedule.
6) Species consistent with RE 12.11.14 technical description.

SCIENTIFIC NAME	COMMON NAME	HABITAT VALUE	PLANT FORM	POT SIZE	PLANTING DENSITY	PERCENTAGE	QUANTITY
T1 / TREES							
*Eucalyptus tereticornis subsp. tereticornis**	Forest Red Gum	SP preferred Koala GHFF	Tree to 50 m	Tube	1 per 10 m^2	10%	4660
*Eucalyptus sideroxylon**	Mugga Ironbark	SP preferred RHE preferred Koala GHFF	Tree to 35 m	Tube	1 per 10 m^2	15%	6990
Eucalyptus crebra	Narrow-leaved Ironbark	Koala GHFF	Tree to 35 m	Tube	1 per 10 m^2	15%	6990
Eucalyptus acmenoides	White Mahogany	Koala GHFF	Tree to 30 m	Tube	1 per 10 m^2	10%	4660
Eucalyptus siderophloia	Grey Ironbark	Koala GHFF	Tree to 20 m	Tube	1 per 10 m^2	5%	2330
Angophora subvelutina	Broad-leaved Apple	Koala GHFF	Tree to 20 m	Tube	1 per 10 m^2	5%	2330
Corymbia intermedia	Pink Bloodwood	Koala GHFF	Tree to 35 m	Tube	1 per 10 m^2	5%	2330
Eucalyptus propinqua	Grey Gum	Koala GHFF	Tree to 40 m	Tube	1 per 10 m^2	5%	2330
Corymbia tessellaris	Moreton Bay Ash	Koala GHFF	Tree to 35 m	Tube	1 per 10 m^2	5%	2330
Lophostemon confertus	Brush Box	Koala GHFF	Tree to 10 or 20 m	Tube	1 per 10 m^2	5%	2330
Allocasuarina torulosa	Forest Oak	N/A Pioneer	Shrub or small tree	Tube	1 per 10 m^2	10%	4660
Acacia concurrens	Black Wattle	N/A Pioneer	Shrub or small tree	Tube	1 per 10 m^2	5%	2330
Acacia disparrima	Hickory Wattle	N/A Pioneer	Shrub or small tree	Tube	1 per 10 m^2	5%	2330
						TOTAL	**46,600**

*Planting percentages required at prescribed rate to fulfil offset planting requirements for Swift Parrot and Regent Honeyeater.

RE 12.11.14 GROUNDCOVERS (Indicative – as required)					
Imperata cylindrica	Blady Grass	N/A Other	Grass	Tube or seed	As required
Themeda triandra	Kangaroo Grass	N/A Other	Grass	Tube or seed	As required
Eremochloa bimaculata	Poverty Grass	N/A Other	Grass	Tube or seed	As required
Cymbopogon refractus	Barbed Wire Grass	N/A Other	Grass	Tube or seed	As required
Heteropogon contortus	Black Speargrass	N/A Other	Grass	Tube or seed	As required
Dichanthium sericeum	Queensland Bluegrass	N/A Other	Grass	Tube or seed	As required
Eragrostis brownii	Browns Lovegrass	N/A Other	Grass	Tube or seed	As required
Sarga leiocladum	Wild Sorghum	N/A Other	Grass	Tube or seed	As required
Panicum effusum	Hairy Panic	N/A Other	Grass	Tube or seed	As required
Aristida vagans	Threeawn Speargrass	N/A Other	Grass	Tube or seed	As required
Oplismenus aemulus	Australian Basket Grass	N/A Other	Grass	Tube or seed	As required
Gahnia aspera	Saw Sedge	N/A Other	Sedge	Tube or seed	As required
Lepidosperma laterale	Variable Swordsedge	N/A Other	Sedge	Tube or seed	As required
Lomandra multiflora	Many-flowered Mat-rush	N/A Other	Sedge	Tube or seed	As required
Lomandra longifolia	Spiny-headed Mat-rush	N/A Other	Sedge	Tube or seed	As required
Dianella caerulea	Blue Flax-lily	N/A Other	Herb	Tube or seed	As required
Eremophila debilis	Winter Apple	N/A Other	Prostrate shrub	Tube or seed	As required
Hardenbergia violacea	False Sarsparilla	N/A Other	Prostrate shrub	Tube or seed	As required
Eustrephus latifolius	Wombat Berry	N/A Other	Vine	Tube or seed	As required
Chrysocephalum apiculatum	Yellow Buttons	N/A Other	Herb	Tube or seed	As required
Glycine clandestina	Twining Glycine	N/A Other	Scrambling vine	Tube or seed	As required
Murdannia graminea	Grass Lily	N/A Other	Herb	Tube or seed	As required
Cheilanthes sieberi	Bristle Cloak Fern	N/A Other	Herb	Tube or seed	As required

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER
DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:
South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
B	10/06/2026	OE boundary update	TC	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 05 AVONVALE RMP B

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Planting Species Schedule (ii)*

FINAL SPECIES PALETTE TO COMPRISE MAXIMUM DIVERSITY OF SPECIES FROM SCHEDULES. TO BE APPROVED BY ENVIRONMENTAL COORDINATOR.

NOTES

- Final species palette to comprise maximum diversity of species from schedules.
- Area calculations are a maximum calculation for use as needed.
- Final on-ground planting numbers and densities may be subject to change based on planting requirements and seed stock availability except for densities and volumes prescribed for swift parrot and regent honeyeater foraging species.

Environmental Management Zone 2 – Non-remnant Paddock RE 12.3.3 (Reconstruction)

Notes:

1) Trees 1 to be planted at a density of 1 tree per 10 m^2.
2) Setback trees 3 metres minimum from all property boundaries and services
3) Distribute plants in groups on site in random arrangement - to be confirmed with super-intendent on site
4) Plant species according to tolerances and site conditions
5) Plant quantities to be confirmed by rehabilitation supervisor according to site conditions. Unsuitable or unavailable species to be substituted with other species from this schedule.
6) Species consistent with RE 12.3.3 technical description.

SCIENTIFIC NAME	COMMON NAME	HABITAT VALUE	PLANT FORM	POT SIZE	PLANTING DENSITY	PERCENTAGE	QUANTITY
T1 / TREES							
*Eucalyptus tereticornis subsp. tereticornis**	Forest Red Gum	**SP preferred** Koala GHFF	Tree to 50 m	Tube	1 per 10 m^2	50%	8950
Eucalyptus crebra	Narrow-leaved Ironbark	Koala GHFF	Tree to 35 m	Tube	1 per 10 m^2	10%	1790
Corymbia clarksoniana	Clarkson's Bloodwood	Koala GHFF	Tree to 15 m	Tube	1 per 10 m^2	5%	895
Angophora leiocarpa	Smooth-barked Apple	Koala GHFF	Tree to 25 m	Tube	1 per 10 m^2	5%	895
Angophora subvelutina	Broad-leaved Apple	Koala GHFF	Tree to 20 m	Tube	1 per 10 m^2	5%	895
Corymbia intermedia	Pink Bloodwood	Koala GHFF	Tree to 35 m	Tube	1 per 10 m^2	5%	895
Corymbia tessellaris	Moreton Bay Ash	Koala GHFF	Tree to 35 m	Tube	1 per 10 m^2	3%	537
Lophostemon suaveolens	Swamp Box	Koala GHFF	Tree to 25 m	Tube	1 per 10 m^2	2%	358
Allocasuarina leuhmannii	Bull-oak	N/A Pioneer	Shrub or small tree	Tube	1 per 10 m^2	5%	895
Acacia concurrens	Black Wattle	N/A Pioneer	Shrub or small tree	Tube	1 per 10 m^2	5%	895
Acacia maidenii	Maiden's Wattle	N/A Pioneer	Shrub or small tree	Tube	1 per 10 m^2	5%	895
						TOTAL	**17,900**

*Planting percentages required at prescribed rate to fulfil offset planting requirements for Swift Parrot and Regent Honeyeater.

RE 12.3.3 GROUNDCOVERS (Indicative – as required)					
Imperata cylindrica	Blady Grass	N/A Other	Grass	Tube or seed	As required
Themeda triandra	Kangaroo Grass	N/A Other	Grass	Tube or seed	As required
Eremochloa bimaculata	Poverty Grass	N/A Other	Grass	Tube or seed	As required
Cymbopogon refractus	Barbed Wire Grass	N/A Other	Grass	Tube or seed	As required
Heteropogon contortus	Black Speargrass	N/A Other	Grass	Tube or seed	As required
Poa sieberiana var. sieberiana	Blue Tussock Grass	N/A Other	Grass	Tube or seed	As required
Dichanthium sericeum	Queensland bluegrass	N/A Other	Grass	Tube or seed	As required
Eragrostis brownii	Browns Lovegrass	N/A Other	Grass	Tube or seed	As required
Sarga leiocladum	Wild Sorghum	N/A Other	Grass	Tube or seed	As required
Panicum effusum	Hairy Panic	N/A Other	Grass	Tube or seed	As required
Aristida vagans	Threeawn Speargrass	N/A Other	Grass	Tube or seed	As required
Oplismenus aemulus	Australian Basket Grass	N/A Other	Grass	Tube or seed	As required
Gahnia aspera	Saw Sedge	N/A Other	Sedge	Tube or seed	As required
Lepidosperma laterale	Variable Swordsedge	N/A Other	Sedge	Tube or seed	As required
Lomandra longifolia	Spiny-headed Mat-rush	N/A Other	Sedge	Tube or seed	As required
Dianella caerulea	Blue Flax-lily	N/A Other	Herb	Tube or seed	As required
Eremophila debilis	Winter Apple	N/A Other	Prostrate shrub	Tube or seed	As required
Hardenbergia violacea	False Sarsparilla	N/A Other	Prostrate shrub	Tube or seed	As required
Eustrephus latifolius	Wombat Berry	N/A Other	Vine	Tube or seed	As required
Chrysocephalum apiculatum	Yellow Buttons	N/A Other	Herb	Tube or seed	As required
Glycine clandestina	Twining Glycine	N/A Other	Scrambling vine	Tube or seed	As required
Murdannia graminea	Grass Lily	N/A Other	Herb	Tube or seed	As required

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER
DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:
South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
B	10/06/2026	OE boundary update	TC	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 06 AVONVALE RMP B

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Planting Species Schedule (iii)*

FINAL SPECIES PALETTE TO COMPRISE MAXIMUM DIVERSITY OF SPECIES FROM SCHEDULES. TO BE APPROVED BY ENVIRONMENTAL COORDINATOR.

NOTES

- Final species palette to comprise maximum diversity of species from schedules.
- Area calculations are a maximum calculation for use as needed.
- Final on-ground planting numbers and densities may be subject to change based on planting requirements and seed stock availability except for densities and volumes prescribed for swift parrot and regent honeyeater foraging species.

Environmental Management Zone 3 – Remnant Paddock RE 12.3.7 (Assisted Natural Regeneration with Infill Planting)

Notes:
1) Trees 1 to be planted at a density of 1 tree per 1000 m².
2) Setback trees 3 metres minimum from all property boundaries and services
3) Distribute plants in groups on site in random arrangement - to be confirmed with super-intendent on site
4) Plant species according to tolerances and site conditions
5) Plant quantities to be confirmed by rehabilitation supervisor according to site conditions. Unsuitable or unavailable species to be substituted with other species from this schedule.
6) Species consistent with RE 12.3.7 technical description.

SCIENTIFIC NAME	COMMON NAME	HABITAT VALUE	PLANT FORM	POT SIZE	PLANTING DENSITY	PERCENTAGE	QUANTITY
T1 / TREES							
*Eucalyptus tereticornis subsp. tereticornis**	Forest Red Gum	**SP preferred** Koala GHFF	Tree to 50 m	Tube	1 per 1000 m²	25%	7
Casuarina cunninghamiana	River She-oak	N/A Pioneer	Tree to 35 m	Tube	1 per 1000 m²	20%	6
Eucalyptus siderophloia	Grey Ironbark	Koala GHFF	Tree to 20 m	Tube	1 per 1000 m²	10%	3
Angophora subvelutina	Broad-leaved Apple	Koala GHFF	Tree to 20 m	Tube	1 per 1000 m²	15%	4
Corymbia intermedia	Pink Bloodwood	Koala GHFF	Tree to 35 m	Tube	1 per 1000 m²	10%	3
Corymbia tessellaris	Moreton Bay Ash	Koala GHFF	Tree to 35 m	Tube	1 per 1000 m²	10%	3
Lophostemon suaveolens	Swamp Box	Koala GHFF	Tree to 10 to 25 m	Tube	1 per 1000 m²	5%	3
Melaleuca viminalis	Creek Bottlebrush	Koala GHFF	Shrub or small tree	Tube	1 per 1000 m²	5%	2
						TOTAL	**31**
RE 12.3.7 GROUNDCOVERS (Indicative – as required)							
Lomandra hystrix	Creek Mat-rush	N/A Other	Forb	Tube or seed	As required		
Bothriochloa decipiens var. decipiens	Red Grass	N/A Other	Grass	Tube or seed	As required		
Themeda triandra	Kangaroo Grass	N/A Other	Grass	Tube or seed	As required		
Oplismenus aemulus	Australian Basket Grass	N/A Other	Grass	Tube or seed	As required		
Cyperus gracilis	Slender Sedge	N/A Other	Forb	Tube or seed	As required		
Aristida vagans	Threeawn Speargrass	N/A Other	Grass	Tube or seed	As required		
Heteropogon contortus	Black Speargrass	N/A Other	Grass	Tube or seed	As required		
Glycine clandestina	Twining Glycine	N/A Other	Forb	Tube or seed	As required		
Lomandra longifolia	Spiny-headed Mat-rush	N/A Other	Forb	Tube or seed	As required		
Eustrephus latifolius	Wombat Berry	N/A Other	Forb	Tube or seed	As required		
Parsonsia straminea	Monkey Rope	N/A Other	Forb	Tube or seed	As required		

*Planting percentages required at prescribed rate to fulfil offset planting requirements for Swift Parrot and Regent Honeyeater.

Notes:
1) Trees 1 to be planted at a density of 1 tree per 10 m².
2) Setback trees 3 metres minimum from all property boundaries and services
3) Distribute plants in groups on site in random arrangement - to be confirmed with super-intendent on site
4) Plant species according to tolerances and site conditions
5) Plant quantities to be confirmed by rehabilitation supervisor according to site conditions. Unsuitable or unavailable species to be substituted with other species from this schedule.
6) Species consistent with RE 12.9-10.7 technical description.

SCIENTIFIC NAME	COMMON NAME	HABITAT VALUE	PLANT FORM	POT SIZE	PLANTING DENSITY	PERCENTAGE	QUANTITY
T1 / TREES							
*Eucalyptus tereticornis subsp. tereticornis**	Forest Red Gum	**SP preferred** Koala GHFF	Tree to 50 m	Tube	1 per 10 m²	15%	12915
Eucalyptus crebra	Narrow-leaved Ironbark	Koala GHFF	Tree to 35 m	Tube	1 per 10 m²	20%	17220
Eucalyptus siderophloia	Grey Ironbark	Koala GHFF	Tree to 20 m	Tube	1 per 10 m²	10%	8610
Angophora leiocarpa	Smooth-barked Apple	Koala GHFF	Tree to 25 m	Tube	1 per 10 m²	15%	12915
Corymbia intermedia	Pink Bloodwood	Koala GHFF	Tree to 35 m	Tube	1 per 10 m²	15%	12915
Corymbia tessellaris	Moreton Bay Ash	Koala GHFF	Tree to 35 m	Tube	1 per 10 m²	5%	4305
Eucalyptus melanophloia	Silver-leaved Ironbark	Koala GHFF	Tree to 20 m	Tube	1 per 10 m²	5%	4305
Acacia disparrima	Hickory Wattle	N/A Pioneer	Shrub or small tree	Tube	1 per 10 m²	5%	4305
Acacia leiocalyx	Early Flowering Black Wattle	N/A Pioneer	Shrub or small tree	Tube	1 per 10 m²	5%	4305
Alphitonia excelsa	Soap Tree	N/A Pioneer	Tree to 15 m	Tube	1 per 50 m²	5%	4305
						TOTAL	**86,100**

*Planting percentages required at prescribed rate to fulfil offset planting requirements for Swift Parrot and Regent Honeyeater.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER
DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:
South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
B	10/06/2026	OE boundary update	TC	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 07 AVONVALE RMP B

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Planting Species Schedule (iv)*

FINAL SPECIES PALETTE TO COMPRISE MAXIMUM DIVERSITY OF SPECIES FROM SCHEDULES. TO BE APPROVED BY ENVIRONMENTAL COORDINATOR.

NOTES

- Final species palette to comprise maximum diversity of species from schedules.
- Area calculations are a maximum calculation for use as needed.
- Final on-ground planting numbers and densities may be subject to change based on planting requirements and seed stock availability except for densities and volumes prescribed for swift parrot and regent honeyeater foraging species.

Environmental Management Zone 5 – Sparse Regrowth RE 12.9-10.7 (Assisted Natural Regeneration with Infill Planting)

Notes:

1) Trees 1 to be planted at a density of 1 tree per 50 m^2.
2) Setback trees 3 metres minimum from all property boundaries and services
3) Distribute plants in groups on site in random arrangement - to be confirmed with super-intendent on site
4) Plant species according to tolerances and site conditions
5) Plant quantities to be confirmed by rehabilitation supervisor according to site conditions. Unsuitable or unavailable species to be substituted with other species from this schedule.
6) Species consistent with RE 12.9-10.7 technical description.

SCIENTIFIC NAME	COMMON NAME	HABITAT VALUE	PLANT FORM	POT SIZE	PLANTING DENSITY	PERCENTAGE	QUANTITY
T1 / TREES							
*Eucalyptus tereticornis subsp. tereticornis**	Forest Red Gum	**SP preferred** Koala GHFF	Tree to 50 m	Tube	1 per 50 m^2	15%	330
Eucalyptus crebra	Narrow-leaved Ironbark	Koala GHFF	Tree to 35 m	Tube	1 per 50 m^2	20%	440
Eucalyptus siderophloia	Grey Ironbark	Koala GHFF	Tree to 20 m	Tube	1 per 50 m^2	10%	220
Angophora leiocarpa	Smooth-barked Apple	Koala GHFF	Tree to 25 m	Tube	1 per 50 m^2	15%	330
Corymbia intermedia	Pink Bloodwood	Koala GHFF	Tree to 35 m	Tube	1 per 50 m^2	15%	330
Corymbia tessellaris	Moreton Bay Ash	Koala GHFF	Tree to 35 m	Tube	1 per 50 m^2	5%	110
Eucalyptus melanophloia	Silver-leaved Ironbark	Koala GHFF	Tree to 20 m	Tube	1 per 50 m^2	5%	110
Acacia disparrima	Hickory Wattle	N/A Pioneer	Shrub or small tree	Tube	1 per 50 m^2	5%	110
Acacia leiocalyx	Early Flowering Black Wattle	N/A Pioneer	Shrub or small tree	Tube	1 per 50 m^2	5%	110
Alphitonia excelsa	Soap Tree	N/A Pioneer	Tree to 15 m	Tube	1 per 50 m^2	5%	110
						TOTAL	**2,200**

*Planting percentages required at prescribed rate to fulfil offset planting requirements for Swift Parrot and Regent Honeyeater.

RE 12.9-10.7 GROUNDCOVERS (Indicative – as required)					
Imperata cylindrica	Blady Grass	N/A Other	Grass	Tube or seed	As required
Themeda triandra	Kangaroo Grass	N/A Other	Grass	Tube or seed	As required
Eremochloa bimaculata	Poverty Grass	N/A Other	Grass	Tube or seed	As required
Cymbopogon refractus	Barbed Wire Grass	N/A Other	Grass	Tube or seed	As required
Heteropogon contortus	Black Speargrass	N/A Other	Grass	Tube or seed	As required
Poa sieberiana var. sieberiana	Tussock Grass	N/A Other	Grass	Tube or seed	As required
Dichanthium sericeum	Queensland Bluegrass	N/A Other	Grass	Tube or seed	As required
Eragrostis brownii	Browns Lovegrass	N/A Other	Grass	Tube or seed	As required
Sarga leiocladum	Wild Sorghum	N/A Other	Grass	Tube or seed	As required
Panicum effusum	Hairy Panic	N/A Other	Grass	Tube or seed	As required
Panicum decompositum	Native Millet	N/A Other	Grass	Tube or seed	As required
Aristida vagans	Threeawn Speargrass	N/A Other	Grass	Tube or seed	As required
Oplismenus aemulus	Australian Basket Grass	N/A Other	Grass	Tube or seed	As required
Gahnia aspera	Saw Sedge	N/A Other	Sedge	Tube or seed	As required
Lepidosperma laterale	Variable Swordsedge	N/A Other	Sedge	Tube or seed	As required
Lomandra longifolia	Spiny-headed Mat-rush	N/A Other	Sedge	Tube or seed	As required
Dianella caerulea	Blue Flax-lily	N/A Other	Herb	Tube or seed	As required
Eremophila debilis	Winter Apple	N/A Other	Prostrate shrub	Tube or seed	As required
Hardenbergia violacea	False Sarsparilla	N/A Other	Prostrate shrub	Tube or seed	As required
Eustrephus latifolius	Wombat Berry	N/A Other	Vine	Tube or seed	As required
Chrysocephalum apiculatum	Yellow Buttons	N/A Other	Herb	Tube or seed	As required
Glycine clandestina	Twining Glycine	N/A Other	Scrambling vine	Tube or seed	As required
Murdannia graminea	Grass Lily	N/A Other	Herb	Tube or seed	As required

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER
DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:
South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
B	10/06/2026	OE boundary update	TC	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 08 AVONVALE RMP B

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Planting Species Schedule (v)*

FINAL SPECIES PALETTE TO COMPRISE MAXIMUM DIVERSITY OF SPECIES FROM SCHEDULES. TO BE APPROVED BY ENVIRONMENTAL COORDINATOR.

NOTES

- Final species palette to comprise maximum diversity of species from schedules.
- Area calculations are a maximum calculation for use as needed.
- Final on-ground planting numbers and densities may be subject to change based on planting requirements and seed stock availability except for densities and volumes prescribed for swift parrot and regent honeyeater foraging species.

Environmental Management Zone 6– Remnant RE 12.11.14(Assisted Natural Regeneration with Infill Planting)

Notes:

1) Trees 1 to be planted at a density of 1 tree per 1000 m^2.
2) Setback trees 3 metres minimum from all property boundaries and services
3) Distribute plants in groups on site in random arrangement - to be confirmed with super-intendent on site
4) Plant species according to tolerances and site conditions
5) Plant quantities to be confirmed by rehabilitation supervisor according to site conditions. Unsuitable or unavailable species to be substituted with other species from this schedule.
6) Species consistent with RE 12.11.14 technical description.

SCIENTIFIC NAME	COMMON NAME	HABITAT VALUE	PLANT FORM	POT SIZE	PLANTING DENSITY	PERCENTAGE	QUANTITY
T1 / TREES							
*Eucalyptus tereticornis subsp. tereticornis**	Forest Red Gum	**SP preferred** Koala GHFF	Tree to 50 m	Tube	1 per 1000 m^2	10%	4
*Eucalyptus sideroxylon**	Mugga Ironbark	**SP preferred** **RHE preferred** Koala GHFF	Tree to 35 m	Tube	1 per 1000 m^2	15%	5
Eucalyptus crebra	Narrow-leaved Ironbark	Koala GHFF	Tree to 35 m	Tube	1 per 1000 m^2	15%	5
Eucalyptus acmenoides	White Mahogany	Koala GHFF	Tree to 30 m	Tube	1 per 1000 m^2	10%	4
Eucalyptus siderophloia	Grey Ironbark	Koala GHFF	Tree to 20 m	Tube	1 per 1000 m^2	5%	2
Angophora subvelutina	Broad-leaved Apple	Koala GHFF	Tree to 20 m	Tube	1 per 1000 m^2	5%	2
Corymbia intermedia	Pink Bloodwood	Koala GHFF	Tree to 35 m	Tube	1 per 1000 m^2	5%	2
Eucalyptus propinqua	Grey Gum	Koala GHFF	Tree to 40 m	Tube	1 per 1000 m^2	5%	2
Corymbia tessellaris	Moreton Bay Ash	Koala GHFF	Tree to 35 m	Tube	1 per 1000 m^2	5%	2
Lophostemon confertus	Brush Box	Koala GHFF	Tree to 10 or 20 m	Tube	1 per 1000 m^2	5%	2
Allocasuarina torulosa	Forest Oak	N/A Pioneer	Shrub or small tree	Tube	1 per 1000 m^2	10%	4
Acacia concurrens	Black Wattle	N/A Pioneer	Shrub or small tree	Tube	1 per 1000 m^2	5%	2
Acacia disparrima	Hickory Wattle	N/A Pioneer	Shrub or small tree	Tube	1 per 1000 m^2	5%	2
TOTAL							**38**

*Planting percentages required at prescribed rate to fulfil offset planting requirements for Swift Parrot and Regent Honeyeater.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER
DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:
South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
B	10/06/2026	OE boundary update	TC	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 09 AVONVALE RMP B

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Site Preparation*

METHODOLOGY – SITE PREPARATION

Prior to site works commencing, the site should be secured from degrading impacts such as grazing by stock, unauthorised access and rubbish. Some factors that may require immediate attention include:

- The presence of highly invasive weed species which may disperse further prior to substantial site works commencing
- The presence of weed species which may have a long-term impact on ecological communities such as exotic and weed varieties of vines
- Flammable materials (including weed thickets, grasses and vines)
- Damaging and easy access by 4WD, motorbikes and pedestrians into core retained vegetation and ecological restoration areas. This may require installation of temporary fencing if deemed appropriate Site works can be typically broken down into the following categories:
    - Primary Works
    - Follow-up Works
    - Maintenance Works (refer Methodology – Maintenance)

Primary Works

Primary works or initial works within the site or a section of the site will commonly involve a sequence of activities such as the control of all groundcover weeds, woody weeds in the understorey and exotic vines prior to the control of weed trees. Primary work has the effect of creating a large degree of disturbance which will stimulate the germination of native and exotic species. Therefore, continuing works should be scheduled shortly after the initial visit to allow for timely control of the newly regenerating weeds.

Highly invasive weeds, such as the Restricted Invasive Plants listed under the Biosecurity Act 2014, should be treated as a priority during primary works to alleviate competition on native flora species and inhibit spread into newly disturbed areas. For example, canopy smothering vines such as Cat's Claw Creeper can have a detrimental impact on native canopy trees and should be prioritised over less invasive herbs such as Blue Billy Goat Weed. Some weeds will also need to be treated in stages i.e. where the weed provides protection and habitat for native fauna or where it is providing bank stabilisation. For example, where Lantana is providing the only habitat for small birds, it should be removed in phases as native shrub habitat establishes.

Techniques used during primary work commonly involve spot spray, cut-scrape paint, cut-paint, scrape-paint, roll-hang and over spraying (source: SEQERF). *Refer to Weed Management notes for additional details.* Following completion of weed management, rehabilitation (such as assisted natural regeneration, construction and fabrication planting) can occur in areas unaffected by weed management activities or areas that primary weed management activities have concluded. Refer to Rehabilitation Works notes for additional details. At the end of primary work, the zone will have been comprehensively and systematically worked, ready for follow-up works.

Follow-up Works

At intervals, which will vary according to the type of weed impacting the site and growing conditions, follow-up work will be necessary. This generally involves the spot-spraying of newly germinating weeds and resprouting sections of woody weeds and vines. It is at this stage that observational visits should be made to the site to determine what progress the vegetation is making and decide when to implement further follow-up work. A site that receives badly timed, too frequent or too little follow-up will rapidly experience setbacks, as weed propagules will quickly become established in the newly disturbed areas. Germinating native seedlings may be swamped by weeds or damaged by inexperienced operators thereby exhausting the seed bank. Unless adequate follow-up can be ensured when planning restoration works, there is little point in commencing primary work, as time and resources are consumed with no substantial gain achieved (source: SEQERF).

METHODOLOGY – WEED NOTES

Weed management typically comprises a major part of rehabilitation site works. Weed management provides the basis of aiding natural regeneration and assisted natural regeneration. It also forms part of the preliminary work required for reconstruction and fabrication scopes.

Weed Management is to be undertaken in accordance with the SEQERF Primary, Follow-up and Maintenance works notes above. Weed management shall encompass all species declared at the commonwealth, state and local level, and any weeds that appear to be invasive at the site.

A total of twenty-two (22) weed species were recorded within the offset area including two (2) listed WONS being Lantana camara (Lantana) and Opuntia tomentosa (Velvety Tree-Pear) and four (4) species listed as Category 3 – restricted under the Queensland Biosecurity Act 2014.

Critical skills for Weed Management include:

- Knowledge of relevant legislation
- Plant Identification skills
- Knowledge of different weed management techniques

Knowledge of Relevant Legislation

It is expected contractors have a depth of knowledge of relevant legislation to complete site rehabilitation works. This includes invasive plant classifications and control obligations under the Queensland *Biosecurity Act 2014* and local Biosecurity Plans (Refer to adjacent schedules for classification of weeds under the Act).

Bush regenerators must also comply with the requirements of the Workplace Health and Safety Act 2011 or, when working on Commonwealth lands, the Commonwealth's Occupational Health and Safety (Commonwealth Employment) Act 1991.

Contractors should also obtain all relevant permits required under State and Commonwealth legislation (e.g. Nature Conservation Act 1992, Fisheries Act 1994, Vegetation Management Act 1999, Biosecurity Act 2014). Contractors must also be aware of and adhere to cultural heritage protection obligations under the Aboriginal Cultural Heritage Act 2003 and where chemicals are in use, the Agricultural Chemicals Distribution Control Act 1966.

In addition to the above, contractors should also be familiar with local government body requirements (e.g. Local Codes, Policies and Guidelines).

RESTRICTED MATTERS (*BIOSECURITY ACT 2014*)	
Category	**Description**
1	must be reported to an inspector within 24 hours if it is present in, or on, something in your possession or under your control or at a place where you are the occupier, unless an appropriately authorised officer has already been advised or you possess a permit for the restricted matter. Includes red imported fire ants, electric ants, Asian honey bees, and certain animal diseases, aquatic diseases and pathogens.
2	must be reported to an inspector within 24 hours if it is present in, or on, something in your possession or under your control or at a place where you are the occupier, unless an appropriately authorised officer has already been advised or you possess a permit for the restricted matter. includes certain noxious fish, weeds and pest animals
3	You must not distribute this restricted matter. It must not be given as a gift, sold, traded or released into the environment unless the distribution or disposal is authorised in a regulation or under a permit. Deliberate human distribution or disposal contrary to the legislation is a key source of spread into other areas. includes weeds, pest animals and noxious fish
4	You must not move this restricted matter to ensure that it does not spread into other areas of the state. includes specific weeds, pest animals and noxious fish
5	You must not possess or keep this restricted matter under your control. These pests have a high risk of negatively impacting on the environment. You may only keep this restricted matter under a permit of the *Biosecurity Act 2014* or another Act. includes weeds, pest animals and noxious fish
6	You must not feed this category of restricted matter. Feeding this restricted matter may cause their numbers to increase and negatively impact the economy or the environment. Feeding for the purpose of preparing for or undertaking a control program is exempted. Includes invasive animals such as feral deer, foxes, rabbits and wild dogs and noxious fish such as carp, gambusia and tilapia.
7	If you have these noxious fish in your possession, you must kill the restricted matter and dispose of the carcass by burying the whole carcass in the ground above the high tide water mark or placing it in a waste disposal receptacle. Includes noxious fish such as carp, weather loach, climbing perch and gambusia

Plant Identification Skills

Both native and weed species should be identified prior to primary weed removal works and ongoing throughout the follow-up and maintenance periods. This is to maximise natural regeneration and reducing likelihood of accidental weed spraying to native vegetation. Regenerating species to be treated and maintained in a similar manner to newly planted revegetation tube stock. If contractor is unsure of species, advice should be sought by botanist, specialist contractor or confirmed with Queensland Herbarium. Refer to indicative Weed Treatment schedules derived from Queensland Herbarium for an indication of weed species and treatments.

Knowledge of Different Weed Management Techniques

A range of weed management techniques are available to combat a variety of weeds and scenarios. Refer to adjacent schedules and Appendix A for weed management techniques.

WEED MANAGEMENT TECHNIQUES	
METHOD	**DESCRIPTION**
Herbicide	**The herbicide weed control techniques described below provide a range of proven methods that can be used on a restoration site.**
Cut - Scrape-Paint	Cut the stem of the plant close to the ground (approximately 1-2cm) ensuring that soil does not come in contact with the cut surface. The cut can be made at a slight angle in order to increase the surface area that is exposed to the chemical. Apply herbicide immediately to the cut stump using poison pot and brush or dripper bottle. Using a knife, scrape the sides of the stump thoroughly to expose the green tissue. Apply herbicide to the scraped stump. The chemical must be applied within 10 seconds of the cut or scrape being made in order for it to be fully effective.
Cut - Paint	Cut the stem of the plant close to ground level. Apply herbicide to the cut stump using poison pot and brush or dripper bottle. This method is best suited to easy-to-treat weeds such as small-leaved privet (Ligustrum sinense), provided that the diameter of the stem at ground level is less than approximately three centimetres. If a glyphosate-/ metsulfuron methyl herbicide mix is being used in the poison pot, a greater range of weeds can be controlled using this method e.g. Easter cassia.
Scrape - Paint	Scrape as much of the stem as possible (one side of the stem) using a knife and apply herbicide to the scrape. Leave a small section of the vine unscraped and then twist the vine so that the next scrape is made on the opposite side of the stem to the preceding scrape. Continue along the length of the vine, scraping and painting as much of the stem as possible, with scraping to be concentrated along the thicker stems close to the root of the plant. This is the best method to use for madeira vine, as it allows the chemical to translocate to the underground storage organs and aerial tubers which may be hanging in large clusters above head height. This avoids the potential problem of tubers from cut stems left hanging in the trees from dropping to the ground and sprouting. When scraping madeira vine stems a deep scrape is advisable – scrape right through to the fibrous, stringy section of the stem, taking care not to sever the vine. This method is also suitable for treatment of ochna.
Over-spraying	Over-spraying involves the use of knapsacks or power sprayers to treat large expanses of weed such as lantana thickets. The foliage must be covered with herbicide but not to the point of running off the plant. The dead plants remain in place and can be cut down at a later stage. Prior to over-spraying, any weeds that are growing closely around established native plants must be hand removed or treated by cut-scrape-paint.
Spot-spraying	A knapsack filled with an appropriate herbicide mix is used by the operator to selectively control environmental weeds. A keen eye and an ability to distinguish between the native and weed species likely to be present, especially at seedling stage, is essential. Marker dye is added to the chemical mix to allow the operator to see what has already been sprayed, thus covering the ground weeds comprehensively and thoroughly Glyphosate and metsulfuron methyl are the main herbicides used for spot-spraying in ecological restoration, together with the addition of a penetrant and/or surfactant and marker dye.
Splatter Gun	This small gas-powered injector kit is fitted into a knapsack for easy carrying and delivers large droplets in a stream over the weed. The gun is used to deliver a concentrated herbicide (glyphosate or metsulfuron methyl) across large dense expanses of weed. The method is used for species such as lantana (ratio of 1:9 of glyphosate:water). Splatter gun involves spraying strips at one to two metre intervals over the thicket. The herbicide is then translocated throughout the entire plant. The method does not require the whole plant to be covered as in over-spray.
Oil-hang	Vines such as mile-a-minute (Ipomoea cairica) which produce long stolons extending many metres along the surface of the ground, are suited to the roll-hang method. Locate the base of the plant and carefully pull up the runners and roll them up. The resulting roll of vine is then hung in the fork of a tree to dry out as if it is left on the ground it is likely to re-shoot. Where runners are climbing up into a tree they are cut off at head height prior to the runner being rolled up – there is no need to pull cut vines down from trees as this action is likely to damage the tree. The base of the vine is treated using the cut scrape-paint method.
Gouge-paint	This method applies to plant species that have a fleshy underground storage organ, such as the large tuber that is often found at the base of madeira vine. It is also particularly appropriate for the treatment of climbing asparagus (Protasparagus plumosus). If using this technique on climbing asparagus, first cut the stems that are growing into the canopy at head height and also at the base. The fleshy rhizome can then be gouged, or alternatively in the case of climbing asparagus, it may be struck several times firmly with the head of a pair of loppers, allowing the brown outer covering of the crown to peel away exposing the white fleshy inner section of the rhizome for application of herbicide. Gouge out sections of the fleshy base with a knife and apply herbicide using a paint pot and brush or dripper bottle within 10 seconds.
Basal Barking	This method involves mixing an oil-soluble herbicide in diesel/kerosene and painting or spraying the full circumference of the trunk or stem of the plant from ground level to a height of approximately 45cm. Basal bark application is suitable for thin-barked woody weeds including saplings, regrowth and multi-stemmed shrubs. The method will usually result in the mortality of difficult-to-control woody weeds at any time of the year, provided the bark is not wet or too thick to enable the herbicide to penetrate. The method should not be used in wet weather, adjacent to waterways or in areas where native trees and shrubs are located. The use should be restricted to situations where a weed is particularly difficult to control e.g. cherry guava and where other methods have been unsuccessful.
Stem Injection	Large woody weeds such as camphor laurel, coral trees (Erythrina spp, Privet Ligustrum spp) and umbrella trees are generally treated by stem-injection. Holes are drilled at regular intervals around the base of the tree and exposed roots using a drill. A tree injection syringe attached to a small capacity knapsack is used to fill the holes with the herbicide. Stem-injection of trees can also be undertaken using a hatchet to create cuts in a 'brickwork pattern' in trunks of trees for the application of herbicide (known as tree frilling). Frilling is more labour intensive than drilling. The greatest benefit of stem injection is that the trees can be left standing in situ as they die, provided there is no risk to humans or infrastructure from falling limbs. This creates convenient roosts for birds and other animals and prevents the formation of large amounts of debris on the ground and damage to understorey plants which would result if the trees were to be cut down using a chainsaw.
Wick Wiping	Wick wipers can be manually used with a sponge or wick applicator, attached to a container filled with herbicide or as an attachment towed by a tractor. The manual method can be used to selectively apply herbicide to the leaves of weeds growing in sensitive situations. The handheld container can leak, and generally spot spraying would be recommended. The use of a tractor drawn wick wiper is used to control taller growing species such as introduced grasses and to encourage the growth of lower growing species. This method could be used in preparation for planting.
Mechanical	**Mechanical weed control involves the use of powered and non-powered equipment such as brush cutters, chainsaws, slashers, shovels, pruners, saws, etc. These methods are best used in situations where there is a large, uninterrupted stand of weeds.**
Dig and Bag	Dig and remove tuberous/ rhizomatous root systems. Remove roots or whole plant in hard/ compacted soils. Place in suitable container and remove from site, dispose of by deep burial, burn or burial at a land fill, must not place declared weed species in recycling (mulch).
Hand-Pull	Remove totally from ground by hand (human). Perform when soil is moist. Applicable to small infestations or areas of environmental sensitivity (including sensitive watercourses, when frogs are breeding, or presence of threatened species).
General Mechanical	May involve use of machinery (e.g. brush cutter, chainsaw, slasher, dozer, excavator). Suitable for large infestations and weed trees. Initially cost-effective but requires immediate revegetation of site or matting/ mulch application and extensive maintenance periods. Generates excessive soil and vegetation disturbance.

Note: Table adapted from a table in SEQERF

Site specific notes

Based on site-specific data, the following weed management methods and techniques are recommended:

- Stick rake, grubbing, ploughing or slashing major accessible areas of Lantana where not on a slope greater than 15% or where no existing native values occur.
- Apply broadscale herbicide and spot spray during high germination summer periods (Nov-March). Utilise organic based Lantana targeted herbicides which minimise impacts on native vegetation regenerating within and surrounding Lantana patches.
- Control methods applied will be guided by methods outlined in the DAF's Improved practices catalogue: Best management practice for maintaining and improving land condition on grazing lands (DAF, 2017).
- Cautionary options to reduce run off or contamination from herbicides will be utilised within proximity to the creek within EMZ 3. Spot spraying of glyphosate will limit potential for impact as it is known to breakdown immediately on contact with soil and has no residual effect (Gray et al. 2006). It is understood that permits from relevant state Environment Protection Authorities may be required if herbicides are to be sprayed on riverbanks. If seen fit, other forms of control, such as mechanical or fire management, may be utilised adjacent to the creek within EMZ 3 to reduce potential impacts to waterbodies.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER
DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:
South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS				
ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
B	10/06/2026	OE boundary update	TC	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 10 AVONVALE RMP B

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Planting Notes*

Burns and Soil Cultivation

Controlled cool burns – if weather allows, controlled cool burns are undertaken prior to cultivation or planting to remove grass and broadleaved plants. Qualified and experienced burning contractors are used in all instances, and in accordance with rural fire legislation, permit conditions and stakeholder/near neighbour notification requirements.

Cultivation of soil through ripping – this helps root penetration, increases moisture infiltration and retention around the planted tree's root zone and increases planting efficiency. In all instances, lines are ripped along contours. At no stage will downhill ripping be undertaken due to the high risk of channelling water in the rip lines and associated risk of serious erosion. The upper limit for contour ripping is 30 degrees. Below this, limits for contour ripping are to be set by the contractor, with operator safety being the primary consideration. Ripping must always take place during dry soil conditions, to enable effective soil fracture, and be completed several months before planting, to allow for settling of soil within the rip. Cultivation should not take place when soil moisture content is sufficient to allow the ripping implement to 'slice' through the soil without de-compacting it. Importantly:

- Ripping should always be undertaken with an angled steel plate affixed to the boot of the ripper to enable maximum soil decompaction at depth
- Minimum soil ripping depth is 30 cm – optimal soil ripping depth is 50 cm
- Ripped planting rows are spaced between 4 to 5 m apart to allow future vehicles access but retain planting density targets
- Machinery used to undertake ripping is typically a minimum D5 dozer, however, some high horsepower 4WD tractors or skid steers may also be suitable.

On-site Nursery

Establishment of site nursery – this is established at the planting site for the storage and watering of seedlings prior to planting and in a location that provides: shade if hot temperatures are expected, a source of water for irrigation, and proximity for regular dispatch to the planting areas. The length of time the seedlings are stored on site before planting should be minimised. Species selection is critical in achieving the desired ecological restoration outcomes for rehabilitation sites. Planting is typically derived from:

- Local Regional Ecosystem (RE) descriptions.
- Observed site native vegetation.
- Climatic and weather conditions observed on site (frost, salt-spray, etc.
- 'Pioneer' species are useful in site stabilisation and encouraging native regeneration.
- Utilising flowering and fruiting species are useful to attract wildlife and result in introduction of seeds.
- Species availability from seed propagation and or local nurseries

Sourcing Seed Stock

Seed stock will be comprised of locally sourced seed stock where possible. Sourcing planting from local nurseries is the commonly chosen option and has the following benefits:

- Awareness of genetic considerations when collecting seed.
- Experience with breaking dormancy mechanisms in hard to germinate seeds.
- Highly successful propagation techniques.
- Ability to provide high quality stock to order
- Draw on industry resources.

Swift parrot and regent honeyeater foraging tree species (E. sideroxylon and E. tereticornis) are required to be planted at the densities and quantities prescribed in this RMP in order to meet the required offset outcomes for the species. Densities of the other species may be modified where unable to meet the seed stock requirements, however, the volume of tube stock to be planted should be the same.

METHODOLOGY – PLANTING

Primary weed management works, broad scale planting (reconstruction and fabrication) and assisted natural regeneration is proposed to be undertaken. Prior to installation, the following items should be considered:

- Timing of planting
- Site preparation
- Planting density
- Planting installation

Timing of Planting

The timing of planting should ideally be aligned with the wet season in SEQ (summer and autumn). This minimises the need for intensive watering to establishment planting. Planting between February to May is the most beneficial as it also seeks to avoid intense heat periods of summer. Furthermore, planting at flood-prone and frost-prone locations should aim for plant establishment prior to the onsite of flooding / frost events. Despite this, it is understood planting may occur at various times within rehabilitation areas due to development timing needs.

Site Preparation

Site or planting preparation includes:

- Fencing to exclude grazing animals and people (if required)
- Pre-spraying of exotic grasses and other weeds to planting areas
- Consideration of source of water for new planting (access tracks, temporary irrigation)
- Arranging delivery of mulch, jute netting and tree guards (if required)
- Treatment of heavily compacted soils by ripping and or application of gypsum
- Soil amelioration as required

Planting Density

The planting capacity or number of trees (all species) that can be supported within each EMZ was determined based on the following planting densities proposed in accordance with the South East Queensland Ecological Restoration Framework (SEQERF):

- 1 tree per 10 m^2 or 1000 trees per hectare for non-remnant paddock
- 1 per 50 m^2 or 200 trees for sparse regrowth
- 1 per 100 m^2 or 100 trees for dense regrowth
- 1 per 1000 m^2 or 10 trees for remnant

The proposed density of trees per hectare depending on the EMZ was multiplied by the size of the EMZ (in hectares) to determine the maximum planting capacity. Waterbodies were excluded from potential planting areas.

Each EMZ was assigned a planting palette of tree species developed based on the ground-truthed pre-clear regional ecosystem mapping and local availability of seed stock. Each planting palette comprises a mix of preferred foraging species for the Swift Parrot, other eucalypt trees and pioneer species such as Acacia sp. and Allocasuarina sp. Preferred foraging tree species comprise a percentage of the total planting palette where it is suitable for the pre-clear RE and/or consistent with the local seed stock.

Refer to plant schedule for the proposed species composition and planting densities.

Planting Installation

The following outlines the preferred installation methodology for revegetation works within the rehabilitation areas. It has been designed to maximise plant establishment success rates and minimise plant mortality. Revegetation works shall be either undertaken or directly supervised by an experienced and qualified contractor. All works shall be in accordance with the provisions of this RMP, and local government policies and Australian Standards.

Techniques are determined based on individual site conditions and will vary from bare seed, seed pods, drone seeding, seedling planting by ground machine, or spades/mattocks, or a combination of several techniques across the site.
Where cultivation has occurred, seedlings are planted into the prepared rip-lines. Seedlings should be planted in cultivated or uncultivated sites at a depth to make good contact with moist soil, and the soil then compressed around the seedling to remove any air pockets.

Planting should be of sufficient depth to ensure the entire root ball is buried with a minimum of five centimetres of natural ground covering the top of the root ball/potting mix. The stem of the seedling should be as vertical as possible.

Spreading bare seeds onto the top of the ground by hand or machine has a very low germination rate and requires high volumes of seed and good soil to seed contact to be successful. A high degree of pre-plant preparation is required before direct seeding is undertaken. Relatively flat open sites with little ground layer competition and sandy soils could be suitable for direct seeding by machine. Inaccessible sites with good pre-plant ground layer vegetation control could be suitable for drone dispersal.

Tube stock of native trees and shrubs should be planted into moist soil with good soil to seed contact at an optimum depth to maximise the seed germination. Seeds of the same species combined with various materials (e.g. clay) into a small pod shape can be used to reduce seed predation by insects, protect the seeds from adverse weather conditions, and increase germination. Inaccessible sites with good pre-plant ground layer vegetation control may be suitable for drone or manual dispersal of seed pods.

Timing must occur during seasons of high rainfall and mild temperatures. Dry weather conditions, extreme high temperatures, and extreme low temperatures will have a negative impact on seed germination and seedling survival.

Seedling types must be a variety of local provenance genetics to ensure future resilience and ecological benefits. Multiple seedlings can be grown in a solid tray or individually in 50 mm tube stock pots. Transplanting the tallest, most mature seedlings with solid mature root ball density maximises the survival and early growth rate of the seedlings.

Fertilising seedlings is important just prior to planting. Alternately a liquid fertiliser can be added to the water when the seedlings are soaked on the day of planting. A complete, slow-release fertiliser is recommended, and is to be administered appropriately during planting. Topdressing with slow-release fertiliser is preferred to avoid toxic levels of fertiliser accumulating in the plant hole around the plant roots.

Moisture is a key element to reduce seedling transplant shock. The ground should have a full moisture profile, the seedlings should be soaked fully before planting, and there should be a high chance of rain after planting. Hand watering planted seedlings should be considered only as a last resort. Planting seedlings provides an opportunity to have the greatest control over forest design.

Maps, including species combinations, will inform the planting contractors of the species mix for each planting site, the density and spacing of the seedlings and the specific location of each species mix across the site. Seedlings of the same species can be planted in small groups or spread randomly across the site.

Quality control is undertaken at the time of planting. Clear instructions to planting contractor is required to ensure the planting quality standard is understood. This is usually best undertaken on the same day as contractor induction to make sure the planters understand the quality standards from day one. Any trees not planted correctly, or planted at the incorrect spacing, will need to be reworked at the contractor's cost. Further inspection of the planting work will be undertaken prior to completion of the planting work to ensure the standard and spacing requirements have been met. Invoices received from the planting contractor cannot be paid until the final inspection has been undertaken and any problems rectified. Work that does not meet the standard will need to be re-done as soon as possible at the expense of the contractor.

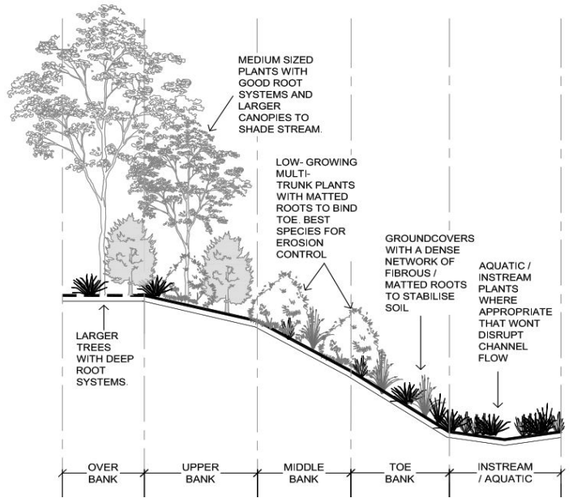


Figure 1: Categories of channel vegetation adapted from the Brisbane City Council Natural Channel Design Guidelines.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:
South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS				
ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
B	10/06/2026	OE boundary update	TC	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 11 AVONVALE RMP B

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Maintenance and Monitoring*

METHODOLOGY – MAINTENANCE

By the maintenance stage, the vegetation community is at a point where native plant species are germinating and establishing. Weed density is starting to decrease as the native plants are able to out-compete the weeds. One of the fundamental principles of ecological restoration is that it attempts to create or re-establish an ecosystem that is self-sustaining. Therefore, it is the underlying goal that maintenance will eventually be decreased to a minimum. While this is not always possible, due to factors such as the continual reintroduction of weed propagules to the site from surrounding areas; unfavourable seasons or weather event; persistent weed species; or global influences such as the enhanced greenhouse effect, it should always be strived for (source: SEQERF).

Maintenance works include watering, follow-up weed management, pest management and remedial planting as informed by adaptive management.

Watering regime – if required based on site conditions

Watering is a critical component during the establishment phase of ecological restoration where site conditions are unsuitable for plant growth. Watering regime is to be adjusted based on site conditions, species, and seasonal variability. Indicative intensive watering regime is as below.

Primary Establishment Phase (0–12 months)

- Frequency:
  - Weeks 1–4: Water every 2–3 days, especially in sandy or well-drained soils.
  - Weeks 5–12: Reduce to twice weekly, depending on rainfall and soil moisture.
  - Months 4–12: Weekly deep watering during dry spells.
- Volume:
  - Apply 10–20 litres per plant for trees and shrubs.
  - Groundcovers require less water, but will require full root zone saturation.
- Method:
  - Use drip irrigation, tree bags, or slow-release watering systems to minimise runoff and evaporation.
  - Avoid overhead watering to reduce disease risk.
- Seasonal Adjustments
  - Summer (Dec–Feb): Increase frequency due to high evapotranspiration.
  - Autumn/Winter (Mar–Aug): Reduce watering unless dry conditions persist.
  - Spring (Sep–Nov): Resume intensive watering as temperatures rise.
- Monitoring and Adaptation
  - Check soil moisture at root depth using probes or manual inspection.
  - Observe plant stress indicators: wilting, leaf drop, discoloration.
  - Adjust watering based on species needs.

Pest management

Non-native vertebrate pests will be managed as part of the broad management of the offset prescribed under the OAMP. Management will target non-native vertebrate predator and herbivore species which have potential to damage regenerating habitat areas. This includes wild dogs, European red foxes, feral cats, feral pigs and deer.

Weed control

Intensive weed control maintenance will be undertaken for at least two years after planting is completed, or until the planted seedlings are tall enough to access full sunlight and adequate soil moisture free from adjacent competing plants. Ongoing weed maintenance activities will be completed throughout the life of the offset with a focus on WONS. Care should be taken to ensure weed control approaches do not impact planted seedlings and herbicide application is used precisely and selectively to ensure no dieback to the plantings or developing understorey. Herbicide application must be undertaken by licensed and experienced contractors, and in accordance with registered label conditions and safety data sheet requirements at all times. Mechanical methods will be used where appropriate.

MONITORING AND REPORTING FRAMEWORK

Monitoring

Monitoring methods to track rehabilitation progress will comprise a mix of informal and formal monitoring methods to track progress against the proposed environmental outcomes for each MNES and objectives of this RMP. All monitoring will be undertaken by a suitably qualified Rehabilitation Contractor/Landscape consultant and/or Ecologist.

It is important for the long-term success of a habitat establishment project that both growth and survival are monitored at regular intervals. A monitoring program is proposed whereby the offset area is monitored annually using informal techniques and formal monitoring techniques at prescribed intervals under the MHQA method (i.e., years 5, 10, 15 and 20).

Extensive monitoring and reporting frameworks for all offset activities are documented in the Offset Area Management Plan and these are applicable to this Rehabilitation Management Plan. As part of existing offsets contractors maintain yearly data on revegetation success rates and stem growth rates, which will be used to ensure the benchmarks in this plan area achieved. Extensive records on number of plants created and purchased and planting densities and timeframes are also maintained and provided by the Offset Provider within each Offset Area Annual Report.

Formal

Formal monitoring of rehabilitation works involves collecting quantitative data at prescribed monitoring intervals using a combination of monitoring methods and techniques. Formal monitoring provides data that cannot be measured by informal observations and can be easily compared against quantitative performance indicators. This will include:

MHQA Surveys

MHQA transects at 5-yearly intervals (5, 10, 15 and 20 years) following the commencement of the offset. Transects will be repeated at baseline locations before the end of the relevant monitoring interval (e.g. before the end of Year 5) and will be completed in accordance with the baseline survey methodologies described in the OAMP.

Reporting and Monitoring – Summary

The results of informal (photo monitoring and visual assessment) will be detailed in bi-annual monitoring reports and formal monitoring (MHQA surveys) in Offset Area Annual Reports (OAARs). OAARs will include a summary of estimated success rate (namely of tree species), any degrading factors at the site that may or are currently affecting survival success and any recommended adaptive management measures while Milestone Survey Reports will report on habitat quality improvements relative to the baseline survey condition and proposed Environmental Outcomes detailed in the OAMP.

The reporting schedule for the monitoring program is summarised in the table below.

Report	Purpose	Frequency	Responsible party
Milestone Survey Report *Details the results of MHQA, GHFF FHA and swift parrot and regent honeyeater foraging habitat assessment.*	Designed to demonstrate increase in value of offset area for Matters of National Environmental Significance (koala, grey-headed flying-fox, swift parrot and regent honeyeater) as proposed under the OAMP.	Five-yearly at Years 5, 10, 15 and 20	Suitably qualified Ecologist as appointed by the Proponent
Offset Area Annual Report *Details implementation of management actions against the OAMP and RMP including rehabilitation progress review.*	Designed to document all offset activities completed and/or commissioned by the Offset Provider and demonstrated against the timeframes and completion criteria of the OAMP and includes a review and progress update of rehabilitation works (planting and weed management).	Annually	Offset Provider

ADAPTIVE MANAGEMENT

Adaptive management is an ongoing, systematic approach for improving rehabilitation outcomes by learning from existing management techniques. It is a cyclic process that involves:

1. Identification of unsuccessful treatments and new threats during monitoring events
2. Investigation of new and alternative treatments
3. Implementation of new / alternative management strategies based on best available knowledge
4. Review of new / alternative management strategies during monitoring

Adopting an adaptive approach to rehabilitation works is recommended to maximise environmental outcomes for the site. Once an area is revegetated, the survival and growth of plants needs to be assessed, monitored and managed. Plans need to be adaptive in order to respond to identified issues on the site.

Multiple corrective action triggers for adaptive management are proposed. This includes:

- Native plant mortality >20% during the initial contractor establishment phase (3-5 years) of the plantings.
- WONS cover >5% after Year 10
- Number of non-juvenile stems of swift parrot foraging species (*E. sideroxlyon* and *E. tereticornis*) not increasing (as extrapolated from stem density assessments)
- Number of non-juvenile stems of regent honeyeater foraging species (*E. sideroxlyon tereticornis*) not increasing (as extrapolated from stem density assessments)
- Planting with groundcover species (grasses and forbs) if required to improve species richness targets as determined through MHQA monitoring. Indicative species palette is provided in this RMP.

A survival rate of 80% of tree species is proposed to be achieved for the offset area during the establishment phase of the plantings (3-5 years) with a focus on species identified as preferred or supporting foraging species for the Critically Endangered regent honeyeater and swift parrot. This is required in order to achieve the proposed offset outcomes for the species under the OAMP. The 80% survival rate is to be achieved throughout the 3-5 year contractor establishment phase, after which the plantings are considered self-sustaining. It is anticipated the overall density of plantings will normalise to typical eucalypt forest density during the successional phase of the offset (5-20 years post planting).

Where survival rates are observed to be less than 80% during the contractor establishment phase, this may indicate the presence of a degrading factor not previously identified or considered at the site and may require adaptive management measures to be considered and implemented. Degrading factors are to be identified as part of regular monitoring and will form the basis for actioning adaptive management.
Adaptive management measures may include a combination of the following:

- Identify and address the degrading factor (e.g. soil issue, pests, species failure).
- Remedial plantings in areas of dieback to bolster survival rates to above 80% during the contractor establishment phase.
- Introduce a different species *i.e.,* if one plant species consistently dies on a site, consider using in its place a species that is performing well.
- Adjust planting methods such as using advanced tube stock or direct seeding, modifying site preparation techniques.
- Modify weed management techniques or frequency where WONS exceed 5% after Year 10.

REHABILITATION TEAM RESPONSIBILITIES

It is critical for all parties to understand their responsibilities within rehabilitation 'team'.

PARTY	DESCRIPTION
Proponent	Ensure all consultants, contractors, sub-contractors or others utilising the area are aware of the Rehabilitation Management Plan. Appoint appropriate consultants and contractors to undertake works as prescribed on the drawings. Provide security via an uncompleted works bond and maintenance bond for the cost of works if required. Cover costs of all resources to ensure works are completed as per approved plans.
Consultants	Brief proponent on their requirements in implementing and maintaining works as per the Rehabilitation Management Plan. Attend monitoring inspections. Undertake monitoring and reporting as per this plan. Be available to respond to technical queries to the approved documentation when on-site conditions require changes. Liaise with team throughout all stages of approval, initial works and maintenance of works.
Assessment Manager	Provide technical expertise via commentary on the approval of documentation. Attend monitoring inspections. Reduce and release securities held against works at the completion of successful milestone inspections. Be available to respond to technical queries to the approved documentation when on-site conditions require changes. Accept and review maintenance reports as dictated (if required in this plan).
Offset Provider / Contractor	Ensuring implementation of works and compliance with this Rehabilitation Management Plan. Attend monitoring inspections. Has a minimum Certificate III in Conservation and Land Management, or a Certificate III in Horticulture, or a Certificate III in Rehabilitation Construction, or equivalent experience in rehabilitation. Hold relevant licenses in applicable weed management/ revegetation/ fauna management, any required insurances for scope of works and an understanding of required Laws, Act, Policies and Guidelines. Recommend changes to the documentation when specific experience or on-site conditions require so.

References

Chenoweth EPLA and Bushland Restoration Services (2012). South East Queensland Ecological Restoration Framework: manual. Prepared on behalf of SEQ Catchments and South East Queensland Local Governments, Brisbane.

Department of Agriculture and Fisheries (Qld). (2017). *Improved practices catalogue: Best management practice for maintaining and improving land condition on grazing lands*. Queensland Government.

Gray, J. M., Rawling, J. L., & Chapman, G. A. (2006). Soil and land assessment for native vegetation rehabilitation: Technical guidelines (Publication No. DNR 06_081). New South Wales Department of Natural Resources.

Thackway, R., Neldner, V.J. and Bolton, M.P. (2008). Vegetation. In McKenzie, N.J., Grundy, M.J., Webster, R. and Ringrose Voase, A.J. (eds) Guidelines for surveying soil and land resources (2nd edition). CSIRO Publishing, Melbourne.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:
South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
B	10/06/2026	OE boundary update	TC	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 12 AVONVALE RMP B

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - APPENDIX 01 *Weed Treatment and Removal (i)*

Queensland Herbarium Invasive Naturalised Plants In South East Queensland

Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
1	Mimosaceae	Acacia boliviana (Bolivian wattle)	1	1	4	T/O	Mechanical or chain removal.	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
2	Mimosaceae	Acacia farnesiana (mimosa bush)	6	15	3	T/A	Mechanical removal of small plants.	
3	Mimosaceae	Acacia nilotica subsp. indica (prickly acacia)	3	3	4.4	T/A	Mechanical or chain removal.	
4	Cactaceae	Acanthocereus tetragonus (sword pear)	1	1	3	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
5	Polygonaceae	Acetosa sagittata (rambling dock)	4	18	4	V/U	Tubers: Dig up, bag and remove.	
6	Agavaceae	Agave americana (century plant)	4	9	4	S/OA	Dig out by hand or machine	
7	Agavaceae	Agave sisalana (sisal)	2	4	4	S/OA	Dig out by hand or machine	
8	Agavaceae	Agave vivipara var. vivipara (sisal)	2	3	4	S/OA	Dig out by hand or machine	
9	Asteraceae	Ageratina adenophora (crofton weed)	6	38	5	H/O	Hand pull and hang to dry.	
10	Asteraceae	Ageratina riparia (mistflower)	5	38	5	H/O	Hand pull and hang to dry.	
11	Asteraceae	Ageratum houstonianum (blue billygoat weed)	8	81	4	H/UO	N/A	
12	Simaroubaceae	Ailanthus altissima (tree of heaven)	1	3	4	T/O	Seedlings: Hand pull	
13	Amaranthaceae	Alternanthera philoxeroides (alligator weed)	1	3	5	Ha/U	Physical removal of plant should not be attempted	
14	Poaceae	Andropogon virginicus (whisky grass)	6	14	4	H/A	Hand pull or dig out small infestations.	
	Basellaceae	Anredera cordifolia (madeira vine)	8	16	5	V/O	Small Vines & Tubers: Hand pull. Bag and dispose.	
16	Asclepiadaceae	Araujia sericifera (mothvine)	9	38	4	V/O	Seedlings & Vines: Hand pull. Bag and remove fruit.	
17	Aristolochiaceae	Aristolochia elegans (Dutchman's pipe)	8	30	4	V/O	Stems: Hand pull; Fruit: Bag and remove.	
18	Poaceae	Arundo donax (giant reed)	1	4	4	H/O	Physical removal of small infestations.	
19	Asclepiadaceae	Asclepias curassavica (red cotton bush)	9	43	3	S/O	Hand pull; Slash	
20	Asparagaceae	Asparagus aethiopicus cv. Sprengeri (asparagus ground fern)	5	35	5	H/O	Dig out unwanted plants and dispose of at the appropriate council landfill. Remove the entire crown of underground stem of plant to prevent regrowth	
21	Asparagaceae	Asparagus africanus (ornamental asparagus, asparagus fern)	7	26	5	V/O	Dig out roots and dispose of at local council landfill site. Remove entire crown and underground stem to prevent regrowth	
22	Asparagaceae	Asparagus plumosus (asparagus fern)	4	8	4	V/O	Rhizomes: crown and hang to dry.	
23	Poaceae	Axonopus compressus (broad leaved carpet grass)	5	23	4	H/AO	Cut stems from roos.	
24	Asteraceae	Baccharis halimifolia (groundsel bush)	10	168	5	S/O	Seedlings: Hand pull	
25	Asteraceae	Bidens pilosa (cobbler's pegs)	10	110	4	H/U	Hand pull or cultivation.	
26	Poaceae	Brachiaria decumbens (signal grass)	4	14	4	H/A	Grazing	
27	Poaceae	Brachiaria mutica (para grass)	6	18	4	Ha/A	Grazing	
28	Crassulaceae	Bryophyllum daigremontianum x B. delagoense (hybrid mother-of millions)	6	15	5	H/O	Hand pull and dispose	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
29	Crassulaceae	Bryophyllum delagoense (mother of millions)	8	38	5	H/O	Hand pull and dispose	
30	Crassulaceae	Bryophyllum pinnatum (resurrection plant)	6	17	4	H/O	Hand pull and dispose	
31	Buddlejaceae	Buddleja madagascariensis (buddleja)	5	6	3	S,V/O	N/A	
32	Cabombaceae	Cabomba caroliniana (cabomba, fanwort)	4	12	5	Ha/F	Mechanical removal of small infestations	
33	Caesalpiniaceae	Caesalpinia decapetala (thorny poinciana)	4	20	4	S,V/O	Seed-heads: Bag and remove.	
34	Brassicaceae	Cakile edentula (American sea rocket)	4	24	4	H/U	Manually grub and destroy.	
35	Commelinaceae	Callisia fragrans (purple succulent)	3	9	4	H/O	N/A	
36	Cannaceae	Canna indica (canna lily)	3	9	3	H/O	Dig out entire plant	
37	Sapindaceae	Cardiospermum grandiflorum (balloon vine)	7	31	4	V/O	Seedlings & Small Vines: Hand Pull	
38	Apocynaceae	Cascabela thevetia (syn. Thevetia peruviana) (yellow oleander)	5	9	3	ST/O	Hand pull small infesttions. Slashing can be used but should be followed up by herbicide application.	
39	Apocynaceae	Catharanthus roseus (pink periwinkle)	5	22	4	S/O	Hand pull	
40	Ulmaceae	Celtis sinensis (Chinese celtis)	8	19	5	T/O	Remove when small. Hand pull or dig out small seedlings. Combine dozing, burning and controlled grazing for large infestations	
41	Poaceae	Cenchrus ciliaris (buffel grass)	4	15	4	H/A	Hand or mechanical removal of young plants	
42	Poaceae	Cenchrus echinatus (Mossman river grass)	8	43	3	H/A	Hand or mechanical removal of young plants	
43	Solanaceae	Cestrum parqui (green cestrum)	6	36	4	S/O	Seedlings: Hand pull	
44	Caesalpiniaceae	Chamaecrista rotundifolia (round-leaf cassia)	6	14	3	ST/A	Seedlings: Hand pull	
45	Poaceae	Chloris gayana (Rhodes grass)	9	55	4	H/A	Hand pulling and removal and digging of larger clumps	
46	Asteraceae	Chrysanthemoides monilifera subsp. rotundata (bitou bush)	3	23	5	S/OA	N/A	
47	Lauraceae	Cinnamomum camphora (camphor laurel)	7	25	5	T/O	Seedlings: Hand pull	
48	Rubiaceae	Coffea arabica (coffee)	3	7	3	ST/A	Saplings: Hand pull	
49	Arecaceae	Colocasia esculenta (taro)	3	4	3	H/AO	Hand pull.	
50	Commelinaceae	Commelina benghalensis (hairy wandering jew)	4	7	4	H/O	Collect and Bag	
51	Asteraceae	Conyza bonariensis (flax-leaf fleabane)	7	38	3	H/U	Hand or mechanical removal of small infestations	
54	Poaceae	Cortaderia selloana (pampas grass)	2	1	4	H/O	Small Plants: dig out by hand or machine	
55	Asclepiadaceae	Cryptostegia grandiflora (rubber vine)	6	19	4	V/O	Scattered or medium-density infestations: Where possible, repeated slashing close to ground level is recommended.	
56	Poaceae	Cynodon dactylon (couch, Bahama grass introduced cultivars)	10	45	4	H/OA	Hand pull small infestations, removing all roots or smother with mulch.	
57	Cyperaceae	Cyperus brevifolius (Mullumbimby couch)	8	53	3	H/O	Each has to be dug out with a spade and the entire plant turned over, exposing the root system while making sure all aerial parts of the plant are completely covered.	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
58	Cyperaceae	Cyperus involucratus (African sedge)	6	15	4	Ha/OF	Each has to be dug out with a spade and the entire plant turned over, exposing the root system while making sure all aerial parts of the plant are completely covered.	
59	Fabaceae	Desmodium intortum (greenleaf desmodium)	4	11	3	H/A	Hand pull or crown and dispose	
60	Fabaceae	Desmodium uncinatum (silverleaf desmodium)	5	14	4	H/A	Hand pull or crown and dispose	
61	Poaceae	Digitaria didactyla (Queensland blue couch)	9	70	4	H/A	Hand pull or cultivation	
62	Poaceae	Digitaria eriantha (pangola grass)	5	20	3	H/A	Hand pull or cultivation	
63	Verbenaceae	Duranta erecta (duranta)	6	14	4	ST/O	Shrubs: CS&P (1:1.5)	
64	Poaceae	Echinochloa colona (awnless barnyard grass)	9	44	3	H/A	Hand or mechanical removal of small infestations	
65	Poaceae	Echinochloa crus-galli (barnyard grass)	6	34	4	H/A	Hand pull or dig out small infestations.	
66	Hydrocharitaceae	Egeria densa (egeria waterweed)	2	7	4	Ha/F	Hand pulling, cutting and digging with machines effective	
67	Pontederiaceae	Eichhornia crassipes (water hyacinth)	4	8	5	Ha/OF	Mechanical removal of small infestations	
68	Poaceae	Eleusine indica (crowsfoot grass)	8	55	4	H/A	Pull and chip. Replant with native couch.	
69	Poaceae	Eragrostis curvula (African lovegrass)	7	29	4	H/U	Chipped out before they flower. When chipping out the plant ensure that the tussock crowns are removed, as this will prevent regrowth. If in seed, the stems must be cut and bagged first.	
70	Rosaceae	Eriobotrya japonica (loquat)	3	5	3	T/O	Seedlings: Hand pull	
71	Fabaceae	Erythrina crista-galli (cockspur coral tree)	2	4	4	T/O	N/A	
72	Myrtaceae	Eugenia uniflora (Brazilian cherry)	4	19	4	ST/O	N/A	
73	Euphorbiaceae	Euphorbia cyathophora (painted spuge)	8	20	3	H/O	Hand pull	
74	Euphorbiaceae	Euphorbia heterophylla (milk weed)	5	12	3	H/O?	Hand pull	
75	Agavaceae	Furcraea foetida (Cuban hemp)	3	4	4.3	S/OA	Dig out by hand or machine	
76	Agavaceae	Furcraea selloa (hemp)	1	2	4	S/OA	Dig out by hand or machine	
77	Caesalpiniaceae	Gleditsia triacanthos (honey locust)	7	12	4	T/O	For the control of dense infestations on grazing land, burning followed by spot spraying is an economical control method.	
78	Colchicaceae	Gloriosa superba (glory lily)	3	26	4	V/O	N/A	
79	Asclepiadaceae	Gomphocarpus physocarpus (balloon cotton bush)	10	132	4	S/OU	Slash in winter and burn cuttings. Wanderer Butterfly can also be used as biological control.	

= Weed Species Recorded on site

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:

South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT: Cherish Enterprises

PROJECT: Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE: REHABILITATION MANAGEMENT PLAN

DRAWING NO.: **9612 E A01_1 AVONVALE RMP A**

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - APPENDIX 01 *Weed Treatment and Removal (ii)*

Queensland Herbarium Invasive Naturalised Plants In South East Queensland								
Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
80	Asteraceae	Gymnocoronis spilanthoides (Senegal tea)	3	4	5	Ha/F	Place plant material in a sealed plastic bag, leave in sunlight to rot then burn or dispose of at a council-approved land fill tip	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
81	Cactaceae	Harrisia martinii (harrisia cactus)	2	4	4	S/O	The use of the biological mealy-bug agent is recommended	
82	Zingiberaceae	Hedychium coronarium (wild ginger)	2	2	4	H/O	Small Plants: Hand pull and dispose	
83	Zingiberaceae	Hedychium gardnerianum (ginger lily)	1	3	4	H/O	Small Plants: Hand pull and dispose	
84	Malpighiaceae	Hiptage benghalensis (hiptage)	3	5	4	S,V/O	Hand pull small infestations.	
85	Acanthaceae	Hygrophila costata (Glush weed)	3	7	5	Ha/F	Hand pull smal infestations. Can be controlled by planting competitive native species.	
86	Poaceae	Hymenachne amplexicaulis cv. Olive (hymenachne)	1	1	4	Ha/A	A combined approach of different control methods including mechanical, chemical and biological with land management practices is most effective	
87	Acanthaceae	Hypoestes phyllostachya (polka-dot plant	3	5	4	H/O	Hand pull or crown and dispose	
88	Balsaminaceae	Impatiens walleriana (balsam)	2	6	4	H/O	N/A	
89	Convolvulaceae	Ipomoea cairica (mile-a-minute)	7	56	4	V/O	Vines & Runners: hand pull, roll up and hand up to dry.	
90	Convolvulaceae	Ipomoea indica (blue morning glory)	5	24	4	V/O	Vines and Runners: hand pull, roll up and hang to dry.	
91	Bignoniaceae	Jacaranda mimosifolia (jacaranda)	4	12	3	T/O	Seedlings: Hand pull	
92	Euphorbiaceae	Jatropha gossypiifolia (cotton-leaf physic nut, bellyache bush)	1	1	4	S/O	Hand pull	
93	Juncaceae	Juncus articulatus (jointed rush)	1	2	4	Ha/FO	Hand pull.	
94	Acanthaceae	Justicia betonica (squirreltail)	2	4	4	S/O	Hand pull smal infestations. Can be controlled by planting competitive native species.	
95	Sapindaceae	Koelreuteria elegans (Chinese rain tree)	1	1	3.6	T/O	Seedlings: Hand pull	
96	Verbenaceae	Lantana camara var. camara (lantana)	10	455	5	S/O	Seedlings: Hand pull	
97	Verbenaceae	Lantana montevidensis (creeping lantana)	8	62	5	S/O	Fire and/or mechanical control	
98	Mimosaceae	Leucaena leucocephala (leucaena)	6	14	4	ST/A	Small plants: Hand pull or mechanical removal	
99	Oleaceae	Ligustrum lucidum (tree privet)	5	9	5	T/O	Seedlings: Hand pull	
100	Oleaceae	Ligustrum sinense (Chinese privet)	4	11	5	T/O	Seedlings: Hand pull	
101	Liliaceae	Lilium formosanum (Taiwan lily)	5	10	4	H/O	Hand pull or crown and dispose	
102	Caprifoliaceae	Lonicera japonica (Japanese honeysuckle)	3	6	4	V/O	Vines and Runners: hand pull, roll up and hang to dry.	
103	Solanaceae	Lycium ferocissimum (African boxthorn)	1	5	4.4	S/O	N/A	
104	Bignoniaceae	Macfadyena unguis-cati (cat's claw creeper)	5	36	5	V/O	Tubers: crown or dig up, bag and remove.	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
105	Fabaceae	Macroptilium atropurpureum (siratro)	8	39	4	V/A	N/A	
106	Fabaceae	Macrotyloma axillare (perennial horse gram)	4	12	3	V,H/A	N/A	
107	Poaceae	Melinis minutiflora (molasses grass)	5	17	5	H/A	Grazing or mowing	
108	Poaceae	Melinis repens (red Natal grass)	10	134	4	H/A	Grazing or mowing	
109	Mimosaceae	Mimosa pudica (common sensitive plant)	4	12	4	S/A	N/A	
110	Moraceae	Morus alba (white mulberry)	3	10	3	T/O	N/A	
111	Rutaceae	Murraya paniculata cv. Exotica (murraya)	6	26	4	S/O	Seedlings: Hand pull	
112	Haloragaceae	Myriophyllum aquaticum (parrot's feather)	3	15	4	Ha/F	N/A	
113	Brassicaceae	Nasturtium officinale (Qld use Rorippa nasturtium-aquaticum) (watercress)	7	19	4	Ha/FU	Manually grub and destroy.	
114	Fabaceae	Neonotonia wightii (glycine)	5	16	5	H/A	N/A	
115	Nymphaeaceae	Nymphaea caerulea subsp. zanzibarensis (blue lotus)	4	17	4	Ha/OF	Hand pull small infestations.	
116	Nymphaeaceae	Nymphaea mexicana (yellow waterlily)	2	4	4	Ha/OF	Hand pull small infestations.	
117	Ochnaceae	Ochna serrulata (ochna)	7	33	5	S/O	N/A	
118	Onagraceae	Oenothera drummondii subsp. drummondii (beach evening primrose)	3	17	4	H/O	Hand pull	
119	Oleaceae	Olea europaea (olive)	2	6	4	T/A	Seedlings: Hand pull	
120	Cactaceae	Opuntia aurantiaca (tiger pear)	1	2	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
121	Cactaceae	Opuntia imbricata (rope pear)	1	1	4	H/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
122	Cactaceae	Opuntia monacantha (drooping tree pear, syn. O. vulgaris)	2	3	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
123	Cactaceae	Opuntia stricta (common prickly pear)	7	67	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
124	Cactaceae	Opuntia tomentosa (velvet tree pear)	8	46	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
125	Poaceae	Panicum maximum (green panic and guinea grass)	8	78	5	H/A	Hand or mechanical removal of small infestations	
126	Asteraceae	Parthenium hysterophorus (parthenium weed)	6	14	4	H/U	Hand pulling of small areas is not recommended	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
127	Poaceae	Paspalum conjugatum (paspalum grass)	7	38	4	H/A	Cut below crown.	
128	Poaceae	Paspalum dilatatum (paspalum grass)	10	30	4	H/A	Hand pull or dig up	
129	Poaceae	Paspalum mandiocanum (broad leaf paspalum)	3	6	4	H/A	N/A	
130	Poaceae	Paspalum notatum (bahia grass)	4	10	4	H/A	Hand pull or dig up	
131	Passifloraceae	Passiflora edulis (passion fruit)	6	12	3	V/AO	Hand Pull	
132	Passifloraceae	Passiflora foetida (stinking passion flower)	7	50	4	V/O	Hand Pull	
133	Passifloraceae	Passiflora suberosa (cork passionflower)	8	166	4	V/O	N/A	
134	Passifloraceae	Passiflora subpeltata (white passion flower)	10	60	4	V/O	Stems: Hand pull	
135	Scrophulariaceae	Paulownia tomentosa (paulownia)	3	5	4	T/AO	Seedlings: Hand pull	
136	Poaceae	Pennisetum alopecuroides (swamp foxtail)	7	29	4	H/O	Hand Pull	
137	Poaceae	Pennisetum clandestinum (kikuyu grass)	4	12	4	H/A	Hand Pull	
138	Poaceae	Pennisetum purpureum (elephant grass)	2	9	4	H/O	Grazing or mechanical removal	
139	Poaceae	Pennisetum setaceum (fountain grass)	3	11	3	H/O	Hand Pull	
140	Verbenaceae	Phyla canescens (lippia, Condamine couch)	3	4	4	Ha/O	A combined approach of different control methods including chemical and mechanical with land management practices is most effective	
141	Poaceae	Phyllostachys aurea (fishpole bamboo)	1	2	4	S/O	N/A	
142	Phytolaccaceae	Phytolacca octandra (inkweed)	10	50	3	H/O	Hand pull or crown	
143	Pinaceae	Pinus elliottii (slash pine)	4	22	4	T/A	Seedlings: Hand pull; Saplings and Trees: cut close to ground or ring-bark	
144	Araceae	Pistia stratiotes (water lettuce)	3	8	4	Ha/OF	Mechanical removal of small infestations	
145	Mimosaceae	Prosopis pallida (algaroba)	2	2	4	ST/O	When using mechanical control methods, it is important to remove the bud zone of the root system (about 30 cm below the ground surface). If this is not removed, re-shooting can occur.	
146	Rosaceae	Prunus munsoniana (wild goose plum)	7	31	4	ST/A	Seedlings: Hand pull	
147	Myrtaceae	Psidium guajava and P. guineense (yellow guava and West Indes guava)	4	7	4	ST/AO	N/A	
148	Fabaceae	Pueraria lobata (kudzu)	3	4	4	V,S/O	Slash; Diminish by shading site	
149	Bignoniaceae	Pyrostegia venusta (flame vine)	1	1	4	V/O	N/A	
150	Rosaceae	Rhaphiolepis indica (Indian hawthorn)	3	10	4	ST/O	Seedlings: Hand pull	

● = Weed Species Recorded on site

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:

South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT: Cherish Enterprises

PROJECT: Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE: REHABILITATION MANAGEMENT PLAN

DRAWING NO.: **9612 E A01_2 AVONVALE RMP A**

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - APPENDIX 01 *Weed Treatment and Removal (iii)*

Queensland Herbarium Invasive Naturalised Plants In South East Queensland								
Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
150	Rosaceae	Rhaphiolepis indica (Indian hawthorn)	3	10	4	ST/O	Seedlings: Hand pull	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance
151	Euphorbiaceae	Ricinus communis (castor oil plant)	7	20	4	S/O	Seedlings: Hand pull	
152	Phytolaccaceae	Rivina humilis (baby pepper)	8	61	4	H/O	Hand pull and hang to dry.	
153	Rosaceae	Rubus bellobatus (kittatinny blackberry)	5	22	4	S/O	Slashing hinders growth, giving some control if plants are slashed before they seed	
154	Rosaceae	Rubus discolor (R. fruticosus complex, a blakberry)	4	10	4	S/OA	Slashing hinders growth, giving some control if plants are slashed before they seed	
155	Rosaceae	Rubus ellipticus (yellowberry)	4	26	4	S/O	Slashing hinders growth, giving some control if plants are slashed before they seed	
156	Acanthaceae	Ruellia malacosperma (ruellia)	5	16	4	H/O	N/A	
157	Ruppiaceae	Ruppia maritima (sea tassel)	2	8	4	Ha/F	Hand pull or dig up	
158	Alismataceae	Sagittaria graminea var. platyphylla (sagittaria arrowhead)	3	7	4	Ha/FO	Physical removal of small infestations.	
159	Lamiaceae	Salvia coccinea (red salvia)	9	46	4	H/O	remove small areas by hand or machine	
160	Salviniaceae	Salvinia molesta (salvinia)	8	57	5	Ha/F	Mechanical removal of small infestations; Salvinia weevil (Biological control)	
161	Caprifoliaceae	Sambucus canadensis (American elder)	3	7	3	ST/O	Vines and Runners: hand pull, roll up and hang to dry.	
162	Dracaenaceae	Sansevieria trifasciata (sansevieria)	2	7	3	H/O	Hand pull or dig up	
163	Anacardiaceae	Schinus terebinthifolius (broad-leaf pepper tree)	6	49	5	T/O	Seedlings: Hand pull	
164	Asteraceae	Senecio madagascariensis (fire weed)	6	28	4	H/U	Vines: Hand pull and remove; Runners: Roll up and hang to dry.	
165	Asteraceae	Senecio tamoides (Canary creeper)	3	8	4	V/O	Vines: Hand pull and remove; Runners: Roll up and hang to dry.	
166	Caesalpiniaceae	Senna pendula var. glabrata (Easter cassia)	7	33	4	ST/O	Seedlings: Hand pull	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance
167	Caesalpiniaceae	Senna septemtrionalis (arsenic bush, was S. floribunda)	6	25	4	S/O	Seedlings: Hand pull	
168	Poaceae	Setaria palmifolia (palm leaf setaria)	5	13	3	H/O	Hand pull or dig up	
169	Poaceae	Setaria sphacelata (South African pigeon grass)	9	41	4	H/A	Hand pull or dig up	
170	Malvaceae	Sida rhombifolia (Paddy`s lucerne)	9	69	4	S/U	Hand pull or dig out.	
171	Asteraceae	Sigesbeckia orientalis (Indian weed)	10	148	4	H/U	Hand pull or cultivation.	
172	Solanaceae	Solanum erianthum (a tobacco bush)	7	19	3	S/O	Hand pull	
173	Solanaceae	Solanum hispidum (giant devil's fig)	5	23	4	S/O	Hand pull	
174	Solanaceae	Solanum mauritianum (wild tobacco tree)	8	30	4	S/O	Seedlings: Hand pull	
175	Solanaceae	Solanum seaforthianum (Brazilian nightshade)	8	78	4	V/O	Hand pull	
176	Solanaceae	Solanum torvum (devil's fig)	6	39	4	S/O	Seedlings: Hand pull	
177	Asteraceae	Solidago canadensis var. scabra (Canadian goldenrod)	7	15	4	H/O	Hand pull and hang to dry.	
178	Bignoniaceae	Spathodea campanulata (African tulip tree)	1	1	3	T/O	N/A	
179	Asteraceae	Sphagneticola trilobata (Singapore daisy)	6	34	5	H/O	Hand pull	
180	Poaceae	Sporobolus africanus (Parramatta grass)	8	48	5	H/U	Hand or mechanical removal of small infestations	
181	Poaceae	Sporobolus fertilis (giant Parramatta grass)	9	27	5	H/U	Hand or mechanical removal of small infestations	
182	Poaceae	Sporobolus pyramidalis and S. natalensis (giant rat's tail grasses)	8	72	5	H/U?	Hand or mechanical removal of small infestations	
183	Poaceae	Stenotaphrum secundatum (buffalo grass)	3	23	3	H/AO	Hand or mechanical removal of small infestations	
184	Fabaceae	Stylosanthes scabra (shrubby stylo)	4	4	4.3	H/A	N/A	
185	Arecaceae	Syagrus romanzoffiana (queen palm)	4	10	4	T/O	Seedlings: Hand pull or crown; Trees: cut below growing point	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance
186	Asteraceae	Tagetes minuta (stinking roger)	8	32	3	H/U	Hand pull and hang to dry.	
187	Bignoniaceae	Tecoma capensis (Cape honeysuckle)	3	8	4	ST/O	N/A	
188	Bignoniaceae	Tecoma stans (yellow bells)	4	16	4	ST/O	N/A	
189	Poaceae	Themeda quadrivalvis (grader grass)	8	25	4	H/A	Hand pull or dig out small infestations.	
190	Acanthaceae	Thunbergia alata (black eyed susan)	5	22	4	H/O	N/A	
191	Acanthaceae	Thunbergia grandiflora (thunbergia, blue thunbergia)	2	3	5	V/O	N/A	
192	Acanthaceae	Thunbergia laurifolia (laurel clock vine)	1	1	4	V/O	N/A	
193	Fabaceae	Tipuana tipu (tipuana)	2	5	3	T/O	Seedlings: Hand pull	
194	Asteraceae	Tithonia diversifolia (Mexican sunflower)	5	11	4	H/O	N/A	
195	Commelinaceae	Tradescantia fluminensis (Qld use T. albiflora) (wandering jew)	5	9	4	H/O	N/A	
196	Commelinaceae	Tradescantia zebrina (zebrina)	3	12	4	H/O	N/A	
197	Tiliaceae	Triumfetta rhomboidea (Chinese burr)	7	44	4	H/U	Hand pull	
198	Asteraceae	Verbesina encelioides (crownbeard)	7	34	4	H/U	Vines: Hand pull and remove; Runners: Roll up and hang to dry.	
199	Iridaceae	Watsonia meriana var. bulbillifera (bulbil watsonia)	2	3	3	H/O	Dig up, bag and remove	
200	Asteraceae	Zinnia peruviana (wild zinnia)	6	33	3	H/O	Seedlings: Hand pull	

Explanatory notes.

Sub-region (Sr): Number of the ten sub-regions of the Southeast Queensland bioregion (Young and Dillewaard 1999) within which species recorded (Queensland Herbarium data).
Rec no. (R): Total number of records for species within study area, Queensland Herbarium CORVEG and HERBRECS data.
Scores (S): Based on panel data of invasiveness, 5 (highest) to 3 (moderate). ? indicate doubtful scores.

Life forms (LFS): T-tree (woody plant >5m), ST-small tree (2-5m), S-shrub (woody <2m), H-herb (grasses & forbes), Ha-aquatic herbs.
Source: A-agriculture, O-ornamental and landscaping, F-fish aquarium, U-unintentional introduction and/or contaminant.

Abbreviations: Control Methods

CS&P = cut scrape and paint

S&P = scrape and paint

C&P = cut and paint

F/I = frill or inject stem

Abbreviations: Herbicides

G = Glyphosate, eg. Roundup Biactive, Weedmaster Duo

MM = Metsulfuron methyl, eg, Brushoff

F = Fluroxypyr, eg. Starane

Abbreviations: Herbicide Dilution Rates for High Concentration Applications

GU = Glyphosate undiluted

G1 = 1 part water to 1 part glyhphosate

G1.5 = 1.5 parts water to 1 part glyphosate

G4 = 4 parts water to 1 part glyphosate

Abbreviations: Herbicide Spray Concentrations

G100 = 100mL glyphosate per 10L of water + surfuctant, eg 20mL LI 700 per 10L
G200 = 200mL glyphosate per 10L of water + surfuctant, eg 50mL LI 700 per 10L

G100 + MM = 100mL glyphosate + 1.5g metsulfuron methyl per 10L of water + wetting agent, eg. 2mL Agral per 10L water
G200 + MM = 200mL glyphosate + 1.5g metsulfuron methyl per 10L of water + wetting agent, eg. 2mL Agral per 10L water

MM = 1.5g metsulfuron methyl per 10L water + wetting agent, eg. 2mL Agral per 10L water

F100 = 100mL fluroxypyr per 10L water

F150 = 150mL fluroxypyr per 10L water

Other Abbreviations

= Locally non-indigenous native species

Ref. 1. Big Scrub Rainforest Landcare Group (2008), 'Common Weeds of Subtropical Rainforests of Eastern Australia: A practical manual on their identification and control'

Ref. 2. Department of Primary Industries and Fisheries (QLD), 'Weeds and pest animals and ants'.

Ref. 3. Holland et al. (1996), 'Suburban Weeds', DPI QLD.

Ref 4. Port Stephens Council (NSW), 'Weed Busters'.
Ref 5. Department of Primary Industries (NSW), 'Noxious and Environmental Weed Handbook, 3rd Edition'.
Ref 6. Department of Environment and Conservation, 'Florabase', (DEC- WA)

Ref 7. Vitelli, J.S. and Madigan, B.A. and Van Haaren, P.E. and Setter, S. and Logan, P. (2009) Control of the invasive liana, Hiptage benghalensis. Weed Biology and Management, 9 (1). pp. 54-62.

= Weed Species Recorded on site

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:

South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

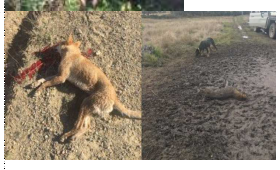
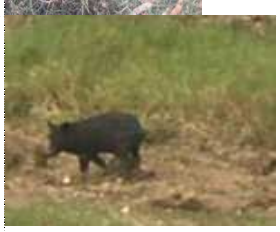
DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E A01_3 AVONVALE RMP A

Appendix H: Feral Animal Register

One Environment - Feral Animal Register

Note: Some photos have not been able to be uploaded in the register due to poor light and image quality

Feral animal	Date observed	Location (Latitude and longitude)	Number seen	Sighting in-person or camera	Notes	Photograph uploaded to OneNote (Y/N)	
Fox	31/8/22	NA	3	Camera	Trapped	Yes	
Pig	31/8/22	NA	3	Camera	Trapped	Yes	
Wild dog	31/8/22	NA	5	In-person	Trapped	Yes	
Feral deer	31/8/22	NA	2	In-person	Removed	Yes	
Hare	7/11/22	NA	5	In-person	Trapped	Yes	
Rabbit	7/11/22	NA	3	In-person	Trapped	Yes	
Feral deer	7/11/22	NA	6	In-person	Removed	Yes	
Wild dog	1/1/23	NA	1	In-person	Trapped	Yes	
Hare	1/1/23	NA	1	In-person	Removed	Yes	
Pig	1/1/23	NA	1	In-person	Removed	Yes	
Wild dog	31/03/23	Lat: -27.072346 Lon: 152.327457	1	In-person	Trapped		
Hare	2/4/23	Lat: -27.072335 Lon: 152.327415	1	In-person			
Feral deer	3/4/23	Lat: -27.094737 Lon: 152.294053	2	In-person			
Feral deer	4/4/23	Lat: -27.080752 Lon: 152.279765	4	In-person			
Feral deer	6/4/23	Lat: -27.082561 Lon: 152.295275	2	In-person			
Wild dog	9/4/23	Lat: -27.089959 Lon: 152.296845	1	In-person	Trapped		
Feral deer	10/04/23	Lat: -27.067760 Lon: 152.323964	1	In-person			
Fox	10/04/23	Lat: -27.071020 Lon: 152.320681	1	In-person	Trapped		
Feral deer	10/04/23	Lat: -27.071317 Lon: 152.319705	1	In-person			
Feral deer	11/04/23	Lat: -27.090632 Lon: 152.289688	1	In-person			
Feral deer	12/04/23	Lat: -27.065017 Lon: 152.317276	1	In-person			
Rabbit	12/04/23	Lat: -27.067330 Lon: 152.321487	2	In-person			
Rabbit	14/04/23	Lat: -27.066578 Lon: 152.323143	1	In-person			

Feral animal	Date observed	Location (Latitude and longitude)	Number seen	Sighting in-person or camera	Notes	Photograph uploaded to OneNote (Y/N)	
Rabbit	15/04/23	Lat: -27.067330 Lon: 152.321487	1	In-person			
Pig	15/04/23	Lat: -27.072110 Lon: 152.318144	1	In-person			
Rabbit	16/04/23	Lat: -27.065607 Lon: 152.320393	1	In-person			
Pig	16/04/23	Lat: -27.082567 Lon: 152.297095	2	In-person			
Hare	17/04/23	Lat: -27.070905 Lon: 152.317687	2	In-person			
Wild dog	17/04/23	Lat: -27.072372 Lon: 152.327429	1	In-person	Trapped		
Hare	17/04/23	Lat: -27.082159 Lon: 152.302813	1	In-person			
Pig	17/04/23	Lat: -27.082567 Lon: 152.297095	3	In-person			
Pig	10/6/23	Lat: -27.094976 Lon: 152.293932	9	Camera			
Feral deer	1/7/23	NA	4	In-person			
Pig	3/7/23	Lat: -27.094976 Lon: 152.293932	8	In-person	Trapped		
Feral deer	18/07/23	Lat: -27.070829 Lon: 152.328637	1	In-person			
Wild dog	18/7/23	Lat: -27.072427 Lon:152.327405	1	Camera			
Wild dog	21/7/23	Lat: -27.072427 Lon:152.327405	1	Camera			
Wild dog	21/7/23	NA	1	In-person			
Fox	29/7/23	Lat: -27.072427 Lon:152.327405	2	Camera			
Fox	30/7/23	Lat: -27.072427 Lon:152.327405	1	Camera			
Pig	30/7/23	Lat: -27.094976 Lon: 152.293932	5	Camera			
Feral deer	3/8/23	Lat: -27.084388 Lon: 152.301612	1	In-person			
Wild dog	3/8/23	Lat: -27.088547 Lon: 152.297613	1	In-person	Trapped		
Pig	6/8/23	Lat: -27.094976 Lon: 152.293932	6	Camera			
Feral deer	6/8/23	NA	2	In-person	Removed		
Pig	9/8/23	Lat: -27.094976 Lon: 152.293932	6	Camera			
Pig	14/8/23	Lat: -27.094976 Lon: 152.293932	8	Camera			
Pig	15/8/23	Lat: -27.094976 Lon: 152.293932	8	In-person	Trapped		
Pig	24/8/23	Lat: -27.094976 Lon: 152.293932	4	Camera			
Feral deer	28/8/23	NA	4	In-person	Removed		
Pig	15/9/23	Lat: -27.094976 Lon: 152.293932	7	In-person	Trapped		
Pig	26/9/23	Lat: -27.094976 Lon: 152.293932	4	In-person	Trapped		
Pig	4/10/23	Lat: -27.094976 Lon: 152.293932	9	In-person	Trapped		
Feral cat	5/10/23	NA	1	In-person	Trapped		
Feral cat	8/10/23	Lat: -27.094976 Lon: 152.293932	1	Camera			
Pig	13/10/23	Lat: -27.094976 Lon: 152.293932	12	Camera	Trapped		
Feral cat	17/10/23	Lat: -27.094976 Lon: 152.293932	1	Camera			
Pig	20/10/23	Lat: -27.094976 Lon: 152.293932	3	Camera			
Feral deer	22/10/23	NA	2	In-person	Removed		
Pig	20/11/23	Lat: -27.094976 Lon: 152.293932	9	Camera			
Pig	28/11/23	Lat: -27.094976 Lon: 152.293932	5	Camera			
Feral deer	1/12/23	NA	3	In-person	Removed		
Pig	3/12/23	Lat: -27.094976 Lon: 152.293932	4	Camera			
Wild dog	24/01/24	Lat: -27.070899 Lon: 152.320848	2	In-person	Trapped		
Wild dog	06/02/24	Lat: -27.067839 Lon: 152.313702	1	In-person	Trapped		
Wild deer	10/4/24	NA	1	In-person	Removed	Yes	
Feral deer	14/6/24	Lat: -27.081748 Lon: 152.286569	4	Camera			
Pig	14/6/24	Lat: -27.081748 Lon: 152.286569	13	Camera			
Pig	15/06/24	Lat: -27.081748 Lon: 152.286569	8	Camera			
Hare	20/06/24	Lat: -27.082872 Lon: 152.302153	1	Camera			
Feral deer	22/06/24	Lat: -27.082872 Lon: 152.302153	1	Camera			
Wild dog	23/06/24	Lat: -27.082872 Lon: 152.302153	1	Camera			
Wild dog	04/07/24	Lat: -27.082872 Lon: 152.302153	1	Camera			
Fox	13/07/24	Lat: -27.082872 Lon: 152.302153	1	Camera			
Fox	14/07/24	Lat: -27.082872 Lon: 152.302153	1	Camera			
Hare	14/07/24	Lat: -27.082872 Lon: 152.302153	1	Camera			
Hare	15/07/24	Lat: -27.082872 Lon: 152.302153	1	Camera			
Feral deer	19/07/24	Lat: -27.082872 Lon: 152.302153	5	Camera			
Hare	21/07/24	Lat: -27.082872 Lon: 152.302153	1	Camera			
Feral cat	25/07/24	Lat: -27.082872 Lon: 152.302153	1	Camera			
Feral deer	25/07/24	Lat: -27.082872 Lon: 152.302153	2	Camera			
Feral cat	29/07/24	Lat: -27.082872 Lon: 152.302153	1	Camera			
Feral deer	05/08/24	Lat: -27.082872 Lon: 152.302153	1	Camera			
Wild dog	06/08/24	Lat: -27.082872 Lon: 152.302153	1	Camera			
Feral deer	03/09/24	Lat: -27.082872 Lon: 152.302153	1	Camera			
Feral deer	09/09/24	Lat: -27.049809 Lon: 152.181180	2	Camera			
Fox	10/09/24	Lat: -27.049809 Lon: 152.181180	1	Camera			
Pig	16/09/24	Lat: -27.049809 Lon: 152.181180	1	Camera			
Feral deer	17/09/24	Lat: -27.049809 Lon: 152.181180	1	Camera			
Wild dog	16/01/24	Lat: -27.072398 Lon: 152.327347	1	In-person	Trapped		
Fox	17/4/24	NA	1	In-person	Removed	Yes	
Wild dog	18/01/24	Lat: -27.096118 Lon: 152.290313	1	In-person	Trapped		
Wild dog	21/01/24	Lat: -27.072483 Lon: 152.327414	1	In-person	Trapped		

Appendix I: Weed Ground Cover Transects – Raw Data

Weed management Zone 1 – Transect 1

Date: Baseline survey data collected 05.12.2024 (BAAM Ecological Consultants)

Start location (0 m): −27.060286, 152.337044
Centre location (50 m): −27.059851, 152.337118
End location (100 m): −27.059395, 152.337145

Description: Native pasture grass with exotic herbaceous weeds.

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
0	2	2	Native grasses & forbs		Native
2	2.5	0.5	Cobbler's Peg	*Bidens pilosa*	Other weeds
2.5	3.9	1.4	Native grasses		Native
3.9	4.4	0.5	Cobbler's Peg	*Bidens pilosa*	Other weeds
4.5	4.7	0.2	Velvety Tree-Pear	*Opuntia tomentosa*	WONS
4.7	6.3	1.6	Native grasses & forbs		Native
6.3	6.9	0.6	Cobbler's Peg	*Bidens pilosa*	Other weeds
6.7	7	0.3	Common Sida	*Sida rhombifolia*	Other weeds
7	7.5	0.5	Native grasses & forbs		Native
7.4	8	0.6	Cobbler's Peg	*Bidens pilosa*	Other weeds
7.5	7.6	0.1	Sensitive Grass	*Mimosa pudica*	Other weeds
8	8.1	0.1	Sensitive Grass	*Mimosa pudica*	Other weeds
8	8.4	0.4	Native grasses & forbs		Native
8.4	8.7	0.3	Cobbler's Peg	*Bidens pilosa*	Other weeds
8.7	8.8	0.1	Native grasses & forbs		Native
8.8	9.2	0.4	Cobbler's Peg	*Bidens pilosa*	Other weeds
9.2	10.7	1.5	Native grasses & forbs		Native
10.7	10.8	0.1	Tall Fleabane	*Conyza sumatrensis*	Other weeds
10.7	11	0.3	Parramatta Grass	*Sporobolus africanus*	Other weeds
10.8	11.7	0.9	Native grasses & forbs		Native
11.7	12	0.3	Sensitive Grass	*Mimosa pudica*	Other weeds
12.2	12.7	0.5	Burmuda Grass	*Cynodon dactylon*	Other weeds
12.7	13	0.3	Native grasses & forbs		Native
13	13.1	0.1	Sensitive Grass	*Mimosa pudica*	Other weeds
13.1	13.3	0.2	Native grasses & forbs		Native
13.3	13.4	0.1	Sensitive Grass	*Mimosa pudica*	Other weeds

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
13.4	14.4	1	Native grasses & forbs		Native
14.3	14.5	0.2	Cobbler's Peg	*Bidens pilosa*	Other weeds
14.3	14.5	0.2	Sensitive Grass	*Mimosa pudica*	Other weeds
14.5	15	0.5	Native grasses & forbs		Native
15	15.1	0.1	Cobbler's Peg	*Bidens pilosa*	Other weeds
15.1	15.6	0.5	Native grasses & forbs		Native
15.6	15.9	0.3	Cobbler's Peg	*Bidens pilosa*	Other weeds
15.6	15.7	0.1	Sensitive Grass	*Mimosa pudica*	Other weeds
15.7	17	1.3	Native grasses & forbs		Native
17	17.1	0.1	Sensitive Grass	*Mimosa pudica*	Other weeds
17.1	17.3	0.2	Bare ground		Bare ground
17.3	17.9	0.6	Sensitive Grass	*Mimosa pudica*	Other weeds
17.9	18.1	0.2	Bare ground		Bare ground
18.1	18.3	0.2	Cobbler's Peg	*Bidens pilosa*	Other weeds
18.3	18.7	0.4	Native grasses & forbs		Native
18.7	19.7	1	Cobbler's Peg	*Bidens pilosa*	Other weeds
19.7	21	1.3	Native grasses & forbs		Native
21	21.2	0.2	Sensitive Grass	*Mimosa pudica*	Other weeds
21.2	22.3	1.1	Native grasses & forbs		Native
22.3	22.5	0.2	Sensitive Grass	*Mimosa pudica*	Other weeds
22.5	24.3	1.8	Native grasses & forbs		Native
24.3	24.6	0.3	Common Sida	*Sida rhombifolia*	Other weeds
24.6	25.4	0.8	Native grasses & forbs		Native
25.4	25.5	0.1	Sensitive Grass	*Mimosa pudica*	Other weeds
25.5	27.4	1.9	Native grasses & forbs		Native
27.4	27.5	0.1	Tall Fleabane	*Conyza sumatrensis*	Other weeds
27.5	31.4	3.9	Native grasses & forbs		Native
31.4	31.5	0.1	Tall Fleabane	*Conyza sumatrensis*	Other weeds
31.5	37.8	6.3	Native grasses & forbs		Native
37.8	38	0.2	Blackberry Nightshade	*Solanum nigrum*	Other weeds
38	38.6	0.6	Native grasses & forbs		Native
38.6	38.9	0.3	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
38.9	39.2	0.3	Native grasses & forbs		Native

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
39.2	39.5	0.3	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
39.5	39.8	0.3	Sensitive Grass	*Mimosa pudica*	Other weeds
39.8	42	2.2	Native grasses & forbs		Native
42	44.5	2.5	Lantana	*Lantana camara*	WONS
44.5	44.8	0.3	Native grasses & forbs		Native
44.8	45	0.2	Sensitive Grass	*Mimosa pudica*	Other weeds
45	47.7	2.7	Native grasses & forbs		Native
47.7	47.8	0.1	Common Sida	*Sida rhombifolia*	Other weeds
47.8	49.5	1.7	Native grasses & forbs		Native
49.5	49.6	0.1	Tall Fleabane	*Conyza sumatrensis*	Other weeds
49.6	49.7	0.1	Common Sida	*Sida rhombifolia*	Other weeds
49.7	50.1	0.4	Native grasses & forbs		Native
50.1	50.2	0.1	Cobbler's Peg	*Bidens pilosa*	Other weeds
50.1	51	0.9	Native grasses & forbs		Native
50.1	50.2	0.1	Common Sida	*Sida rhombifolia*	Other weeds
50.2	51.1	0.9	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
51.1	52.2	1.1	Native grasses & forbs		Native
51.4	51.7	0.3	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
52.1	52.2	0.1	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
52.2	52.6	0.4	Sensitive Grass	*Mimosa pudica*	Other weeds
52.6	53	0.4	Native grasses & forbs		Native
53	53.1	0.1	Cobbler's Peg	*Bidens pilosa*	Other weeds
53.1	53.6	0.5	Native grasses & forbs		Native
53.6	53.8	0.2	Sensitive Grass	*Mimosa pudica*	Other weeds
53.7	53.8	0.1	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
53.8	54.2	0.4	Tall Fleabane	*Conyza sumatrensis*	Other weeds
54.1	54.2	0.1	Cobbler's Peg	*Bidens pilosa*	Other weeds
54.2	54.6	0.4	Native grasses & forbs		Native
54.6	54.7	0.1	Sensitive Grass	*Mimosa pudica*	Other weeds
54.7	56.8	2.1	Native grasses & forbs		Native
55.3	55.7	0.4	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
56.1	56.4	0.3	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
56.5	56.8	0.3	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
56.8	57.1	0.3	Tall Fleabane	*Conyza sumatrensis*	Other weeds
57.1	57.3	0.2	Native grasses & forbs		Native
57.3	58	0.7	Lantana	*Lantana camara*	WONS
58	61.7	3.7	Native grasses & forbs		Native
61.7	61.9	0.2	Spear Thistle	*Cirsium vulgare*	Other weeds
61.9	63.8	1.9	Native grasses & forbs		Native
63.8	64	0.2	Tall Fleabane	*Conyza sumatrensis*	Other weeds
64	64.2	0.2	Sensitive Grass	*Mimosa pudica*	Other weeds
64.2	68.4	4.2	Native grasses & forbs		Native
68.4	68.5	0.1	Cobbler's Peg	*Bidens pilosa*	Other weeds
68.5	68.6	0.1	Sensitive Grass	*Mimosa pudica*	Other weeds
68.6	69.6	1	Native grasses & forbs		Native
69.6	69.8	0.2	Sensitive Grass	*Mimosa pudica*	Other weeds
69.8	71.7	1.9	Native grasses & forbs		Native
71.7	71.8	0.1	Tall Fleabane	*Conyza sumatrensis*	Other weeds
71.7	74.2	2.5	Native grasses & forbs		Native
72	72.4	0.4	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
73.7	74.1	0.4	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
74.2	74.4	0.2	Sensitive Grass	*Mimosa pudica*	Other weeds
74.4	74.5	0.1	Tall Fleabane	*Conyza sumatrensis*	Other weeds
74.5	75	0.5	Native grasses & forbs		Native
75	75.6	0.6	Tall Fleabane	*Conyza sumatrensis*	Other weeds
75.6	75.8	0.2	Native grasses & forbs		Native
75.6	78.5	2.9	Native grasses		Native
75.8	76	0.2	Tall Fleabane	*Conyza sumatrensis*	Other weeds
76.4	76.6	0.2	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
78.5	78.9	0.4	Tall Fleabane	*Conyza sumatrensis*	Other weeds
79	81.8	2.8	Native grasses		Native
79.3	79.8	0.5	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
80.4	80.9	0.5	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
81.8	82.3	0.5	Tall Fleabane	*Conyza sumatrensis*	Other weeds
82.3	83.6	1.3	Native grasses & forbs		Native
83.6	83.9	0.3	Tall Fleabane	*Conyza sumatrensis*	Other weeds

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
83.9	84.7	0.8	Native grasses		Native
84.7	85	0.3	Tall Fleabane	*Conyza sumatrensis*	Other weeds
85	85.9	0.9	Native grasses		Native
85.9	86	0.1	Tall Fleabane	*Conyza sumatrensis*	Other weeds
86	86.9	0.9	Native grasses		Native
86.8	87	0.2	Tall Fleabane	*Conyza sumatrensis*	Other weeds
87	95	8	Native grasses		Native
89.4	89.5	0.1	Tall Fleabane	*Conyza sumatrensis*	Other weeds
91.6	91.7	0.1	Cobbler's Peg	*Bidens pilosa*	Other weeds
95	95.2	0.2	Tall Fleabane	*Conyza sumatrensis*	Other weeds
95.2	98.6	3.4	Native grasses		Native
95.9	96.2	0.3	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
97.1	97.2	0.1	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
97.3	97.4	0.1	Purple-top Verbena	*Verbena bonariensis*	Other weeds
98.6	99	0.4	Cobbler's Peg	*Bidens pilosa*	Other weeds
99	100	1	Native grasses & forbs		Native
Total Native Coverage (m):			81.4		
Total bare ground coverage (m):			0.4		
Total WONS Coverage (m):			3.4		
Total other weeds Coverage (m):			21.7		

Transect 1 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Weed management Zone 1 – Transect 3

Date: Baseline survey data collected 05.12.2024 (BAAM Ecological Consultants)

Start location (0 m): −27.062338, 152.333517
Centre location (50 m): −27.062284, 152.333115
End location (100 m): −27.062268, 152.332621

Description: Native pasture grass with exotic herbaceous weeds.

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
0	5.8	5.8	Native grasses		Native
3.4	3.8	0.4	Cobbler's Peg	*Bidens pilosa*	Other weeds
5.8	6.5	0.7	Red-top Natal Grass	*Melinis repens*	Other weeds
6.5	13.2	6.7	Native grasses & forbs		Native
7.4	8.3	0.9	Tall Fleabane	*Conyza sumatrensis*	Other weeds
8.6	9.1	0.5	Cobbler's Peg	*Bidens pilosa*	Other weeds
9	9.4	0.4	Tall Fleabane	*Conyza sumatrensis*	Other weeds
10.2	10.6	0.4	Cobbler's Peg	*Bidens pilosa*	Other weeds
10.7	11.43	0.73	Tall Fleabane	*Conyza sumatrensis*	Other weeds
12.4	12.8	0.4	Cobbler's Peg	*Bidens pilosa*	Other weeds
13.2	13.9	0.7	Tall Fleabane	*Conyza sumatrensis*	Other weeds
13.8	14.4	0.6	Native grasses		Native
14.1	14.9	0.8	Tall Fleabane	*Conyza sumatrensis*	Other weeds
14.4	15.5	1.1	Parramatta Grass	*Sporobolus africanus*	Other weeds
15.2	15.9	0.7	Tall Fleabane	*Conyza sumatrensis*	Other weeds
16.8	17	0.2	Tall Fleabane	*Conyza sumatrensis*	Other weeds
19.9	22.4	2.5	Native grasses & forbs		Native
21	21.8	0.8	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
21.7	31.7	10	Native grasses & forbs		Native
22.4	25.73	3.33	Burmuda Grass	*Cynodon dactylon*	Other weeds
26	27.1	1.1	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
31.7	33	1.3	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
32.5	32.8	0.3	Spear Thistle	*Cirsium vulgare*	Other weeds
33	51.5	18.5	Native grasses & forbs		Native
34.5	34.8	0.3	Tall Fleabane	*Conyza sumatrensis*	Other weeds
35.4	35.7	0.3	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
37.2	37.4	0.2	Tall Fleabane	*Conyza sumatrensis*	Other weeds
38.7	39	0.3	Tall Fleabane	*Conyza sumatrensis*	Other weeds
39.6	39.7	0.1	Tall Fleabane	*Conyza sumatrensis*	Other weeds
40.3	40.7	0.4	Cobbler's Peg	*Bidens pilosa*	Other weeds
41.1	41.4	0.3	Common Sowthistle	*Sonchus oleraceus*	Other weeds
41.8	42.1	0.3	Common Sowthistle	*Sonchus oleraceus*	Other weeds
42.2	42.3	0.1	Tall Fleabane	*Conyza sumatrensis*	Other weeds
42.8	43	0.2	Cobbler's Peg	*Bidens pilosa*	Other weeds
46.5	47	0.5	Tall Fleabane	*Conyza sumatrensis*	Other weeds
47.5	47.8	0.3	Tall Fleabane	*Conyza sumatrensis*	Other weeds
51	52.4	1.4	Burmuda Grass	*Cynodon dactylon*	Other weeds
52.1	74.4	22.3	Native grasses & forbs		Native
53.7	54.4	0.7	Tall Fleabane	*Conyza sumatrensis*	Other weeds
56.4	56.6	0.2	Purple-top Verbena	*Heliotropium amplexicaule*	Other weeds
56.8	57.1	0.3	Purple-top Verbena	*Heliotropium amplexicaule*	Other weeds
61.1	61.5	0.4	Purple-top Verbena	*Heliotropium amplexicaule*	Other weeds
62	62.2	0.2	Purple-top Verbena	*Heliotropium amplexicaule*	Other weeds
63	63.2	0.2	Purple-top Verbena	*Heliotropium amplexicaule*	Other weeds
69.1	69.5	0.4	Tall Fleabane	*Conyza sumatrensis*	Other weeds
69.8	70	0.2	Tall Fleabane	*Conyza sumatrensis*	Other weeds
74.4	77.7	3.3	Burmuda Grass	*Cynodon dactylon*	Other weeds
77.7	100	22.3	Native grasses & forbs		Native
78.5	79	0.5	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
82.5	82.7	0.2	Blackberry Nightshade	*Solanum nigrum*	Other weeds
84	84.4	0.4	Cobbler's Peg	*Bidens pilosa*	Other weeds
85.5	85.9	0.4	Spear Thistle	*Cirsium vulgare*	Other weeds
88.7	89	0.3	Tall Fleabane	*Conyza sumatrensis*	Other weeds
88.8	89.2	0.4	Yellow Woodsorrel	*Oxalis stricta*	Other weeds
89.5	89.7	0.2	Tall Fleabane	*Conyza sumatrensis*	Other weeds
90	90.4	0.4	Tall Fleabane	*Conyza sumatrensis*	Other weeds
90.6	91	0.4	Tall Fleabane	*Conyza sumatrensis*	Other weeds
91.2	92	0.8	Tall Fleabane	*Conyza sumatrensis*	Other weeds
92	92.2	0.2	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
92.8	95.8	3	Tall Fleabane	*Conyza sumatrensis*	Other weeds
94.8	95.4	0.6	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
96	97	1	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
96	96.5	0.5	Blackberry Nightshade	*Solanum nigrum*	Other weeds
97	97.5	0.5	Red-top Natal Grass	*Melinis repens*	Other weeds
97.8	98.4	0.6	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
98.4	98.7	0.3	Tall Fleabane	*Conyza sumatrensis*	Other weeds
Total Native Coverage (m):			88.7		
Total bare ground coverage (m):			0		
Total leaf litter coverage (m)			0		
Total WONS Coverage (m):			0		
Total other weeds Coverage (m):			36.06		

Transect 3 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Weed management Zone 2 – Transect 2

Date: Baseline survey data collected 05.12.2024 (BAAM Ecological Consultants)

Start location (0 m): −27.060107, 152.339715
Centre location (50 m): −27.060505, 152.339450
End location (100 m): −27.060824, 152.339087

Description: Highly disturbed ex-pasture grass with exotic herbaceous weeds.

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
0	4.7	4.7	Native grasses & forbs		Native
0.4	0.5	0.1	Tall Fleabane	*Conyza sumatrensis*	Other weeds
1.5	1.8	0.3	Purple-top Verbena	*Verbena bonariensis*	Other weeds
1.6	1.7	0.1	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
4.7	5	0.3	Burmuda Grass	*Cynodon dactylon*	Other weeds
5	5.3	0.3	Native grasses & forbs		Native
5.3	6.3	1	Burmuda Grass	*Cynodon dactylon*	Other weeds
5.9	6.2	0.3	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
6.3	8.2	1.9	Native grasses		Native
8.2	10	1.8	Burmuda Grass	*Cynodon dactylon*	Other weeds
8.3	8.8	0.5	Yellow Woodsorrel	*Oxalis stricta*	Other weeds
10	17.2	7.2	Native grasses & forbs		Native
10.6	10.9	0.3	Yellow Woodsorrel	*Oxalis stricta*	Other weeds
10.8	11.1	0.3	Purple-top Verbena	*Verbena bonariensis*	Other weeds
15	15.1	0.1	Tall Fleabane	*Conyza sumatrensis*	Other weeds
15.2	15.4	0.2	Spear Thistle	*Cirsium vulgare*	Other weeds
17.2	17.5	0.3	Tall Fleabane	*Conyza sumatrensis*	Other weeds
17.5	17.6	0.1	Spear Thistle	*Cirsium vulgare*	Other weeds
17.7	26.2	8.5	Native grasses & forbs		Native
22.8	34	11.2	Burmuda Grass	*Cynodon dactylon*	Other weeds
25.3	25.8	0.5	Spear Thistle	*Cirsium vulgare*	Other weeds
25.6	25.7	0.1	Tall Fleabane	*Conyza sumatrensis*	Other weeds
26.1	26.5	0.4	Purple-top Verbena	*Verbena bonariensis*	Other weeds
26.2	26.5	0.3	Common Sida	*Sida rhombifolia*	Other weeds
26.6	27.2	0.6	Native grasses		Native
27.2	27.6	0.4	Purple-top Verbena	*Verbena bonariensis*	Other weeds

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
27.6	28.2	0.6	Tall Fleabane	*Conyza sumatrensis*	Other weeds
28.6	29	0.4	Purple-top Verbena	*Verbena bonariensis*	Other weeds
29.1	32.7	3.6	Native grasses & forbs		Native
30.4	30.7	0.3	Purple-top Verbena	*Verbena bonariensis*	Other weeds
31.3	31.7	0.4	Purple-top Verbena	*Verbena bonariensis*	Other weeds
31.9	32.1	0.2	Purple-top Verbena	*Verbena bonariensis*	Other weeds
33.7	34.3	0.6	Tall Fleabane	*Conyza sumatrensis*	Other weeds
34.3	58.7	24.4	Native grasses & forbs		Native
34.5	34.8	0.3	Purple-top Verbena	*Verbena bonariensis*	Other weeds
45.4	45.8	0.4	Purple-top Verbena	*Verbena bonariensis*	Other weeds
47.4	47.9	0.5	Purple-top Verbena	*Verbena bonariensis*	Other weeds
48	48.2	0.2	Tall Fleabane	*Conyza sumatrensis*	Other weeds
48.6	49	0.4	Cobbler's Peg	*Bidens pilosa*	Other weeds
58.7	59.7	1	Purple-top Verbena	*Verbena bonariensis*	Other weeds
59.7	60.4	0.7	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
59.8	60.8	1	Spear Thistle	*Cirsium vulgare*	Other weeds
60.8	100	39.2	Native grasses & forbs		Native
61.8	62.2	0.4	Tall Fleabane	*Conyza sumatrensis*	Other weeds
62	62.3	0.3	South African Pigeon Grass	*Setaria sphacelata*	Other weeds
63	63.1	0.1	Spear Thistle	*Cirsium vulgare*	Other weeds
65	65.2	0.2	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
65.3	65.5	0.2	Spear Thistle	*Cirsium vulgare*	Other weeds
65.5	66.3	0.8	Tall Fleabane	*Conyza sumatrensis*	Other weeds
65.8	66.2	0.4	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
68.1	68.7	0.6	Spear Thistle	*Cirsium vulgare*	Other weeds
69.4	69.6	0.2	Spear Thistle	*Cirsium vulgare*	Other weeds
70.2	70.5	0.3	Spurges	*Euphorbia sp.*	Other weeds
70.3	71.2	0.9	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
75	75.3	0.3	Purple-top Verbena	*Verbena bonariensis*	Other weeds
78.4	79	0.6	Zinnia	*Zinnia sp.*	Other weeds
80	80.6	0.6	Purple-top Verbena	*Verbena bonariensis*	Other weeds
81	81.4	0.4	Leaf litter		Leaf litter
82.6	82.8	0.2	Spear Thistle	*Cirsium vulgare*	Other weeds

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
84.6	85	0.4	Purple-top Verbena	*Verbena bonariensis*	Other weeds
89	90	1	Tall Fleabane	*Conyza sumatrensis*	Other weeds
94	94.3	0.3	Zinnia	*Zinnia sp.*	Other weeds
95.8	97.1	1.3	Zinnia	*Zinnia sp.*	Other weeds
96	96.2	0.2	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
97.2	98	0.8	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
98.	98.4	0.4	Tall Fleabane	*Conyza sumatrensis*	Other weeds
98.5	99	0.5	Spear Thistle	*Cirsium vulgare*	Other weeds
98.6	99	0.4	Tall Fleabane	*Conyza sumatrensis*	Other weeds
99	99.8	0.8	Yellow Woodsorrel	*Oxalis stricta*	Other weeds
Total Native Coverage (m):			90.4		
Total bare ground coverage (m):			0		
Total leaf litter coverage (m):			0.4		
Total WONS Coverage (m):			0		
Total other weeds Coverage (m):			37.8		

Transect 2 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Weed management Zone 3 – Transect 4

Date: Baseline survey data collected 05.12.2024 (BAAM Ecological Consultants)

Start location (0 m): −27.061369, 152.315908
Centre location (50 m): −27.061334, 152.316366
End location (100 m): −27.061373, 152.316851

Description: Scattered Lantana camara with exotic grass and herbaceous weeds.

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
0	6	6	Leaf litter		Leaf litter
6	10.6	4.6	Red-top Natal Grass	*Melinis repens*	Other weeds
6.1	6.9	0.8	Cobbler's Peg	*Bidens pilosa*	Other weeds
6.2	6.7	0.5	Bunchy Flat-sedge	*Cyperus polystachyos*	Other weeds
10.4	10.6	0.2	Bunchy Flat-sedge	*Cyperus polystachyos*	Other weeds
10.4	10.9	0.5	Lantana	*Lantana camara*	WONS
10.6	11	0.4	Bare ground		Bare ground
11	12	1	Leaf litter		Leaf litter
12	15.8	3.8	Red-top Natal Grass	*Melinis repens*	Other weeds
12.7	12.8	0.1	Flannel Weed	*Sida cordifolia*	Other weeds
15.4	16.4	1	Flannel Weed	*Sida cordifolia*	Other weeds
16.2	19	2.8	Red-top Natal Grass	*Melinis repens*	Other weeds
18.1	18.7	0.6	Flannel Weed	*Sida cordifolia*	Other weeds
19	19.7	0.7	Bunchy Flat-sedge	*Cyperus polystachyos*	Other weeds
19	19.1	0.1	Spurges	*Euphorbia sp.*	Other weeds
19.5	20.1	0.6	Leaf litter		Leaf litter
20.1	20.3	0.2	Native forbs		Native
20.3	20.5	0.2	Flannel Weed	*Sida cordifolia*	Other weeds
20.6	21.5	0.9	Red-top Natal Grass	*Melinis repens*	Other weeds
21.3	21.5	0.2	Bunchy Flat-sedge	*Cyperus polystachyos*	Other weeds
21.5	21.8	0.3	Flannel Weed	*Sida cordifolia*	Other weeds
21.8	22.8	1	Leaf litter		Leaf litter
22.8	24.1	1.3	Lantana	*Lantana camara*	WONS
24.1	24.4	0.3	Native grasses		Native
24.2	24.8	0.6	Red-top Natal Grass	*Melinis repens*	Other weeds
24.6	24.9	0.3	Bunchy Flat Sedge	*Cyperus polystachyos*	Other weeds

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
24.9	26.2	1.3	Lantana	*Lantana camara*	WONS
25.5	25.8	0.3	Bunchy Flat Sedge	*Cyperus polystachyos*	Other weeds
25.9	36.7	10.8	Red-top Natal Grass	*Melinis repens*	Other weeds
31.1	32	0.9	Native forbs		Native
32	32.2	0.2	Flannel Weed	*Sida cordifolia*	Other weeds
32.8	33.1	0.3	Flannel Weed	*Sida cordifolia*	Other weeds
35.6	37.9	2.3	Native forbs		Native
35.7	36.1	0.4	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
37.7	37.9	0.2	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
37.9	39	1.1	Leaf litter		Leaf litter
39			Flannel Weed	*Sida cordifolia*	Other weeds
39.1	39.6	0.5	Red-top Natal Grass	*Melinis repens*	Other weeds
39.6	39.8	0.2	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
40.3	40.5	0.2	Spurges	*Euphorbia sp.*	Other weeds
40.3	41	0.7	Red-top Natal Grass	*Melinis repens*	Other weeds
41	42.6	1.6	Flannel Weed	*Sida cordifolia*	Other weeds
41.4	41.6	0.2	Spurges	*Euphorbia sp.*	Other weeds
41.5	42	0.5	Red-top Natal Grass	*Melinis repens*	Other weeds
42.4	42.8	0.4	Native grasses & forbs		Native
42.6	51	8.4	Red-top Natal Grass	*Melinis repens*	Other weeds
43	43.2	0.2	Spurges	*Euphorbia sp.*	Other weeds
44.8	49.5	4.7	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
45.9	46.3	0.4	Bunchy Flat Sedge	*Cyperus polystachyos*	Other weeds
46.3	46.9	0.6	Flannel Weed	*Sida cordifolia*	Other weeds
47	47.4	0.4	Native grasses & forbs		Native
47.8	48.2	0.4	Flannel Weed	*Sida cordifolia*	Other weeds
48.2	51	2.8	Native grasses		Native
51	53	2	Lantana	*Lantana camara*	WONS
53	60.6	7.6	Red-top Natal Grass	*Melinis repens*	Other weeds
54.1	54.4	0.3	Flannel Weed	*Sida cordifolia*	Other weeds
56.4	56.6	0.2	Flannel Weed	*Sida cordifolia*	Other weeds
56.6	56.8	0.2	Native forbs		Native
60.4	60.8	0.4	Flannel Weed	*Sida cordifolia*	Other weeds

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
60.6	62	1.4	Lantana	*Lantana camara*	WONS
62	65	3	Red-top Natal Grass	*Melinis repens*	Other weeds
62.7	63.1	0.4	Flannel Weed	*Sida cordifolia*	Other weeds
63.4	63.7	0.3	Native forbs		Native
64	64.2	0.2	Flannel Weed	*Sida cordifolia*	Other weeds
65	65.8	0.8	Flannel Weed	*Sida cordifolia*	Other weeds
65.8	69.3	3.5	Native grasses & forbs		Native
69.3	70	0.7	Parramatta Grass	*Sporobolus africanus*	Other weeds
70	73	3	Native grasses & forbs		Native
73	76.3	3.3	Red-top Natal Grass	*Melinis repens*	Other weeds
75.3	75.5	0.2	Flannel Weed	*Sida cordifolia*	Other weeds
76.3	78	1.7	Lantana	*Lantana camara*	WONS
78	78.7	0.7	Native forbs		Native
78.9	79.9	1	Lantana	*Lantana camara*	WONS
79.9	82.2	2.3	Native grasses & forbs		Native
82.2	83.2	1	Common Sowthistle	*Sonchus oleraceus*	Other weeds
83.2	88.4	5.2	Bare ground		Bare ground
88.1	89.2	1.1	Red-top Natal Grass	*Melinis repens*	Other weeds
89.2	90.2	1	Lantana	*Lantana camara*	WONS
89.3	91.5	2.2	Native grasses & forbs		Native
91.4	93	1.6	Lantana	*Lantana camara*	WONS
92.83	100	7.17	Red-top Natal Grass	*Melinis repens*	Other weeds
94	94.4	0.4	Native grasses		Native
96.8	97	0.2	Native forbs		Native
99.1	99.2	0.1	Flannel Weed	*Sida cordifolia*	Other weeds
Total Native Coverage (m):			20.1		
Total bare ground coverage (m):			5.6		
Total leaf litter coverage (m)			9.7		
Total WONS Coverage (m):			11.8		
Total other weeds Coverage (m):			74.97		

Transect 4 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Weed management Zone 4 – Transect 5

Date: Baseline survey data collected 05.12.2024 (BAAM Ecological Consultants)

Start location (0 m): −27.060255, 152.318757
Centre location (50 m): −27.059930, 152.319105
End location (100 m): −27.059521, 152.319359

Description: Low-lying pasture dominated by herbaceous weeds.

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
0	1	1	Native forbs		Native
1.4	1.5	0.1	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
1.5	2.2	0.7	Cobbler's Peg	*Bidens pilosa*	Other weeds
2	2.6	0.6	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
2.6	3.6	1	Yellow Woodsorrel	*Oxalis stricta*	Other weeds
2.8	3.4	0.6	Bunchy Flat Sedge	*Cyperus polystachyos*	Other weeds
3.6	4.3	0.7	Native forbs		Native
3.8	4	0.2	Cobbler's Peg	*Bidens pilosa*	Other weeds
3.8	4.7	0.9	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
4.4	4.73	0.33	Cobbler's Peg	*Bidens pilosa*	Other weeds
4.8	5.23	0.43	Common Sida	*Sida rhombifolia*	Other weeds
5	7.2	2.2	Native forbs		Native
6.5	7.8	1.3	Native grasses		Native
6.8	7.1	0.3	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
7.8	10	2.2	Native forbs		Native
8.4	9	0.6	Cobbler's Peg	*Bidens pilosa*	Other weeds
8.5	8.8	0.3	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
9.2	9.8	0.6	Cobbler's Peg	*Bidens pilosa*	Other weeds
9.8	10	0.2	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
10	10.5	0.5	Native grasses		Native
10.5	11.9	1.4	Cobbler's Peg	*Bidens pilosa*	Other weeds
10.5	10.8	0.3	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
11	14.6	3.6	Native forbs		Native
11.3	11.6	0.3	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
12	12.7	0.7	Cobbler's Peg	*Bidens pilosa*	Other weeds
13.3	13.6	0.3	Cobbler's Peg	*Bidens pilosa*	Other weeds

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
14.8	16.9	2.1	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
14.9	18.2	3.3	Yellow Woodsorrel	*Oxalis stricta*	Other weeds
16.2	16.6	0.4	Cobbler's Peg	*Bidens pilosa*	Other weeds
17.3	17.9	0.6	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
18.1	18.8	0.7	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
18.7	24	5.3	Cobbler's Peg	*Bidens pilosa*	Other weeds
20	20.43	0.43	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
21.3	21.6	0.3	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
23.6	24.2	0.6	Flannel Weed	*Sida cordifolia*	Other weeds
24	24.4	0.4	Cobbler's Peg	*Bidens pilosa*	Other weeds
24.4	25.1	0.7	Native forbs		Native
25	26.1	1.1	Cobbler's Peg	*Bidens pilosa*	Other weeds
25.8	26.1	0.3	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
26.4	27	0.6	Native forbs		Native
27	27.6	0.6	Tall Fleabane	*Conyza sumatrensis*	Other weeds
27.6	27.8	0.2	Flannel Weed	*Sida cordifolia*	Other weeds
27.8	29.5	1.7	Native forbs		Native
28.8	30.1	1.3	Native forbs		Native
29	29.4	0.4	Cobbler's Peg	*Bidens pilosa*	Other weeds
29.5	30.2	0.7	Flannel Weed	*Sida cordifolia*	Other weeds
30.7	31.5	0.8	Yellow Woodsorrel	*Oxalis stricta*	Other weeds
31.3	33.4	2.1	Cobbler's Peg	*Bidens pilosa*	Other weeds
33.2	34	0.8	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
32.8	33.5	0.7	Native forbs		Native
34	36.2	2.2	Cobbler's Peg	*Bidens pilosa*	Other weeds
35.4	35.7	0.3	Common Sida	*Sida rhombifolia*	Other weeds
35.7	36.3	0.6	Purple-top Verbena	*Verbena bonariensis*	Other weeds
36.2	37	0.8	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
36.2	37.7	1.5	Yellow Woodsorrel	*Oxalis stricta*	Other weeds
36.6	38	1.4	Bunchy Flat Sedge	*Cyperus polystachyos*	Other weeds
37	37.9	0.9	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
37.7	38	0.3	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
37.7	39.6	1.9	Native forbs		Native

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
39.2	40	0.8	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
39.7	40.7	1	Stinking Roger	*Tagetes minuta*	Other weeds
40	42.2	2.2	Yellow Woodsorrel	*Oxalis stricta*	Other weeds
40.7	41.2	0.5	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
41.4	42	0.6	Tall Fleabane	*Conyza sumatrensis*	Other weeds
41.8	44.5	2.7	Stinking Roger	*Tagetes minuta*	Other weeds
42.1	42.8	0.7	Bunchy Flat Sedge	*Cyperus polystachyos*	Other weeds
42.7	43.1	0.4	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
43.3	43.6	0.3	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
45	47	2	Bunchy Flat Sedge	*Cyperus polystachyos*	Other weeds
45.5	48	2.5	Native forbs		Native
46	46.5	0.5	Stinking Roger	*Tagetes minuta*	Other weeds
46.3	48.4	2.1	Cobbler's Peg	*Bidens pilosa*	Other weeds
46.5	49	2.5	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
47.3	49	1.7	Stinking Roger	*Tagetes minuta*	Other weeds
47.8	49	1.2	Yellow Woodsorrel	*Oxalis stricta*	Other weeds
48	48.6	0.6	Tall Fleabane	*Conyza sumatrensis*	Other weeds
49	50.5	1.5	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
49	53	4	Native forbs		Native
49	50.5	1.5	Stinking Roger	*Tagetes minuta*	Other weeds
50.5	52.2	1.7		Unidentified species 1	Native
50.6	51.1	0.5	Bunchy Flat Sedge	*Cyperus polystachyos*	Other weeds
51	52	1	Cobbler's Peg	*Bidens pilosa*	Other weeds
51.1	52	0.9	Stinking Roger	*Tagetes minuta*	Other weeds
51.7	52.1	0.4	Bunchy Flat Sedge	*Cyperus polystachyos*	Other weeds
52	57.2	5.2	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
52.2	53.1	0.9		Unidentified species 1	Native
52.5	53	0.5	Stinking Roger	*Tagetes minuta*	Other weeds
53.8	54.4	0.6	Tall Fleabane	*Conyza sumatrensis*	Other weeds
54.2	57	2.8	Cobbler's Peg	*Bidens pilosa*	Other weeds
54.2	55.6	1.4	Stinking Roger	*Tagetes minuta*	Other weeds
55.6	63.5	7.9	Native forbs		Native
57	57.8	0.8		Unidentified species 1	Native

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
57.8	59	1.2	Stinking Roger	*Tagetes minuta*	Other weeds
58	58.2	0.2	Tall Fleabane	*Conyza sumatrensis*	Other weeds
58	58.6	0.6	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
58.5	92.9	34.4	Cobbler's Peg	*Bidens pilosa*	Other weeds
59	59.5	0.5	Yellow Woodsorrel	*Oxalis stricta*	Other weeds
59.6	60.2	0.6	Stinking Roger	*Tagetes minuta*	Other weeds
59.9	61.6	1.7	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
62.7	65	2.3	Common Sida	*Sida rhombifolia*	Other weeds
66	66.3	0.3	Common Sida	*Sida rhombifolia*	Other weeds
66.4	79	12.6	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
66.4	67.3	0.9		Unidentified species 1	Native
67.3	68.3	1	Tall Fleabane	*Conyza sumatrensis*	Other weeds
68	68.7	0.7	Bunchy Flat Sedge	*Cyperus polystachyos*	Other weeds
69	70	1	Tall Fleabane	*Conyza sumatrensis*	Other weeds
69	70.3	1.3	Stinking Roger	*Tagetes minuta*	Other weeds
70	79.1	9.1	Native forbs		Native
71	71.5	0.5	Purple-top Verbena	*Verbena bonariensis*	Other weeds
74	74.4	0.4	Tall Fleabane	*Conyza sumatrensis*	Other weeds
74	74.8	0.8	Stinking Roger	*Tagetes minuta*	Other weeds
74.7	75	0.3	Purple-top Verbena	*Verbena bonariensis*	Other weeds
75.6	76	0.4	Tall Fleabane	*Conyza sumatrensis*	Other weeds
78	78.8	0.8	Tall Fleabane	*Conyza sumatrensis*	Other weeds
78.6	79.4	0.8	Yellow Woodsorrel	*Oxalis stricta*	Other weeds
79.6	80.6	1	Stinking Roger	*Tagetes minuta*	Other weeds
80	93.2	13.2	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
80	80.3	0.3	Yellow Woodsorrel	*Oxalis stricta*	Other weeds
81.5	82	0.5	Stinking Roger	*Tagetes minuta*	Other weeds
84	84.3	0.3	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
84	84.3	0.3	Common Sida	*Sida rhombifolia*	Other weeds
85	85.2	0.2	Bunchy Flat Sedge	*Cyperus polystachyos*	Other weeds
87	87.2	0.2	Stinking Roger	*Tagetes minuta*	Other weeds
87.8	88.2	0.4	Tall Fleabane	*Conyza sumatrensis*	Other weeds
88	89	1	Bunchy Flat Sedge	*Cyperus polystachyos*	Other weeds

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
89	89.3	0.3	Spear Thistle	*Cirsium vulgare*	Other weeds
89	89.7	0.7	Tall Fleabane	*Conyza sumatrensis*	Other weeds
90	90.8	0.8	Bunchy Flat Sedge	*Cyperus polystachyos*	Other weeds
93.1	93.5	0.4	Common Sida	*Sida rhombifolia*	Other weeds
93.6	94.4	0.8	Yellow Woodsorrel	*Oxalis stricta*	Other weeds
94	99.6	5.6	Cobbler's Peg	*Bidens pilosa*	Other weeds
96.3	98	1.7	Native forbs		Native
96.6	97	0.4	Bunchy Flat Sedge	*Cyperus polystachyos*	Other weeds
96.7	97.4	0.7	Kidney Weed	*Dichondra repens*	Native
97	97.3	0.3	Stinking Roger	*Tagetes minuta*	Other weeds
97.5	98	0.5	Common Sida	*Sida cordifolia*	Other weeds
99.3	99.7	0.4	Bunchy Flat Sedge	*Cyperus polystachyos*	Other weeds
99.5	100	0.5	Kidney Weed	*Dichondra repens*	Native
93.4	93.9	0.5	Bunchy Flat Sedge	*Cyperus polystachyos*	Other weeds
Total Native Coverage (m):			49.1		
Total bare ground coverage (m):			0		
Total leaf litter coverage (m)			0		
Total WONS Coverage (m):			0		
Total other weeds Coverage (m):			165.59		

Transect 5 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Weed management Zone 5 – Transect 6

Date: Baseline survey data collected 05.12.2024 (BAAM Ecological Consultants)

Start location (0 m): −27.06407544, 152.3292104
Centre location (50 m): −27.06365886, 152.3290198
End location (100 m): −27.06322862, 152.3288602

Description: Exotic pasture grass dominant.

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
0	1	1	Tall Fleabane	*Conyza sumatrensis*	Other weeds
0	1	1	Red-top Natal Grass	*Melinis repens*	Other weeds
0	2.4	2.4	Native grasses & forbs		Native
1.5	2	0.5	Native shrub		Native
2.4	3	0.6	Leaf litter		Leaf litter
2.8	5.8	3	Native grasses & forbs		Native
3.5	6.3	2.8	Red-top Natal Grass	*Melinis repens*	Other weeds
5.8	16	10.2	Native forbs		Native
6.7	12	5.3	Red-top Natal Grass	*Melinis repens*	Other weeds
7	7.3	0.3	Annual Ragweed	*Ambrosia artemisiifolia*	Other weeds
8.6	9	0.4	Cobbler's Peg	*Bidens pilosa*	Other weeds
13.2	20	6.8	Red-top Natal Grass	*Melinis repens*	Other weeds
18	28	10	Native forbs		Native
19	20	1	Purple-top Verbena	*Verbena bonariensis*	Other weeds
19.3	19.6	0.3	Common Sida	*Sida rhombifolia*	Other weeds
19.7	20	0.3	Native grasses		Native
20.5	25.5	5	Native grasses		Native
22.1	25.3	3.2	Yellow Woodsorrel	*Oxalis stricta*	Other weeds
25.5	27.1	1.6	Red-top Natal Grass	*Melinis repens*	Other weeds
26.6	28	1.4	Lantana	*Lantana camara*	WONS
28	41	13	Red-top Natal Grass	*Melinis repens*	Other weeds
35	36	1	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
41	48.8	7.8	Native grasses & forbs		Native
49.5	51	1.5	Purple-top Verbena	*Verbena bonariensis*	Other weeds
51.7	52.6	0.9	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
54.5	55.3	0.8	Purple-top Verbena	*Verbena bonariensis*	Other weeds
56.5	59	2.5	Lantana	*Lantana camara*	WONS
58.8	68.1	9.3	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
59.3	68	8.7	Native grasses & forbs		Native
59.7	59.9	0.2	Cobbler's Peg	*Bidens pilosa*	Other weeds
61.2	61.3	0.1	Cobbler's Peg	*Bidens pilosa*	Other weeds
62.2	62.6	0.4	Cobbler's Peg	*Bidens pilosa*	Other weeds
66.5	67.1	0.6	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
68	68.3	0.3	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
68.2	69.3	1.1	Yellow Woodsorrel	*Oxalis stricta*	Other weeds
69.3	70.3	1	Cobbler's Peg	*Bidens pilosa*	Other weeds
70.2	70.8	0.6	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
70.4	71	0.6	Red-top Natal Grass	*Melinis repens*	Other weeds
71.2	71.7	0.5	Cobbler's Peg	*Bidens pilosa*	Other weeds
71.6	77	5.4	Native grasses & forbs		Native
73.2	74.2	1	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
75.3	76.2	0.9	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
77.2	78.4	1.2	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
77.4	79.4	2	Native forbs		Native
78.8	79.2	0.4	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
79	82.5	3.5	Blue Heliotrope	*Heliotropium amplexicaule*	Other weeds
81.3	81.7	0.4	Red-top Natal Grass	*Melinis repens*	Other weeds
80	82.1	2.1	Yellow Woodsorrel	*Oxalis stricta*	Other weeds
82.4	85	2.6	Native grasses & forbs		Native
84.8	86.5	1.7	Red-top Natal Grass	*Melinis repens*	Other weeds
85	91	6	Red-top Natal Grass	*Melinis repens*	Other weeds
87.1	87.5	0.4	Blackberry Nightshade	*Solanum nigrum*	Other weeds
87.3	87.9	0.6	Cobbler's Peg	*Bidens pilosa*	Other weeds
90.9	95	4.1	Native grasses & forbs		Native
93.1	93.4	0.3	Lantana	*Lantana camara*	WONS
95	95.5	0.5	Cobbler's Peg	*Bidens pilosa*	Other weeds
95.5	95.9	0.4	Flannel Weed	*Sida cordifolia*	Other weeds

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
95.9	97.6	1.7	Native forbs		Native
96.3	98.2	1.9	Red-top Natal Grass	*Melinis repens*	Other weeds
98.3	100	1.7	Native forbs		Native
98.9	99.2	0.3	Cobbler's Peg	*Bidens pilosa*	Other weeds
99.5	100	0.5	Cobbler's Peg	*Bidens pilosa*	Other weeds

Total Native Coverage (m):	65.4
Total bare ground coverage (m):	0
Total leaf litter coverage (m)	0.6
Total WONS Coverage (m):	4.2
Total other weeds Coverage (m):	77.4

Transect 6 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Weed management Zone 6 – Transect 7

Date: Baseline survey data collected 05.12.2024 (BAAM Ecological Consultants)

Start location (0 m): −27.06570279, 152.3395308
Centre location (50 m): −27.06544048, 152.3393263
End location (100 m): −27.06506201, 152.3389779

Description: Native grass and forbs dominant with scattered herbaceous weeds.

Start (m)	End (m)	Interval (m)	Common Name	Scientific Name	Type
0	100	100	Native grasses & forbs		Native
1.5	2	0.5	Balloon Cotton Bush	*Gomphocarpus physocarpus*	Other weeds
4.2	7.4	3.2	Cobbler's Peg	*Bidens pilosa*	Other weeds
7.6	7.9	0.3	Tall Fleabane	*Conyza sumatrensis*	Other weeds
12.8	13.1	0.3	Common Sida	*Sida rhombifolia*	Other weeds
18.9	19.2	0.3	Sensitive Grass	*Mimosa pudica*	Other weeds
19.1	19.6	0.5	Common Sida	*Sida rhombifolia*	Other weeds
22.1	22.4	0.3	Tall Fleabane	*Conyza sumatrensis*	Other weeds
22.8	23.2	0.4	Cobbler's Peg	*Bidens pilosa*	Other weeds
23.3	23.6	0.3	Sensitive Grass	*Mimosa pudica*	Other weeds
24	24.7	0.7	Cobbler's Peg	*Bidens pilosa*	Other weeds
24.6	43	18.4	Tall Fleabane	*Conyza sumatrensis*	Other weeds
70.2	70.7	0.5	Cobbler's Peg	*Bidens pilosa*	Other weeds
72.3	72.7	0.4	Cobbler's Peg	*Bidens pilosa*	Other weeds
79	79.8	0.8	Sensitive Grass	*Mimosa pudica*	Other weeds
79.6	80	0.4	Cobbler's Peg	*Bidens pilosa*	Other weeds
Total Native Coverage (m):			100		
Total bare ground coverage (m):			0		
Total leaf litter coverage (m)			0		
Total WONS Coverage (m):			0		
Total other weeds Coverage (m):			27.3		

Transect 7 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Appendix J: Pest Management Implementation Strategy & Action Plan

Avonvale & Cherry Gully offset property

Pest Management Implementation Strategy & Action Plan

This *Pest Management Implementation Strategy (PMIS)* on the Avonvale and Cherry Gully property includes all active offset areas. Namely, the approved: EPBC2015/7530, EPBC2018/8347, EPBC2019/8539 and EPCB2021/8975 offset projects. A key feature of this strategy is the use of adaptive amendements, whereby changes are made to the *PMIS* based on best practice and in response to five-yearly baseline survey results.

Pest management prior to offset commencement

The Queensland Government Department of Agriculture & Fisheries (DAF) – Biosecurity Queensland maps feral dogs through the Somerset Regional Council Area as 'common'. Feral dogs are listed as a 'class 2' pest in the *Somerset Regional Council (SRC) Pest Management Plan* and noted within many newspaper articles and SRC minutes as increasing in population and incidence since 2013.

Site surveys prior to the offset commencement located feral dogs, throughout the broader Avonvale and Cherry Gully property. Additionally, the remnants of a dead koala was recorded on-site with evidence suggesting the mortality was most likely the result of a dog attack. Data also showed 23 records within 10 kilometres of the offset site (primarily between the site and the Toogoolawah Township). Seven of these records list the animals as either dead or injured. While the data does not provide a cause for the injury, six of the seven death/injury records based on location are considered to be the result of either feral dog or domestic dog attack. One of the records is located immediately adjacent to the Brisbane Valley Highway and thus is assumed as a vehicle strike. The remaining six records occur within large, partially vegetated rural land holdings without evidence of recent clearing thus increasing the likelihood of dog attack as death or injury cause.

Evidence collected from the offset site and regional and local records show without intervention, feral dogs are likely within the offset areas. The consequences of wild dog and koala interactions are well documented and thus the impact and risk of uncontrolled feral dogs through the offset areas have been evaluated as a high risk.

Overarching pest management strategy

- Undertake baseline, periodic surveys and monitoring of feral dog populations, locations and dispersal patterns within the offset sites (survey methods to include – direct observation/remote sensor camera and infra-red drone/sand traps for print record) to develop a baseline of wild dog populations and 'hot spots' and key activity periods (eg dusk)
- Develop a purpose built offset site *Pest Management Action Plan* – method to include trapping and shooting (baiting was eliminated from this strategy in 2022 due to low success rates and near beighbour concerns)
- Develop an adaptive management approach to pest management, which considers each method relative to the baseline data collected to determine the most effective pest management measures for the offset site

- Undertake stakeholder engagement with immediate land holders to foster joint sub-regional scale action plan
- Establish contact and recommended approaches with relevant Council staff (or contractors), undertaking similar works within the broader Somerset Region.

Supporting action plan

- SRC Pest Management Specialist (PMS) engaged on 23 March 2022 – knowledge learned applied to all offset areas within the Avonvale and Cherry Gully property
- Adaptive action: 1080 baiting program replaced by targeted trapping and shooting program – although baiting was initially implemented in collaboration with Council during earlier phases of adjoining offset areas, the results were deemed ineffective. This, combined with immediate neighbour concerns from using poisoned baits, resulted in the introduction of an intensive trapping and shooting program through adaptive management practices
- Quarterly spotlight diurnal hunting, trapping and shooting programs undertaken using a highly skilled team of small specially bred dogs that target underground tunnels and burrows assist the property's pest management expert to execute the PMIS. The intent of these exercises is to remove the threat of wild dogs to the koala, and other feral animals (like rabbits and pigs), which compromise viability of the regeneration and restoration works. Camera technology is also used to monitor key areas and assist with trapping and shooting activities
- Feral Animal Register (FAR) to record:
  - Anecdotal and targeted pest sightings – adapdited in 2025 to record with sightings are in-person or via camera technology
  - Cullings of feral animals
  - Location of removed/decommissioned dens (where appropriate, dens, foraging and breeding features are removed or destroyed. However, some of these are deliberately retained to control regular pest monitoring and trapping activities, and prevent pests expanding their denning network. Destroying certain features can be futile as pests will re-establish existing and new features elsewhere, which makes pest management more difficult. Further, several dens have been found in physically constrained areas, like steep rocky outcrops, which cannot be safely removed using heavy equipment, or in protected koala habitat, like hollow gum trees. These areas are routinely monitored for shooting and trapping activities.)
  - Location of retained and monitored dens for pest management reasons
  - Location of sites where foraging or breeding is evident.
- Regular consultation with neighbouring landowners to ensure awareness and alignment of pest control action.

Measuring action

- Remobilise and replicate detailed baseline/seasonal pest management surveys every five years and adapt management action accordingly
- FAR entries
- Neighbour consultation activities.

Attachment A16

Mount Walker West Offset Area Management Plan, SHG 2026

Offset Area Management Plan (EPBC 2019/8575)

Mount Walker West Offset Area

Prepared for Cherish Enterprises Pty Ltd
Our Reference: 9612 E
5 June 2026

Saunders Havill

PATHWAYS TO SUCCESS

Document Control

Document: Mount Walker West – Offset Area Management Plan (EPBC 2019/8575), prepared by Saunders Havill for Cherish Enterprises Pty Ltd, dated 5 June 2026.

Document Issue

Issue	Date	Prepared by	Checked by
Issue A	01.12.2025	AW	AW
Issue B	29.01.2026	AW	AW
Issue C	05.06.2026	AW	AW

Prepared by
© Saunders Havill Pty Ltd 2026.
ABN 24 144 972 949
www.saundershavill.com

SH has prepared this document for the sole use of the Client and for a specific purpose, as expressly stated in the document. No other party should rely on this document without the prior consent of SH. SH undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. This document has been prepared based on the Client's description of their requirements and SH's experience, having regard to assumptions that SH can reasonably be expected to make in accordance with sound professional principles. SH may have also relied upon information provided by the Client and other third parties to prepare this document, some of which may have not been verified. Subject to the above conditions, this document may be transmitted, reproduced or disseminated only in its entirety.

Table of Contents

1. Introduction 1
1.1. Purpose of the Management Plan 1
1.2. Structure of the Management Plan 2
1.3. Responsible Entities for this OAMP 2
1.4. Declaration of Accuracy 4

2. Overview of Impact Area 5
2.1. Project and Site 5
2.2. Summary of Matters Requiring Offset 8

3. Overview of Offset Area 10
3.1. Offset Property Description and Tenure 10
3.2. Current Management Arrangements 15
3.3. Bioregional Context 19
3.4. Offset Area Values 19
3.4.1 Topography 19
3.4.2 Water Resources 20
3.4.3 Vegetation Values 20

4. Offset Area Suitability 28
4.1. Value for MNES 28
4.1.1 Habitat Creation and Connectivity Opportunity 28
4.1.2 Regional and Landscape Context 28
4.1.3 Koala Offset Values 35
4.1.4 Grey-headed Flying-fox Offset Values 40
4.1.5 Swift Parrot Offset Values 40
4.1.6 Regent Honeyeater Offset Values 40
4.2. Management of Existing Threats 45
4.2.1 Summary of Threats 45
4.2.2 Discontinuation of Current Management 46
4.2.3 Non-native Vertebrate Pests 46
4.3. Environmental Offset Policy Assessment 48

5. Environmental Outcomes 52
5.1. Offset Assessment Guide – Summary of MNES Offset Compensation 52
5.1.1 Koala 52
5.1.2 Grey-headed Flying-fox 54
5.1.3 Swift Parrot 55
5.1.4 Regent Honeyeater 57
5.2. Completion Criteria and Performance Targets 58

6. Baseline Surveys 62
6.1. Methodology 62
6.1.1 Assessment Unit Delineation 63
6.1.2 Koala – Modified Habitat Quality Assessment Tool 67
6.1.3 Spot Assessment Technique Surveys 75
6.1.4 Grey-headed Flying-fox Foraging Habitat Assessment Tool 75
6.1.5 Swift Parrot – Foraging Habitat Assessment 83
6.1.6 Regent Honeyeater – Foraging Habitat Assessment 85
6.1.7 Motion-triggered Camera Surveys 89
6.1.8 Relative Abundance Index 92
6.1.9 Weeds of National Significance Mapping 94
6.1.10 Spotlighting Surveys 97
6.1.11 Barbed wire fence mapping 97
6.2. Results and Discussion 99
6.2.1 Koala – Modified Habitat Quality Assessment Tool 99
6.2.2 Grey-headed Flying-fox Foraging Habitat Assessment Tool 103
6.2.3 Swift Parrot – Foraging Habitat Assessment 105
6.2.4 Regent Honeyeater – Foraging Habitat Assessment 108
6.2.5 Non-native Vertebrate Pest Abundance Surveys 110
6.2.6 Weeds of National Significance Mapping 112

7. Management Framework 116
7.1. Environmental Management Zones 117
7.2. Management Action 1 – Legally Secure Offset Area 119
7.3. Management Action 2 – Non-native Vertebrate Pest Management 119
7.3.1 Justification 119
7.3.2 Proposed Action and Management Measures 122
7.3.3 Management Action Responsibility 125
7.3.4 Completion Criteria 125
7.3.5 Management Action Monitoring 125
7.3.6 Management Action Reporting 126
7.3.7 Management Action Adaptive Management 126
7.4. Management Action 3 – Management of Weeds of National Significance 128
7.4.1 Justification 128
7.4.2 Proposed Action and Management Measures 128
7.4.3 Management Action Responsibility 132
7.4.4 Completion Criteria 132
7.4.5 Management Action Monitoring 132
7.4.6 Management Action Reporting 133
7.4.7 Management Action Adaptive Management 133
7.5. Management Action 4 – Bushfire Management 133
7.5.1 Justification 133
7.5.2 Proposed Action and Management Measures 135
7.5.3 Management Action Responsibility 135
7.5.4 Completion Criteria 135

7.5.5 Management Action Monitoring 135
7.5.6 Management Action Reporting 135
7.5.7 Management Action Adaptive Management 135
7.6. Management Action 5 – Habitat Creation and Regeneration 137
7.6.1 Justification 137
7.6.2 Proposed Action Location 139
7.6.3 Management Action Responsibility 139
7.6.4 Completion Criteria 139
7.6.5 Management Action Monitoring 139
7.6.6 Management Action Reporting 140
7.6.7 Management Action Adaptive Management 141
7.7. Management Action 6 – Fencing, BLE and Trespass Management 142
7.7.1 Proposed Action and Management Measures 142
7.7.2 Management Action Responsibility 144
7.7.3 Completion Criteria 144
7.7.4 Management Action Monitoring 144
7.7.5 Management Action Reporting 144
7.7.6 Management Action Adaptive Management 145
7.8. Monitoring and Reporting Framework 148
7.8.1 Report Types 148
7.8.2 Data Management 149
7.8.3 Monitoring and Reporting Schedule 149

8. Adaptive Management Framework 154
8.2. Uncertainty 154
8.3. Corrective Action Triggers 155

9. Risk Management 161
9.1. Climate Change 161
9.1.1 Wildfire 161
9.1.2 Flooding 161
9.1.3 Drought 162
9.1.4 Shifting Habitat Range 162
9.2. Limitations 164

10. References 165

11. Appendices 168

Tables

Table 1: Action site details 5
Table 2: Impact area – summary of assessment units 8
Table 3: Impact area – MHQA results for Koala 8
Table 4: Impact area – FHA assessment results for GHFF 8

Table 5: Impact area – swift parrot feature-based assessment results 9
Table 6: Impact area – regent honeyeater feature-based assessment results 9
Table 7: Offset Area summary 10
Table 8: Queensland Herbarium Regional Ecosystem Descriptions 21
Table 9: Offset area key invasive flora species 45
Table 10: Offset area major threats MNES species 45
Table 11: Offset suitability analysis – Environmental Offset Policy 48
Table 12: Offset Assessment Guide Parameters – Koala 52
Table 13: Koala baseline MHQA and offset improvement scores 53
Table 14: Offset Assessment Guide Parameters – Grey-headed Flying-fox 54
Table 15: GHFF baseline FHA and offset improvement scores 54
Table 16: Offset Assessment Guide Parameters – Swift Parrot 55
Table 17: Swift Parrot feature-based impact compensation and OAG calculator inputs 55
Table 18: Offset Assessment Guide Parameters –Regent Honeyeater 57
Table 19: Regent Honeyeater feature-based impact compensation and OAG calculator inputs 57
Table 20: Completion criteria and performance targets 59
Table 21: Baseline field survey methods summary 62
Table 22: Summary of Assessment Units and MHQA transects 67
Table 23: Koala site condition scoring attributes (BioCondition Manual) 67
Table 24: Koala site context scoring attributes 70
Table 25: Koala Species Stocking Rate Scoring 71
Table 26: GHFF FHA Vegetation Condition Scoring 79
Table 27: GHFF FHA Canopy Species Richness Scoring 79
Table 28: GHFF FHA Flower Score (average) Scoring 79
Table 29: GHFF FHA Timing of Biological Shortages Scoring 79
Table 30: GHFF FHA Quality of Foraging Habitat (trees >0.65 wt p*r) Scoring 79
Table 31: GHFF FHA Non-Native Plant Cover Scoring 80
Table 32 GHFF FHA Size of Patch Scoring 80
Table 33: GHFF FHA Connectedness Scoring 80
Table 34: GHFF FHA Context Scoring 80
Table 35: GHFF FHA Ecological Corridors Scoring 80
Table 36: Threats to species (GHFF) scoring 81
Table 37: Role of site location to GHFF overall population in the State scoring 81
Table 38: GHFF Species Stocking Rate Scoring 81
Table 39: Camera grid size justification 89
Table 40: Fauna camera trap summary (22 September – 20 October 2025) 90
Table 41: Site condition scores for offset area assessment units 99
Table 42: Quality and availability of foraging and shelter habitat scoring results 100
Table 43: Koala site context scores for offset area 101
Table 44: Baseline SAT survey results 101
Table 45: Baseline koala species stocking rate scores 102
Table 46: GHFF FHA assessment score summary 103
Table 47: Swift parrot baseline stem density (preferred foraging species) 105
Table 48: Baseline stem density (all trees) 105
Table 49: Swift parrot planting capacity analysis 107
Table 50: Regent honeyeater baseline stem density (preferred foraging species) 108
Table 51: Regent honeyeater planting capacity analysis 109
Table 52: Baseline non-native predator survey detections and RAI 111
Table 53: Baseline non-native herbivore survey detections and RAI 111
Table 54: Weed Management Zones and transects 112
Table 55: Recorded weed species within offset area during baseline surveys 112
Table 56: Weed cover (Line-transect methodology) 113

Table 57: Estimated cover of WONS 114
Table 58: Estimated cover of other weeds 114
Table 59: Environmental Management Zones 117
Table 60: Offset area invasive fauna species matters identified as threats to MNES 120
Table 61: Recommended control methods for identified pest species 123
Table 62: Predator species control methods - adapted from WoolProducers Australia 2014 124
Table 63: Lantana management strategies 129
Table 64: Fireweed Management Strategies 130
Table 65: BLE Use Management Measures 143
Table 66: Summary of reports required and responsible parties 148
Table 67: Management Action Monitoring and Reporting Schedule – Summary 150
Table 68: Triggers and Corrective Actions (including timeframes) 157

Figures

Figure 1: Offset site aerial 11
Figure 2: Offset site context 12
Figure 3: Local Government Area Boundaries 13
Figure 4: Interim Biogeographic Regionalisation for Australia 23
Figure 5: Topography and Water Resources 24
Figure 6: Regulated Vegetation Management Map (Qld) 25
Figure 7: Vegetation Management Regional Ecosystem Map (Qld) 26
Figure 8: Pre-clear Regional Ecosystem Mapping (Qld) 27
Figure 9: South East Queensland Bioregional Planning Assessment – Corridors 32
Figure 10: Little Liverpool Range 33
Figure 11: State Koala Habitat Area (Qld) 37
Figure 12: State Koala Habitat Restoration Area (Qld) 38
Figure 13: Threat Management Prioritisation 120
Figure 14: State Planning Policy Bushfire Hazard Mapping 134

Plans

Plan 1: Impact Area Disturbance Footprint 7
Plan 2: Proximity to Impact Area 14
Plan 3: Offset Area Existing Management Arrangements 18
Plan 4: Offset Site Habitat Creation Areas 30
Plan 5: Offset Site Connecting Habitat 31
Plan 6: Regional Connectivity Assessment 34
Plan 7: Koala Records and Habitat 39
Plan 8: Grey-headed Flying-fox Records and Habitat 42
Plan 9: Swift Parrot Records and Habitat 43
Plan 10: Regent Honeyeater Records and Habitat 44
Plan 11: Offset Area Assessment Units 66
Plan 12: Baseline MHQA Surveys and Assessment Units 73
Plan 13: Koala Context Assessment 74
Plan 14: Grey-headed Flying-fox Context Assessment 82
Plan 15: Assessment Unit Sub-Units 88
Plan 16: Baseline Pest Camera Monitoring 93
Plan 17: Baseline Weed Surveys 96
Plan 18: Threatened Species Surveys 98

Plan 19: GHFF Threats – Barbed Wire Fencing 104
Plan 20: Environmental Management Zones 118
Plan 21: Indicative Offset Area Fencing 146
Plan 22: Proposed Building Location Envelope 147

Acronyms & Definitions

ACR	Annual Compliance Report
ASL	Above Sea Level
AU	Assessment Unit
BLE	Building Location Envelope
BMP	Bushfire Management Plan
BMZ	Bushfire Management Zone
DAWE	Department of Agriculture, Water and the Environment (Cth – former)
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Cth)
DSH	Diameter Standard Height (previously Diameter Breast Height)
EDL	Ecologically Dominant Layer
EOP	EPBC Act *Environmental Offsets Policy 2012* (Cth)
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999* (Cth)
EMZ	Environmental Management Zone
FHA	Foraging Habitat Assessment
GBO	General Biodiversity Obligation
GHFF	Grey-headed Flying-fox
GHFF FHA	Grey-headed Flying-fox Foraging Habitat Assessment
ha	hectares
ICC	Ipswich City Council
KCHMP	Koala Conservation and Habitat Management Plan
km	kilometres
LGA	Local Government Area
LLR	Little Liverpool Range
m	metres
MHQA	Modified Habitat Quality Assessment
MNES	Matters of National Environmental Significance
MWW	Mount Walker West
OAAR	Offset Area Annual Report
OAG	Offset Assessment Guide
OAMP	Offset Area Management Plan
RAI	Relative Abundance Index
RE	Regional Ecosystem
SAT	Spot Assessment Technique
SEQ	South-east Queensland
SEQERF	South-east Queensland Ecological Restoration Framework
SPRAT	Species Profile and Threats Database
SH	Saunders Havill
SSP	Springfield Structure Plan
SSR	Species Stocking Rate
QI	Quantum Impact
QLD	Queensland
QRFS	Queensland Rural Fire Service
VDEC	Voluntary Declaration
VMA	*Vegetation Management Act 1999* (Qld)
WONS	Weeds of National Significance

Impact area – The area where clearing will occur. This is the entire referral area located at Mur Boulevard, Springfield, Queensland, 4300.
Year 1 of the offset – the 12-month period following legal securement of the offset area.
Years 2 to 20 of the offset – The 12-month period following each anniversary of the legal securement of the offset area.

Life of the offset – 20-year period following legal securement of the offset area.

1. Introduction

Saunders Havill Pty Ltd (SH) have prepared an Offset Area Management Plan (OAMP) for the Mount Walker West Offset Area on behalf of the proponent (Cherish Enterprises Pty Ltd) in accordance with the Preliminary Documentation Request provided for EPBC 2019/8575. The proposed action referred to as the 'Springfield Residential Development' is located at Mur Boulevard, Springfield, Queensland 4300 and includes impacts to critical habitat for *Phascolarctos cinereus* (koala), *Pteropus poliocephalus* (grey-headed flying-fox), *Lathamus discolor* (swift parrot) and *Anthochaera phrygia* (regent honeyeater).

The action was referred under the EPBC Act on 13 November 2019 and declared a "Controlled Action" on 9 April 2020 by the Department of Agriculture, Water and the Environment (DAWE), requiring assessment by "Preliminary Documentation" pursuant to section 18 and 18A (EPBC 2019/8575). The proposed impact area is 128 hectares (ha) inclusive of 128 ha of critical habitat for Matters of National Environmental Significance (MNES) being the koala and grey-headed flying-fox (GHFF) and the removal of 9,983 habitat features for the swift parrot and 9,868 habitat features for the regent honeyeater.

This OAMP has been developed for the Mount Walker West Offset Area which is designed to compensate for a portion of the impacts at the proposed action site. The balance of offsets will be delivered through two additional offset solutions within the Avonvale Offset Area and Esk Landholdings Offset Area.

The OAMP includes the dedication and rehabilitation of 225.6 ha of a single site offset solution herein referred to as the 'Mount Walker West Offset Area' or 'offset area.' The offset area is located over three land parcels described as Lot 87 on CH31962, Lot 111 on CH311417 and Lot 28 on CH311940 located at Tralee Road, Mount Walker West, Queensland 4340 within the Ipswich City Council Local Government Area (LGA). The offset area is intended to be consolidated into one land parcel which includes one Building Location Envelope (BLE) and associated bushfire management zone proposed to be managed as a rural acreage and excluded from the area proposed to be utilised as offset area.

The protection of 225.6 ha and proposed management actions to be completed within the offset area will deliver an overall 'conservation gain' for the impacted MNES.

1.1. Purpose of the Management Plan

The purpose of this OAMP is to provide the objectives of the plan, key commitments including milestones and measurables (performance targets) and completion criteria to compensate for significant residual impacts on the koala, GHFF, swift parrot and regent honeyeater. The plan will:

i. Provide details and timing on the legally binding mechanism to secure the offset area.
ii. Provide baseline values for a range of key habitat quality indicators within the offset area for repetitive use in measuring and monitoring habitat improvement commitments.
iii. Outline the specific management actions and tasks to be undertaken within the offset area for managing threats, pests and improving koala, grey-headed flying-fox, swift parrot and regent honeyeater habitat values.
iv. Outline restrictions and operational controls on existing agricultural and grazing land uses.
v. Establish robust and scientifically driven metrics, monitoring and reporting procedures to ensure the offset delivery achieves the predicted conservation gain for each MNES.
vi. Assign responsibilities for tasks, actions, operational controls, measuring, reporting, corrective actions and funding for all works within the offset area.
vii. Identify, account for and manage risks associated with all or part of the offset outcomes not succeeding through definition of an Adaptive Management Framework and corrective action triggers.

1.2. Structure of the Management Plan

Section 1: Introduction
Section 2: Overview of Impact Area
Section 3: Overview of Offset Area
Section 4: Offset Area Suitability
Section 5: Environmental Outcomes
Section 4: Offset Site Suitability
Section 6: Baseline Surveys
Section 6: Offset Design Consideration and Amendments
Section 7: Management Framework
Section 8: Adaptive Management Framework
Section 9: Risk Management
Section 10: Reference List
Section 11: Appendices

1.3. Responsible Entities for this OAMP

Excluding the regulatory role completed by the Commonwealth Government for the assessment and approval of the offset and the Queensland Government for registering and declaring the Voluntary Declaration and ICC declaring the covenant, the following entities retain key responsibilities for the implementation of this OAMP.

1. Project Proponent / Development Manager – Cherish Enterprises

Cherish Enterprises are the owner and will be the operational developer for the Springfield Project, located within the City of Springfield. Responsibilities include:

- Obtain and comply with all conditions of the EPBC Act approval for the project.
- Ensure reporting obligations under the EPBC Act approval and OAMP including Annual Compliance Report and any other report as triggered within conditions or this management plan are completed.
- All on-ground implementation of the OAMP.
- Preparation and lodgement of the Legally Binding Mechanism with the relevant government authority.
- Appointment of relevant experts or experienced contractors to undertaken specified tasks within the Offset Area.
- Detecting and implementing corrective actions for any non-compliance activities.
- Managing stakeholder relationships such as adjoining grazing operations, Ipswich City Council, community environmental groups such as Little Liverpool Range Initiative and Ipswich Koala Protection Society.
- Review, amend and manage changes of the approved OAMP as required over the life of the offset.

2. Suitably qualified ecologist – Saunders Havill or other suitable party

The tertiary-trained and experienced field ecologists provide the history and technical information regarding the impact site and coordinate the application material on behalf of Cherish Enterprises. Responsibilities include:

- Collect, interrogate and analyse survey data for use as the baseline and interim habitat quality values within the offset area.
- Audit any offset reports compiled by a third-party contractor against approval conditions as part of the project project's reporting requirements as determined through the EPBC Act approval or this management plan.

3. Land Manager

Th person or entity responsible for wholesale implementation of this OAMP. Responsibilities include:

- Management, monitoring and maintenance of the offset area including implementation of management measures and frameworks detailed in **Section 7**.
- Implementation of adaptive management measures where required.
- Engagement of suitably qualified contractors for implementation of required management activities.
- Preparation of required reporting including Offset Area Annual Reports for the life of the offset.

4. BLE Landholder

The person who owns/will own the Building Location Envelope and accompanying management zones. Responsibilities are subject to the specific management measures (refer **Section 7.8**) and any terms of a legally binding agreement or sales contract.

1.4. Declaration of Accuracy

Declaration of accuracy

In making this declaration, I am aware that section 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration and I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed _____

Full name (please print) _____

Organisation (please print) Cherish Enterprises Pty Ltd

Date _____/_____/_____

491 Providing false or misleading information to authorised officer etc.

(1) A person is guilty of an offence if the person:

(a) provides information or a document to another person (the ***recipient***); and

(b) knows the recipient is:

(i) an authorised officer; or

(ii) the Minister; or

(iii) an employee or officer in the Department; or

(iv) a commissioner;

performing a duty or carrying out a function under this Act or the regulations; and

(c) knows the information or document is false or misleading in a material particular.

(2) The offence is punishable on conviction by imprisonment for a term not more than 1 year, a fine not more than 60 penalty units, or both.

Note: Subsection 4B(3) of the *Crimes Act 1914* lets a court fine a body corporate up to 5 times the maximum amount the court could fine a person under this subsection

2. Overview of Impact Area

2.1. Project and Site

The Springfield Residential Development is centrally located within the Ipswich City Council (ICC) suburb of Springfield, located approximately 15 km south-west of the Ipswich Town Centre. The action site is located within the Greater Springfield Master Planned Development Area and has a long-standing zoning and local approvals obtained under the Springfield Structure Plan (SSP) to deliver residential uses.

The proposed action site is 161.4 ha in size located over Lot 9999 on SP292760 and part of Lot 9002 on SP292760, Lot 9998 on SP236942, Lot 9995 on SP307769, Lot 9004 on SP292760, and Lot 51 on SP242316. The proposed action proposes disturbance areas totalling 128 ha (permanent and temporary) to support the ultimate residential land uses, and vegetation retention areas which will be avoided from development impacts. The proposed development footprint (*i.e.,* disturbance areas) and retention areas are provided on **Plan 1** and is reflective of the Precinct Plan approved by ICC on 21 March 2024 (ref 6243/2023/LAP) under the SSP.

The development footprint (*i.e.,* disturbance areas) is distinguished into three ultimate land use components: urban/residential, stormwater management infrastructure, and linear open space areas. Approximately 2.6 ha of vegetation is required to be cleared as temporary impacts to facilitate the construction of batters adjoining the vegetation retention areas. While categorised as direct impacts, it is noted that these areas will be rehabilitated full-strata post-clearing as demonstrated on **Plan 1**. **Table 1** provides a summary of action site details.

An area of 27.5 ha of vegetation predominantly located within the western portion of the proposed action site and adjoining Opossum Creek and Woogaroo Creek will be wholly retained and excluded from direct development impacts.

The action site is currently comprised of remnant bushland. Areas of the site contain existing disturbance in the form of weed invasion, historical logging and plantation practices. Vegetation across the site is dominated by eucalypt woodland mapped as regulated vegetation under the Queensland *Vegetation Management Act 1999* (VMA) confirmed as Regional Ecosystem (RE) 12.9-10.19 and RE12.9-10.3. Vegetation surrounding the referral area is mostly consistent with the mapped values on-site, containing similar flora species and regional ecosystem characteristics with the addition of riverine vegetation communities within the waterways located west and east of the action site.

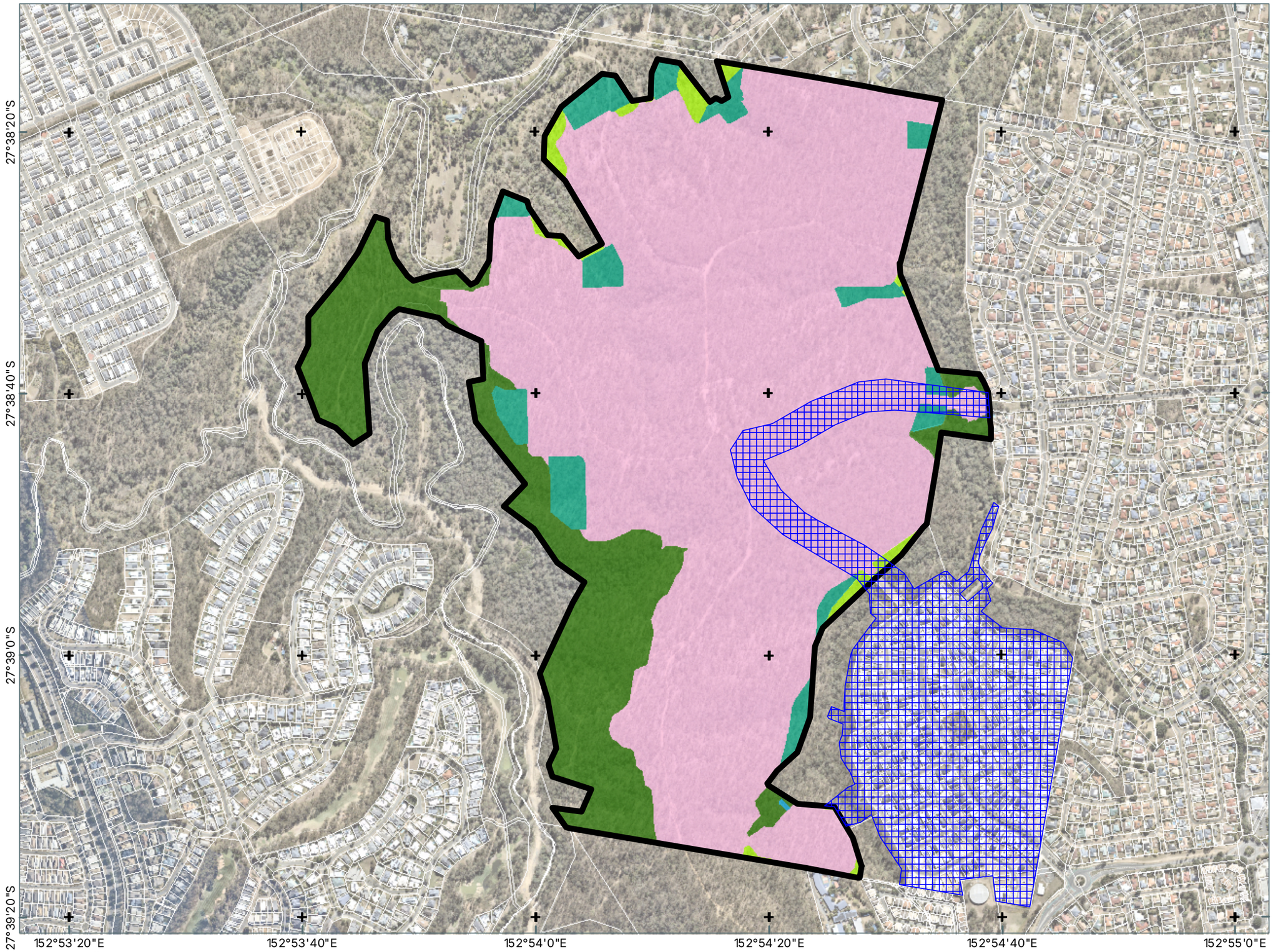
The proposed action will result in impacts to critical habitat for MNES being the koala, grey-headed flying-fox, swift parrot and regent honeyeater over a 128 ha disturbance footprint.

Table 1: Action site details

Site Details	
Address	7001 Mur Boulevard, Springfield, QLD, 4300
Lot / plan	Lot 9999 on SP292760, Part of Lot 9002 on SP292760, Lot 9998 on SP236942, Lot 9995 on SP307769, Lot 9004 on SP292760, and Lot 51 on SP242316
Referral area	Total Site Area: 161.4 ha
Impact area	Total development footprint: 133.9 ha • Development extent: 123 ha • Bioretention basins: 8.2 ha • Temporary impacts for batters to be rehabilitated: 2.6 ha • External Council stormwater infrastructure 0.1 ha

Site Details	
	Note – Excluding 7.6 ha of EPBC 2014/7306 footprint intersecting the referral area results in disturbance footprint resulting from EPBC 2019/8575 as 126.3 ha. A total impact area of 128 is nominated to account for a level of unknown finishes around earthworks extents that will be resolved through operational works approvals.
Retention area	Total Retention Area: 27.5 ha
Village 2 Description	(Village 2) – Located in the eastern extent of the project area, connecting to the existing Mur Boulevard and through to Panorama Drive. The modified area post construction is approximately 52 ha and includes 853 mixed sized residential allotments, a local centre including a childcare, local parks and stormwater infrastructure.
Village 3 Description	(Village 3) – Located over the balance of the referral area adjacent to the western boundary of Village 2. The modified area post-construction is approximately 86 ha and includes 1007 mixed sized residential allotments, a sports field and associated infrastructure, linear park, rehabilitation and retained natural areas, and stormwater infrastructure.
Regional plan land use designation	Urban Footprint
Zone	Springfield community residential designation Open space designation
Local plan and precinct	Community residential Open space
Environmental planning attributes	
Vegetation Management Act 1999	Category X (non-remnant) Category B (Least Concern, Of Concern, Endangered) Essential Habitat (*Phascolarctos cinereus, Adelotus brevis, Ninox strenua, Marsdenia coronata, Coleus habrophyllus*)
Existing land use	Vacant land and natural areas

01. IMPACT AREA DISTURBANCE FOOTPRINT



Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders Havill.Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
© State of Queensland (Department of Resources) 2025.
Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/
* Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Qld DCDB
- Impact Area [161.4 ha]
- EPBC 2014/7306 Referral Area [7.6 ha overlap with Referral Area]

Development Footprint

- Proposed urban [123 ha]
- Bioretention/drainage basins [8.2 ha]
- Indicative location of external stormwater infrastructure as approved by Council [0.1 ha]
- Temporary Impacts (rehabilitation) - includes additional minor clearing for batters [2.6 ha]
- Vegetation retention [27.5 ha]

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

0 50 100 150 200 m
N
Transverse Mercator
GDA 2020 | Zone 56
1:9,000 @ A3

Address / RPD: MOUNT WALKER WEST

28/11/2025

9612 E 01 MWW Impact Area A

2.2. Summary of Matters Requiring Offset

The impact area is the Springfield Residential Development located at Mur Boulevard, Springfield, Queensland. The action requires direct impacts to 128 ha of vegetation containing critical habitat for the koala, grey-headed flying-fox, swift parrot and regent honeyeater. The OAMP proposes land-based offsets to compensate for a portion of the proposed impacts to critical habitat for the above MNES.

The impact area contains two (2) Assessment Units (AUs) described in **Table 2**.

Table 2: Impact area – summary of assessment units

Assessment unit	Vegetation community	Impact area (ha)
AU1	RE 12.9-10.19	110.89
AU2	RE12.9-10.3	16.13

The following impacts are proposed:

- **Koala:** Removal of 128 hectares of critical habitat at a MHQA score of 6.78 (rounded to 7.00)
- **Grey-headed flying-fox:** Removal of 128 hectares of foraging habitat at a GHFF FHA score of 7.47 (rounded to a 7.00)
- **Swift parrot:** Removal of 9,983 habitat features.
- **Regent honeyeater:** Removal of 9,868 habitat features.

The overall habitat quality scores for the koala and grey-headed flying-fox at the impact area are presented in **Table 3** and **Table 4**. The feature-based assessment results for swift parrot and regent honeyeater are provided in Table 5 and **Table 6**.

Table 3: Impact area – MHQA results for Koala

MHQA Final Weighting	AU 1	AU 2
Assessment Unit Habitat Quality Score	6.75	6.95
Assessment Unit Area (Impact) (ha)	111.87	16.13
Total Impact Area (ha)	128.0	128.0
Size Weighting	0.874	0.126
AU Weighted Score	5.90	0.88
Total Weighted Score	**6.78**	

Table 4: Impact area – FHA assessment results for GHFF

MHQA Final Weighting	AU 1	AU 2
Assessment Unit Habitat Quality Score	2.52	2.72
Assessment Unit Area (Impact) (ha)	111.87	16.13
Total Impact Area (ha)	128.0	128.0
Size Weighting	0.874	0.126
AU Weighted Score	6.57	0.90
Total Weighted Score	**7.47**	

Table 5: Impact area – swift parrot feature-based assessment results

			Count of non-juvenile preferred foraging trees (100 X 20 m plot)					
AU	AU Area (ha)	Plot #	*Corymbia citriodora*	*Eucalyptus tereticornis*	Total	Mean number per 100 X 20 m plot	Estimate per hectare	Estimate per AU
1	142.1	1	1	0	1	15	75	10,658
1		4	22	0	22			
1		5	20	0	20			
1		6	17	0	17			
2	19.3	2	13	3	16	20	100	1,930
2		3	24	0	24			
							Total site (161.4 ha)	12,588
							Total impacted (128 ha)	9,983

Table 6: Impact area – regent honeyeater feature-based assessment results

			Count of non-juvenile preferred foraging trees (100 X 20 m plot)			
AU	AU Area (ha)	Plot #	*Corymbia citriodora*	Mean number per 100 X 20 m plot	Estimate per hectare	Estimate per AU
1	142.1	1	1	15	75	10,658
1		4	22			
1		5	20			
1		6	17			
2	19.3	2	13	20	100	1,785
2		3	24			
					Total site (161.4 ha)	12,443
					Total impacted (128 ha)	9,868

3. Overview of Offset Area

3.1. Offset Property Description and Tenure

Cherish Enterprises Pty Ltd are the owner of 227.6 ha of partially cleared rural land located within the Ipswich City Council LGA approximately 31 km south-west of the Ipswich Town Centre. The landholding is made up of the following titles:

- 87/CH31962 (129.5 ha)
- 111/CH311417 (64.75 ha)
- 28/CH311940 (32.58 ha)

The aerial and context figures are provided as **Figure 1** and **Figure 2**.

The offset area is located approximately 42 km north-west of the Springfield Residential Development project area and is located within the same LGA (refer **Plan 2**). While located within the ICC LGA, the southern and eastern boundary of the offset area adjoins the Scenic Rim Regional Council (SRRC) LGA (refer **Figure 3**).

The offset area contains a constructed farm dam which will be retained and utilised as part of the management of the offset.

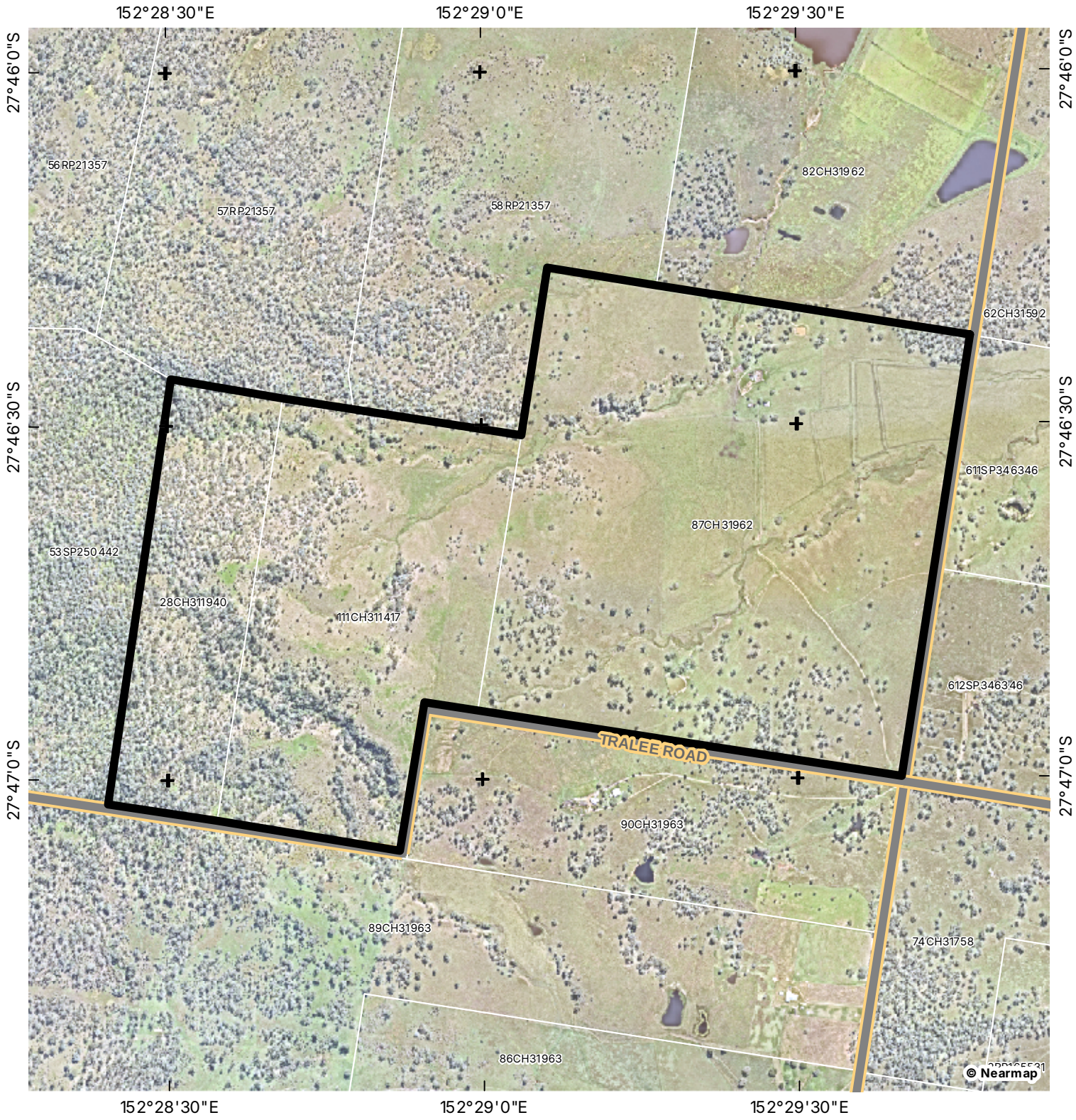
The offset area is accessible from the south-east via Tralee Road (refer **Figure 1**).

The portion of the 227.6 ha landholdings proposed to be dedicated as offset area is 225.6 ha as it excludes 2.0 ha area proposed to be establish a Building Location Envelope (BLE) for the creation of a rural acreage (refer **Section 7.7** for further details of management).

The offset area is zoned as 'Rural' under the *Ipswich City Plan 2025*. Key details relating to the offset area are provided in **Table 7**.

Table 7: Offset Area summary

Site Details	
Address	Tralee Road, Mount Walker West, Queensland, 4340
Lot/Plan	Lot 87/CH31962 (129.5 ha) Lot 111/CH311417 (64.75 ha) Lot 28/CH311940 (32.58 ha)
Area (ha)	Total: 227.6 ha Offset Area: 225.6 ha Non-Offset Land Use Area: 2.0 ha
Tenure	Freehold
Local Government Area	Ipswich City Council
Zoning	Rural



LEGEND

- Qld DCDB
- Offset Site
- Adjoining Roads

FIGURE 1

OFFSET SITE AERIAL

CLIENT
CHERISH ENTERPRISES

PROJECT
MOUNT WALKER WEST OFFSET SITE

COORDINATE SYSTEM
GDA 2020 MGA Z56

SCALE (A4)
1:14,000

0 100 200 300 400 500 m

N

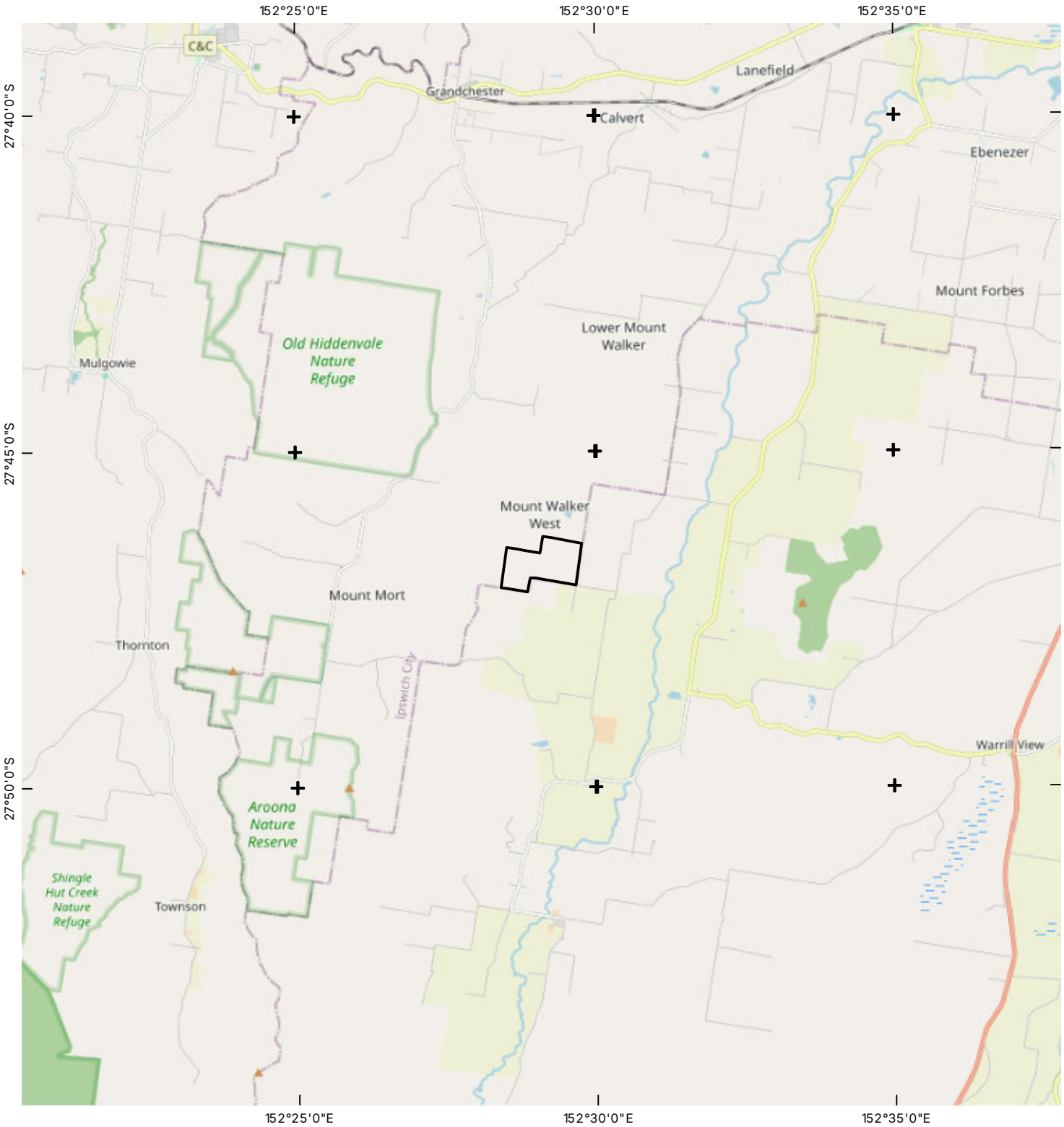
Saunders Havill
BOWEN HILLS | SPRINGFIELD
1300 123 744
mail@saundershavill.com

DISCLAIMER These plans have been prepared for the exclusive use of the client. Saunders Havill cannot accept reponsibility for any use of or reliance upon the contents of these drawings by any third party.

LAYER SOURCE *© State of Queensland 2025*

FILE REFERENCE
9612 E MWW Figure 1 Site Aerial A

DATE 28/11/2025



LEGEND

Offset Site

FIGURE 2

OFFSET SITE CONTEXT

CLIENT
CHERISH ENTERPRISES

PROJECT
MOUNT WALKER WEST OFFSET SITE

COORDINATE SYSTEM
GDA 2020 MGA Z56

SCALE (A4)
1:150,000

N

0 1 2 3 4 5 km

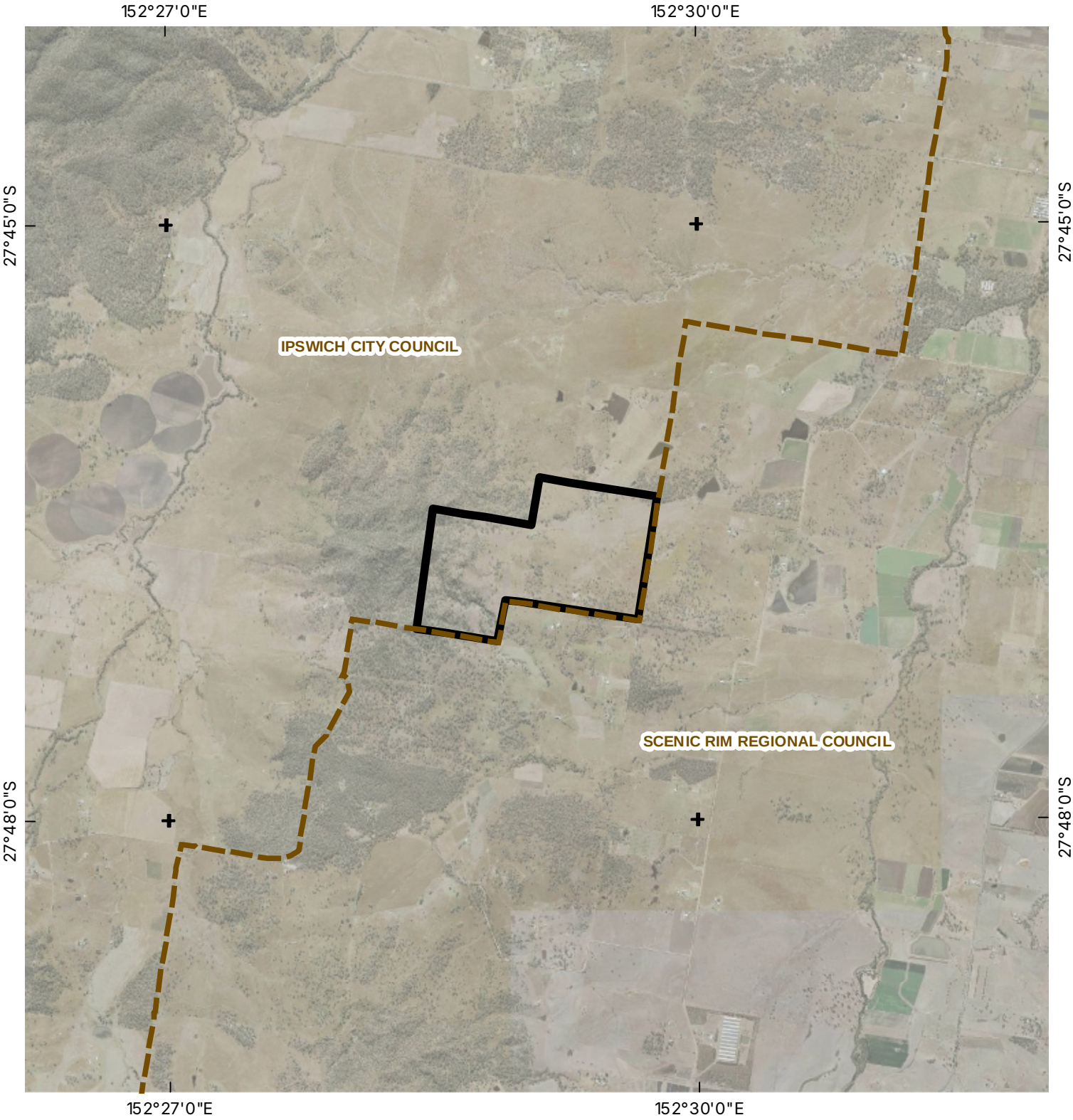
Saunders Havill
BOWEN HILLS | SPRINGFIELD
1300 123 744
mail@saundershavill.com

DISCLAIMER These plans have been prepared for the exclusive use of the client. Saunders Havill cannot accept reponsibility for any use of or reliance upon the contents of these drawings by any third party.

LAYER SOURCE *© State of Queensland 2025, Service Layer Credits: © OpenStreetMap (and) contributors, CC-BY-SA*

FILE REFERENCE
9612 E MWW Figure 2 Site Context A

DATE 28/11/2025



LEGEND

- Offset Site
- Local Government Areas

FIGURE 3

LOCAL GOVERNMENT AREA BOUNDARIES

CLIENT
CHERISH ENTERPRISES

PROJECT
MOUNT WALKER WEST OFFSET SITE

COORDINATE SYSTEM
GDA 2020 MGA Z56

SCALE (A4)
1:50,000

N

0 500 1,000 1,500 2,000 m

Saunders Havill
BOWEN HILLS | SPRINGFIELD
1300 123 744
mail@saundershavill.com

DISCLAIMER These plans have been prepared for the exclusive use of the client. Saunders Havill cannot accept reponsibility for any use of or reliance upon the contents of these drawings by any third party.

LAYER SOURCE *© State of Queensland 2025*

FILE REFERENCE
9612 E MWW Figure 3 LGA A

DATE 28/11/2025

02. PROXIMITY TO IMPACT AREA

Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders Havill.Unless a development approval states otherwise, this is not an approved plan.

Layer Sources

Includes material © State of Queensland (Department of Resources); © Planet Labs Netherlands B.V. reproduced under licence from Planet and Geoplex, all rights reserved, 2025.

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

© State of Queensland (Department of Resources) 2025.

Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/

LEGEND

- Impact Area
- Offset Site

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

0 1 2 3 4 km
Transverse Mercator
GDA 2020 | Zone 56
N
1:150,000 @ A3

Address / RPD: MOUNT WALKER WEST

28/11/2025

9612 E 02 MWW Impact Prox A

3.2. Current Management Arrangements

A large portion of the offset area is currently intensively grazed with slashing and burning utilised to promote pasture grasses across the parts of the property used for pastoral grazing. Much of the area is highly disturbed by grazing activities and is dominated by cleared paddock (refer **Plan 6**). Scattered mature trees are present within the historically cleared areas used for grazing, presumably for the purpose of providing shade for livestock. Refer to **Photo sets 1 and 2** for representative photos of open grazing areas.

A dam is present in the southern part of the property which is used to support pastoral activities. This will be repurposed to assist rehabilitation activities. As a result of slashing and grazing activities, incidence of woody weeds and Weeds of National Significance (WONS) is relatively low within active grazing areas, however, cleared areas contain a mix of exotic pastoral grasses and leguminous and herbaceous weeds.

The offset area contains a network of active and decommissioned vehicle access tracks which provide access across most of the property (refer **Plan 3**). Historical disused vehicle access tracks provide access to the western parts of the property and are proposed to be reinstated to limit disturbance required to enable rehabilitation and site management activities. A major gully line with steep banks is present in the south-western portion of the offset area. Aerial imagery review suggests an access track was previously present across the gully, however, is no longer maintained and will require re-establishment. Cattle tracks are present throughout the gully suggesting livestock currently use the gully line and use it to access the south-western parts of the property.

A dilapidated dwelling, associated acreage and adjoining cattle yard is present in the northern part of the property, however, is not actively used and will likely be removed to enable the establishment of a new BLE.

Existing infrastructure to support cattle grazing (*i.e.,* cattle yards and barbed wire fencing) will be removed and/or retrofitted where appropriate (refer **Photo sets 3 and 4**).

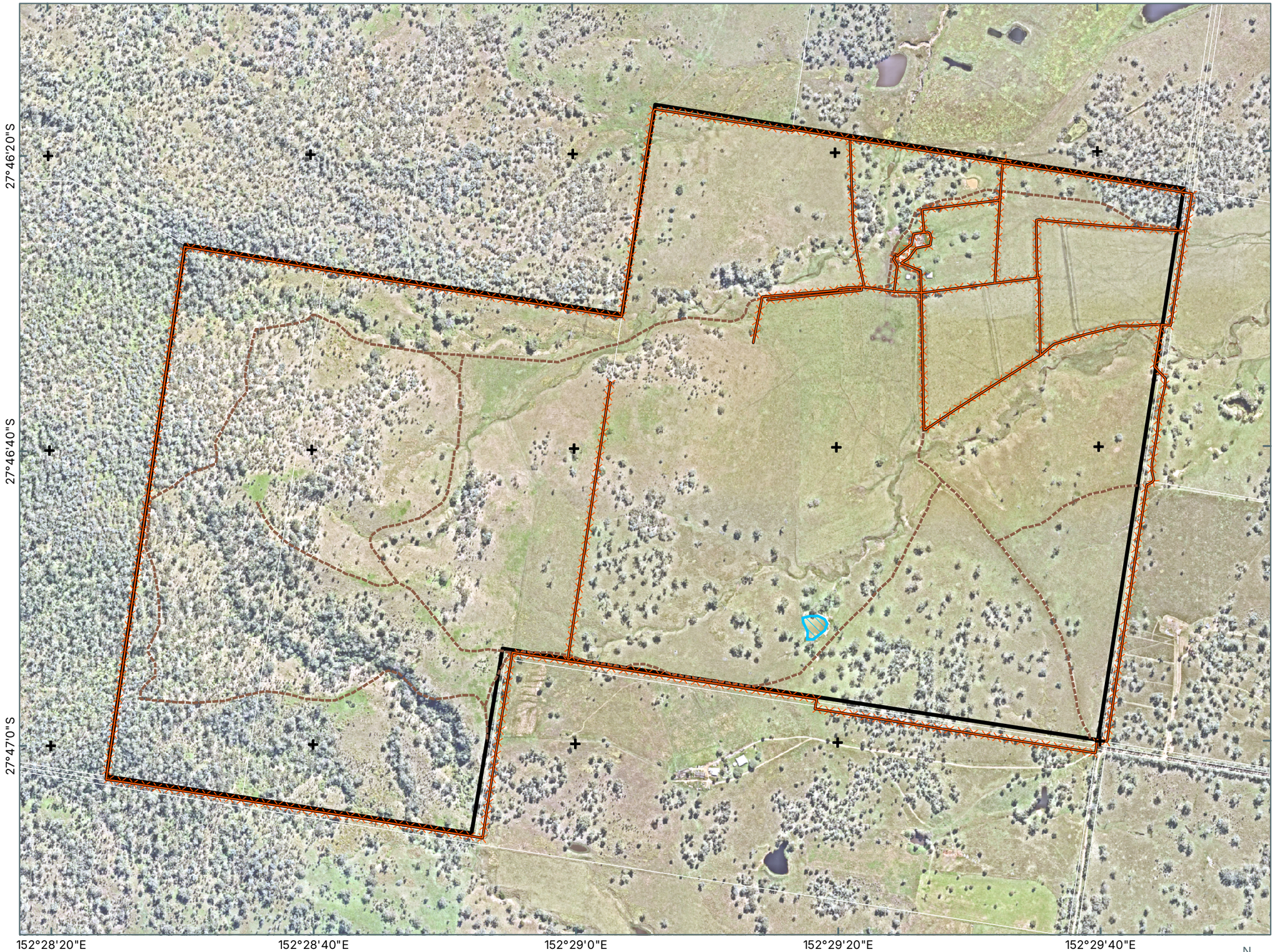
Photo set 1: Open grazing paddock with scattered mature trees.

Photo 2: Open grazing paddock adjoining vegetation areas.

Photo set 3: Existing cattle yards.

Photo 4: Existing barbed wire fencing.

03. OFFSET AREA EXISTING MANAGEMENT ARRANGEMENTS



Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders Havill.Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community
© State of Queensland (Department of Resources) 2026.
Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/
* Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Qld DCDB
- Offset Area [227.6 ha]
- Existing Access Tracks (indicative)
- Existing Barbed Wire Fencing
- Existing Farm Dam

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

0 50 100 150 200 m
Transverse Mercator
GDA 2020 | Zone 56
1:8,000 @ A3

Address / RPD: MOUNT WALKER WEST

15/01/2026

9612 E 03 MWW Management A

3.3. Bioregional Context

Queensland is divided into 13 biogeographical areas to identify biodiversity features at a regional scale. The offset area is located within the South East Queensland (SEQ) Bioregion. The SEQ Bioregion extends from the Border Ranges on the New South Wales border, north to the dry coastal corridor between Gladstone and Rockhampton (DEHP 2016). It shares its western boundary with the Brigalow Belt Bioregion. The McPherson Range borders the southern boundary, and the Great Dividing Range the west of the bioregion. Ranges extend north-south through the central region creating an altitudinal gradient from the coast. Small volcanic plugs remain in the landscape offering distinctive conditions for taxa and ecosystems (DEHP 2016). Large sand islands off the coast offer unique environments and create sheltered bays and passages within which marine and coastal plants and animals thrive (DEHP 2016). Both the impact area and offset area occur within the SEQ Bioregion and Moreton Basin sub-bioregion and at a more local scale also exist within the same Local Government Area (refer **Figure 4**).

3.4. Offset Area Values

3.4.1 Topography

Topography within the offset is varied, comprising a mix of landforms including low-lying undulating foothills, vegetated ridgelines and cleared alluvial floodplain and creek systems (refer **Figure 5**). The offset area ranges from 115 m Above Sea Level (ASL) within the lowest lying drainage gully in the eastern portion of the offset area to approximately in the east to approximately 260 m ASL in the western portion associated with the vegetated mountainous areas and ridgelines. The land and gullies slopes towards the north-east. Refer to **Photo sets 5 and 6** for examples of site topography.

A major gully line with steep banks is present in the south-western portion of the offset area. The banks of the gully line is dominated by established introduced *Celtis sinensis* (Chinese Elm). It is likely these will be required to be retained *in situ* to avoid destabilisation of the banks.

Photo set 5: Example of undulating foothills and drainage gully.

Photo set 6: Offset property from west facing east featuring generally sloping topography.

3.4.2 Water Resources

The offset area contains waterways mapped under the Queensland *Fisheries Act 1994* which form two primary flow paths throughout the offset area (refer **Figure 5**). These are characterised as upper catchment tributaries which ultimately provide drainage flows north-east of the offset area and feed into the Bremer River approximately 4 km and 6 km downstream of the offset area.

The offset area also contains several minor flow paths mapped under the VMA which are identified predominantly as stream order 1 watercourses with one stream order 2 watercourse.

3.4.3 Vegetation Values

The land within the offset area is predominantly reflective of open paddock and has been maintained for use as a pastoral grazing property. Scattered mature trees are present within the offset area within historically cleared areas used for grazing, presumably for the purpose of providing shade for livestock.

Under the VMA, the offset area is mapped mostly as Category X (non-remnant) within open grazing paddock with a large patch relatively high value vegetation in the western portion of the offset area mapped as Category C (high value regrowth) with a small area of Category B (remnant) vegetation. Refer to **Figure 6** for the Regulated Vegetation Management Plan.

Under the accompanying Vegetation Management Regional Ecosystem Map, the mapped regulated vegetation areas area are comprised of two (2) Regional Ecosystems (REs) mapped under the VMA which includes composite RE12.8.17/12.8.16 (refer **Figure 7**).

Under the VMA's pre-clear RE mapping, the majority of the offset area is mapped as composite RE12.8.17/12.8.16 with a portion mapped as Endangered RE12.3.3 associated with the low-lying drainage areas in the north-eastern portion the offset area which is presently reflective of cleared grazing land (refer **Figure 8**). It is noted on-ground land zone delineation surveys suggest a much larger area for reinstatement of RE12.3.3 than the pre-clear mapping suggests. This is notable given RE12.3.3 is a vegetation community which has been broadly lost as a result of clearing to support agricultural activities.

Scattered retained tree canopy species within open grazing areas are dominated by *Eucalyptus crebra* (Narrow-leaved Ironbark) and *Eucalyptus tereticornis* (Forest Red Gum). Retained vegetation areas are comprised of open eucalypt woodland dominated by *E. crebra* and *Corymbia intermedia* (Pink Bloodwood) with several other eucalypt species indicative of RE12.8.17 and RE12.8.16. RE12.8.17 is identified as the dominant RE with elements of RE12.8.16 such as *Eucalyptus melliodora* (Yellow Box) present throughout the vegetated areas of the offset area. Queensland Herbarium Regional Ecosystem descriptions are provided in **Table 8**.

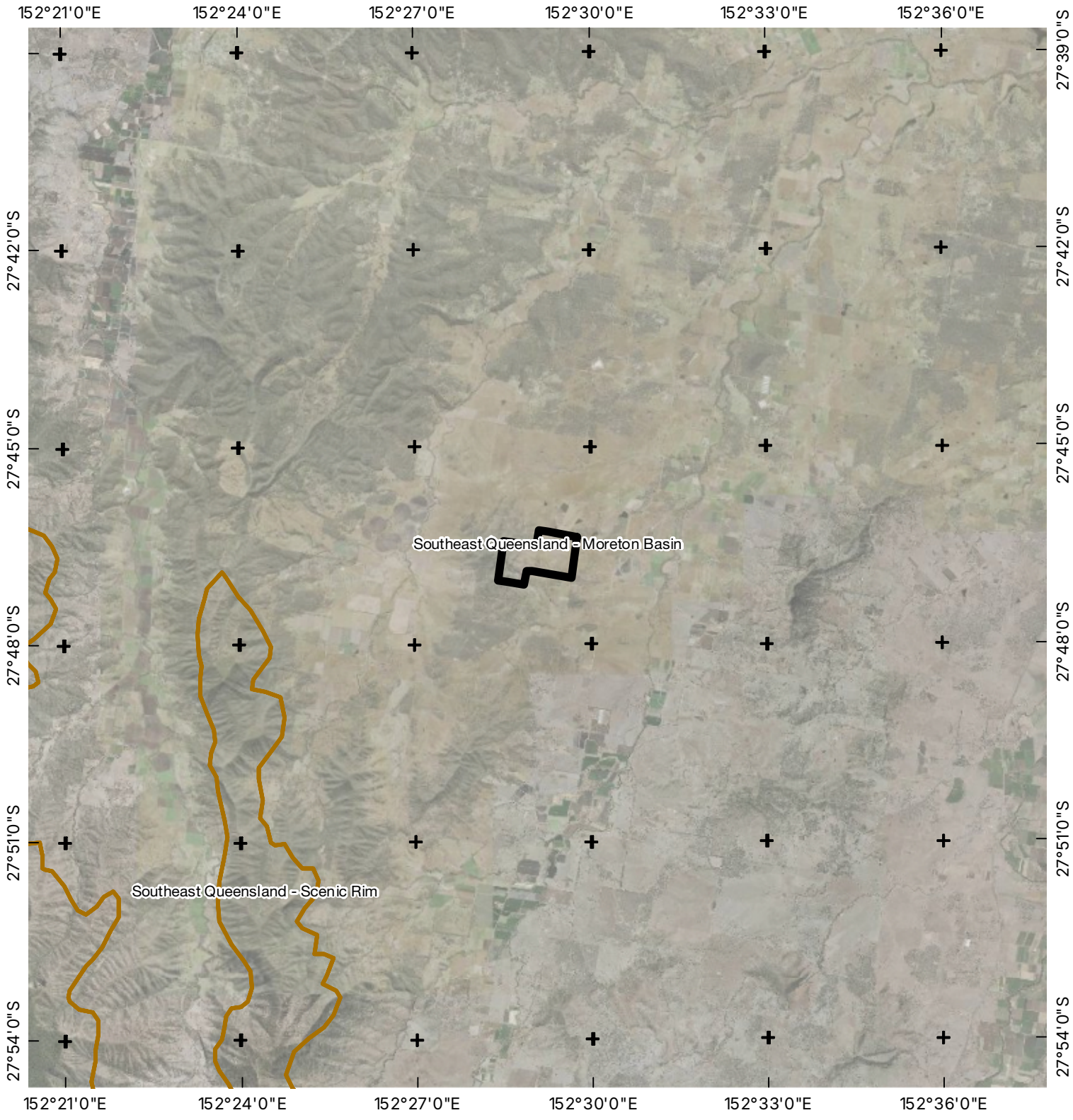
Weed infestations of WONS *Lantana camara* (Lantana) range from minor to severe within the regrowth and remnant vegetation areas (refer **Photo sets 7 and 8**).

Table 8: Queensland Herbarium Regional Ecosystem Descriptions

Regional Ecosystem	Queensland Herbarium RE Description
Least Concern 12.8.17	Mixed woodland with combinations of *Eucalyptus crebra, E. melanophloia, E. tereticornis, Corymbia tessellaris, C. intermedia*, and commonly containing *Angophora subvelutina* and *E. melliodora*, with a grassy ground layer. Usually occurs on mid and lower slopes of hills on Cainozoic igneous rocks, especially basalt. Not a Wetland. (BVG1M: 11a).
Of Concern 12.8.16	*Eucalyptus crebra*, generally with *E. melliodora* and *E. tereticornis* subsp. *basaltica* grassy woodland. *Eucalyptus albens* may occur on the western edge of the bioregion. Usually occurs on dry mid and upper slopes and crests on Cainozoic igneous rocks, especially basalt. Not a Wetland. (BVG1M: 11a).
Endangered 12.3.3	*Eucalyptus tereticornis* woodland. *Eucalyptus crebra* and *E. moluccana* are sometimes present and may be relatively abundant in places, especially on edges of plains and higher level alluvium. Other species that may be present as scattered individuals or clumps include *Angophora subvelutina* or *A. floribunda, Corymbia clarksoniana, C. intermedia, C. tessellaris, Lophostemon suaveolens* and *E. melanophloia*. Occurs on Quaternary alluvial plains, terraces and fans where rainfall is usually less than 1000mm/y. Not a Wetland. (BVG1M: 16c).

Photo set 7: High value regrowth RE12.8.17/12.8.16.

Photo set 8: Remnant vegetation RE12.8.17/12.8.16 and scattered Lantana patches.



LEGEND

- Offset Site
- Biogeographic Sub-regions

FIGURE 4

INTERIM BIOGEOGRAPHIC REGIONALISATION FOR AUSTRALIA

CLIENT
CHERISH ENTERPRISES

PROJECT
MOUNT WALKER WEST OFFSET SITE

COORDINATE SYSTEM
GDA 2020 MGA Z56

SCALE (A4)
1:150,000

0 1 2 3 4 5 km

N

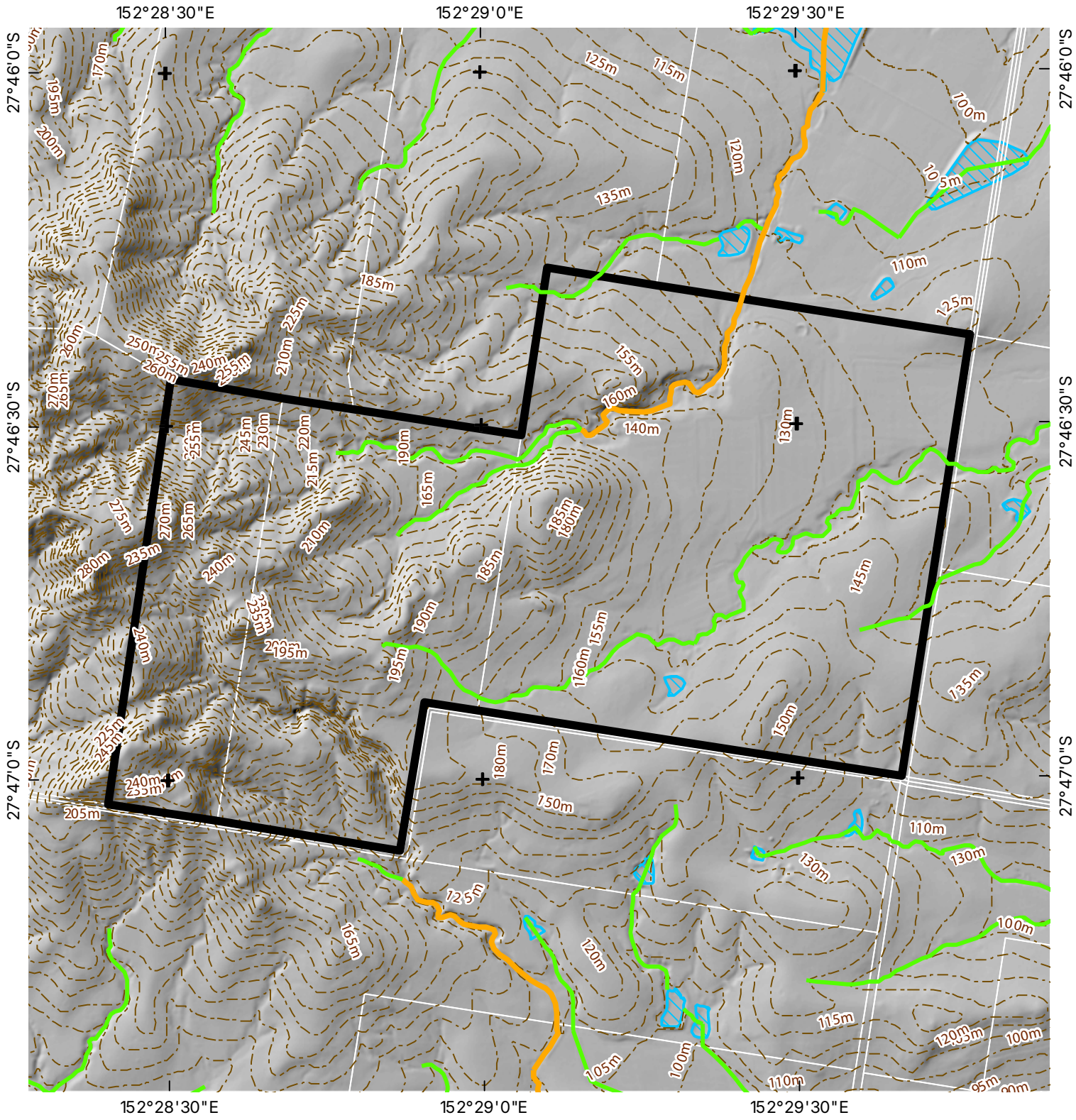
Saunders Havill
BOWEN HILLS | SPRINGFIELD
1300 123 744
mail@saundershavill.com

DISCLAIMER These plans have been prepared for the exclusive use of the client. Saunders Havill cannot accept reponsibility for any use of or reliance upon the contents of these drawings by any third party.

LAYER SOURCE *© State of Queensland 2025*

FILE REFERENCE
9612 E MWW Figure 4 IBRA A

DATE 28/11/2025



LEGEND

- Qld DCDB
- Offset Site
- 5 Metre Contours

Waterways (QLD)

Risk of Impact

- 1 - Low
- 2 - Moderate
- 3 - High
- 4 - Major
- 5 - Major (Tidal)
- Reservoirs

FIGURE 5

TOPOGRAPHY AND WATER RESOURCES

CLIENT
CHERISH ENTERPRISES

PROJECT
MOUNT WALKER WEST OFFSET SITE

COORDINATE SYSTEM
GDA 2020 MGA Z56

SCALE (A4)
1:14,000

0 100 200 300 400 500 m

N

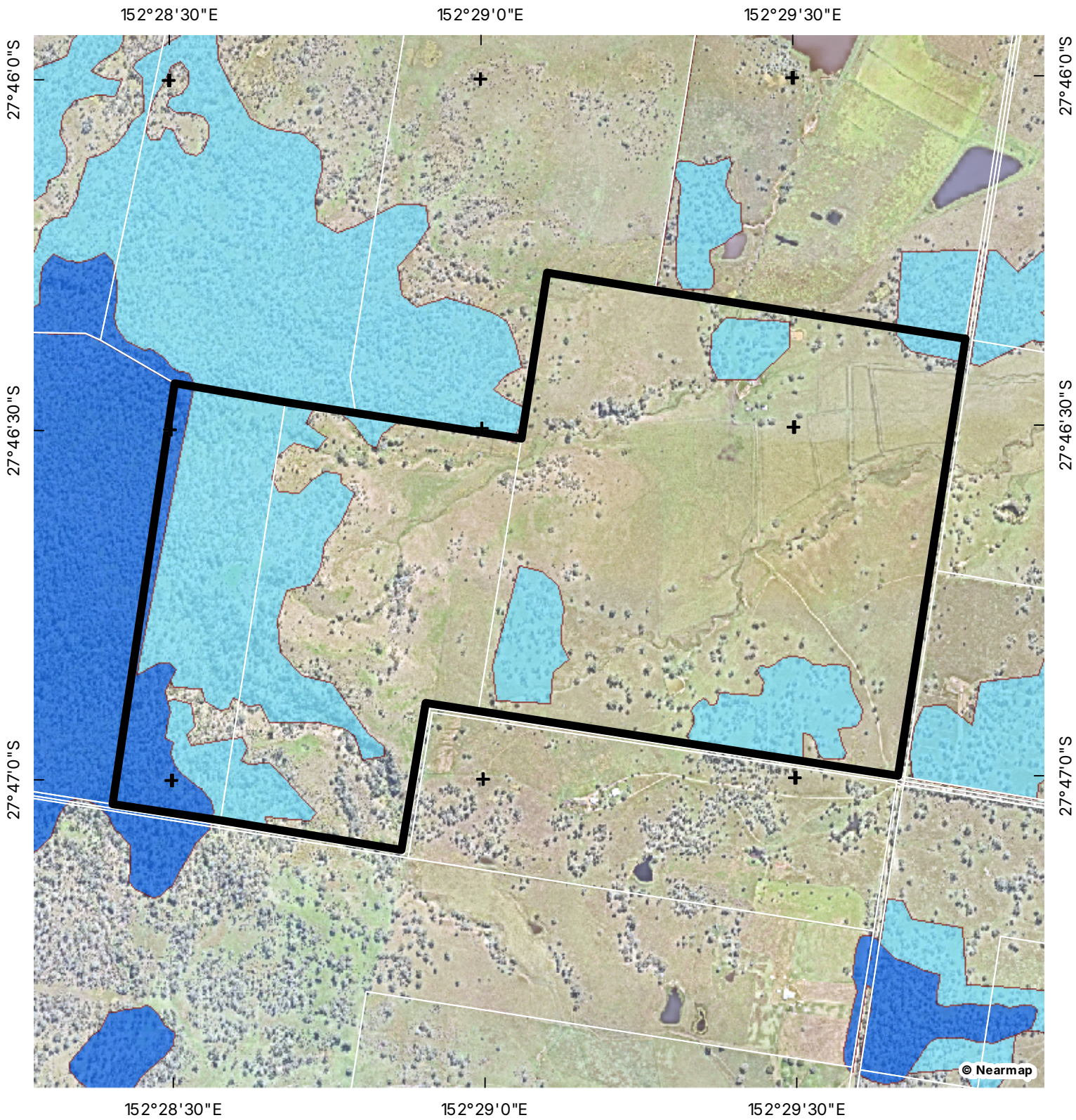
Saunders Havill
BOWEN HILLS | SPRINGFIELD
1300 123 744
mail@saundershavill.com

DISCLAIMER These plans have been prepared for the exclusive use of the client. Saunders Havill cannot accept reponsibility for any use of or reliance upon the contents of these drawings by any third party.

LAYER SOURCE *© State of Queensland 2025*

FILE REFERENCE
9612 E MWW Figure 5 Topography A

DATE 28/11/2025



LEGEND

- Qld DCDB
- Offset Site

Regulated Vegetation

- Category A area - *Vegetation Offset/ Compliance notices/VDecs*
- Category B area - *Remnant vegetation*
- Category C area - *High value regrowth vegetation*
- Category R area - *Reef regrowth watercourse vegetation*
- Category X area - *Vegetation not regulated under the VMA*
- Water
- Area not categorised

FIGURE 6

REGULATED VEGETATION MANAGEMENT MAP (QLD)

CLIENT
CHERISH ENTERPRISES

PROJECT
MOUNT WALKER WEST OFFSET SITE

COORDINATE SYSTEM
GDA 2020 MGA Z56

SCALE (A4)
1:14,000

0 100 200 300 400 500 m

N

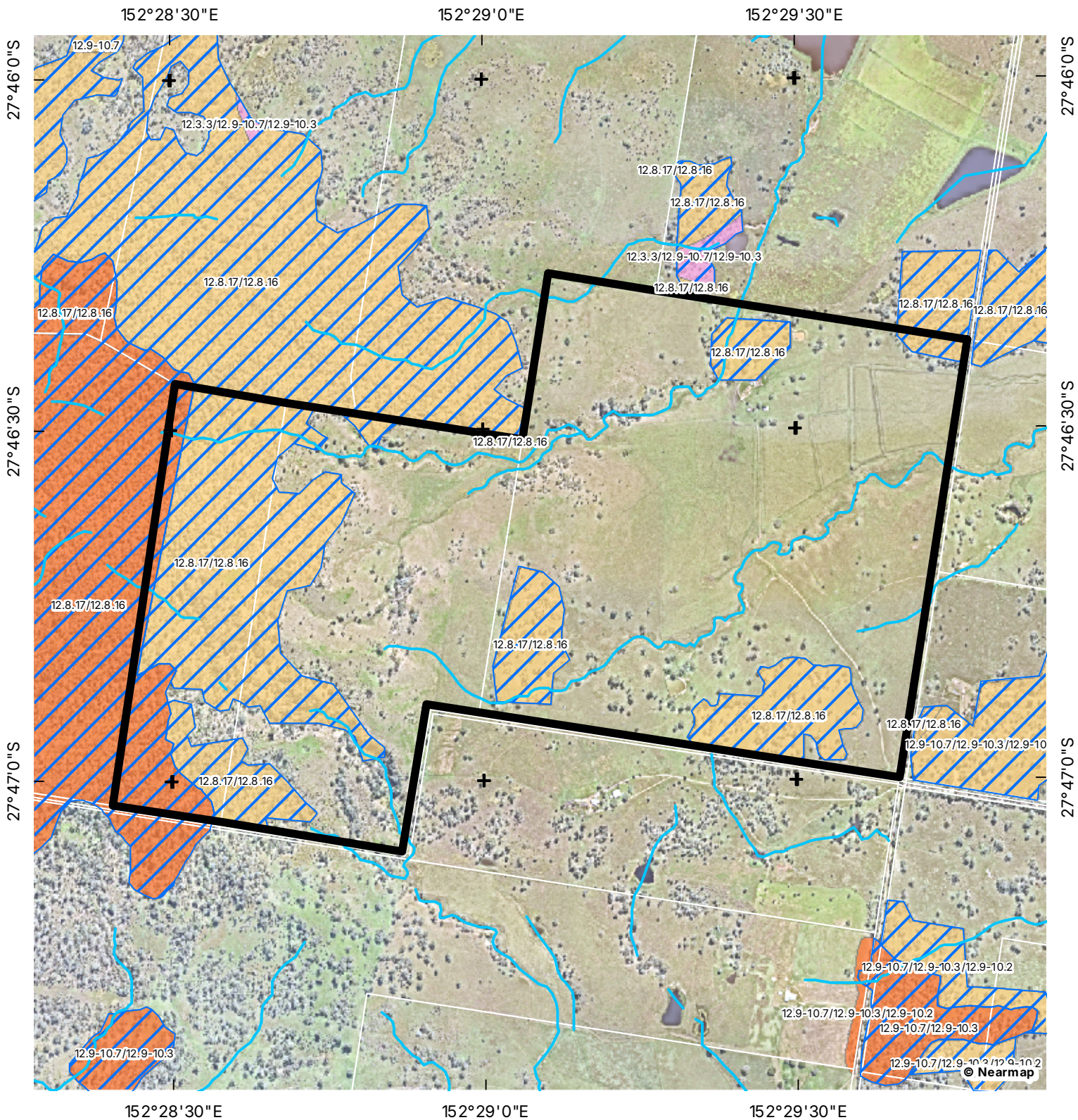
Saunders Havill
BOWEN HILLS | SPRINGFIELD
1300 123 744
mail@saundershavill.com

DISCLAIMER These plans have been prepared for the exclusive use of the client. Saunders Havill cannot accept reponsibility for any use of or reliance upon the contents of these drawings by any third party.

LAYER SOURCE © State of Queensland 2025

FILE REFERENCE
9612 E MWW Figure 6 RVM A

DATE 28/11/2025



LEGEND

- Qld DCDB
- Offset Site
- VM Watercourses
- VM Essential Habitat
- VM Wetland

Vegetation Management Regional Ecosystems

- Category A or B area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem
- Category C area containing endangered regional ecosystems
- Category C area containing of concern regional ecosystems
- Category C area that is a least concern regional ecosystem

FIGURE 7

VEGETATION MANAGEMENT REGIONAL ECOSYSTEMS (QLD)

PROJECT
MOUNT WALKER WEST OFFSET SITE

COORDINATE SYSTEM
GDA 2020 MGA Z56

SCALE (A4)
1:14,000

0 100 200 300 400 500 m

N

CLIENT
CHERISH ENTERPRISES

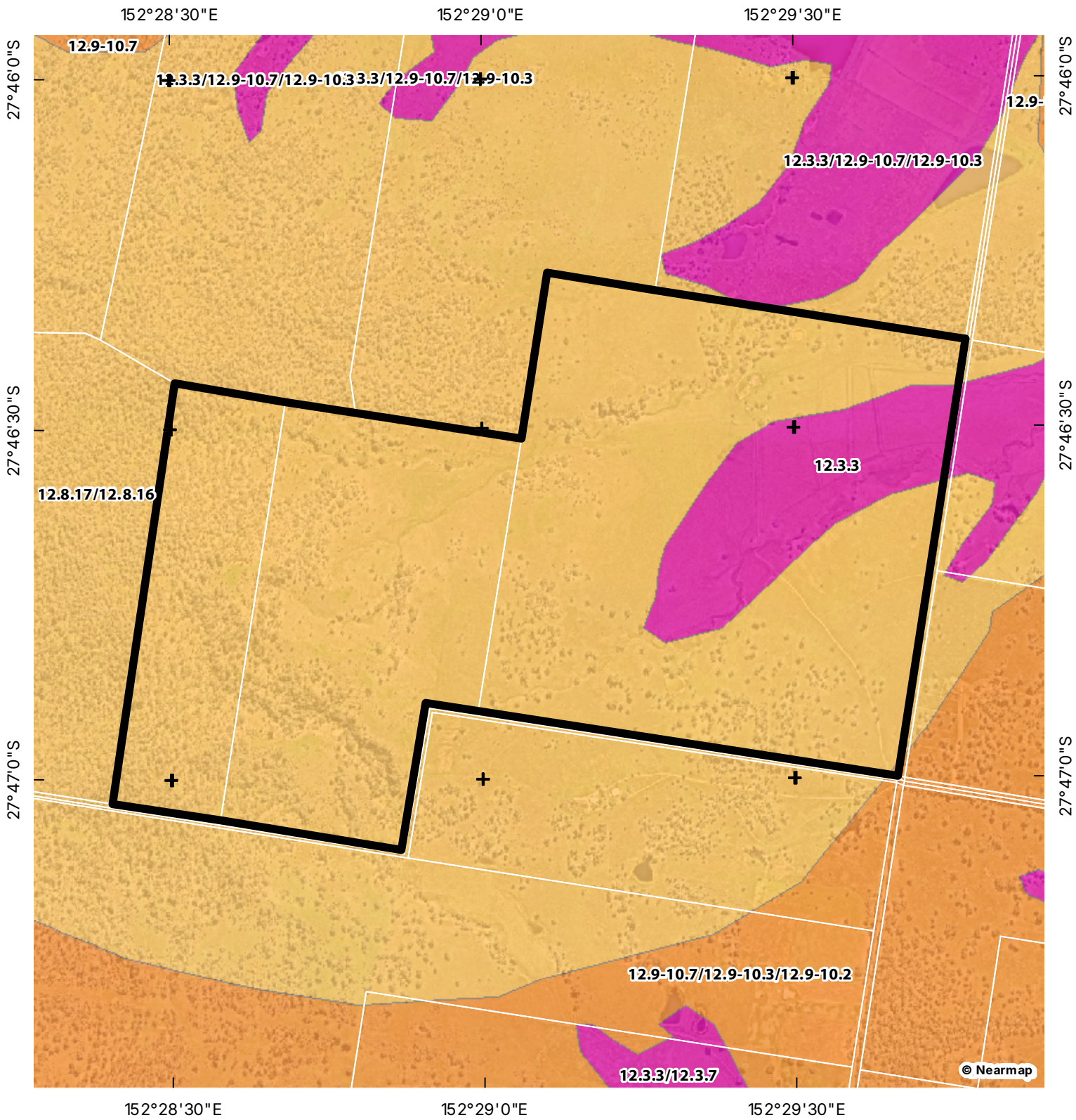
Saunders Havill
BOWEN HILLS | SPRINGFIELD
1300 123 744
mail@saundershavill.com

DISCLAIMER These plans have been prepared for the exclusive useof the client. Saunders Havill cannot accept reponsibility for any use of or reliance upon the contents of these drawings by any third party.

LAYER SOURCE *© State of Queensland 2025*

FILE REFERENCE
9612 E MWW Figure 7 VMRE A

DATE 28/11/2025



LEGEND

- Qld DCDB
- Offset Site

Preclear Regional Ecosystems Map

- Category A or B area containing endangered regional ecosystems
- Category C area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category C area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem

FIGURE 8

PRE-CLEAR REGIONAL ECOSYSTEM MAPPING (QLD)

PROJECT
MOUNT WALKER WEST OFFSET SITE

COORDINATE SYSTEM
GDA 2020 MGA Z56

SCALE (A4)
1:14,000

0 100 200 300 400 500 m

N

CLIENT
CHERISH ENTERPRISES

Saunders Havill
BOWEN HILLS | SPRINGFIELD
1300 123 744
mail@saundershavill.com

DISCLAIMER These plans have been prepared for the exclusive use of the client. Saunders Havill cannot accept reponsibility for any use of or reliance upon the contents of these drawings by any third party.

LAYER SOURCE *© State of Queensland 2025*

FILE REFERENCE
9612 E MWW Figure 8 Preclear REs A

DATE 28/11/2025

4. Offset Area Suitability

The Mount Walker West offset area has been selected to partially acquit significant residual impacts to the koala, grey-headed flying-fox, swift parrot and regent honeyeater, and provide benefit additional to the required compensation for residual impacts. The suitability of the offset area is discussed within this section and considers the regional and landscape context, existing habitat values and habitat improvement opportunity.

4.1. Value for MNES

4.1.1 Habitat Creation and Connectivity Opportunity

The offset area is heavily degraded as a result of historical clearing and management as a grazing property. As a result, a large portion (80%) of the offset area has been subject to either broadscale clearing or thinning. Approximately 70% of the offset area or 155.4 ha is identified as purely habitat creation involving the planting of habitat trees to support the koala, grey-headed flying-fox, swift parrot and regent honeyeater (refer **Plan 4**). It is noted other parts of the site which have been subject to thinning or contain sparse vegetation will also be subject to infill planting.

Habitat creation will build off a large remnant and regrowth vegetation area adjoining the site to the west, which is notably identified as State koala habitat, and provides local connectivity to the west and south of the offset area (refer **Plan 5**).

The offset area, which heavily focuses on replanting and habitat creation as the primary objective, will build off an existing vegetation patch (>200 ha) to create a large stepping-stone patch within an established rural landscape. The increased patch size and connectivity will primarily assist in bridging gaps between the Bremer River Corridor and Regional Corridor to the west and also create important refuge habitat for transient and resident koala individuals within the surrounding landscape.

4.1.2 Regional and Landscape Context

The Mount Walker West offset area represents a unique opportunity to recreate habitat within the same local government area as the impact area, sharing many of the same contextual and population-level factors as the impact area for the subject MNES, particularly the koala and grey-headed flying-fox.

It is noted the offset area is not located within a corridor identified by the Biodiversity Planning Assessment or *South East Queensland Regional Plan 2023* ('ShapingSEQ 2023') (refer **Figure 9**), however, the site maintains landscape and population-level connectivity to these corridors via the Little Liverpool Range (LLR) which adjoins the site to the west (refer **Figure 10**).

The LLR is a non-regulatory corridor which extends from Main Range National Park to the Great Eastern Ranges including D'Aguilar National Park and is considered an important wildlife corridor within the region. The LLR encompasses large areas of privately owned land including those used presently for pastoral practices and is also home to conservation parks and nature refuges. The LLR was formed and managed by the Little Liverpool Range Initiative (LLRI) in 2016 as a way of linking important habitats therefore providing wildlife with corridors to support dispersal and provide refuge from the threats associated with urban development and climate change. The LLR supports habitat for a wide variety of species and ecological communities with significant species including glossy black-cockatoo, powerful owl, brush-tailed rock wallaby, little pied bat, slender milk vine and swamp tea-tree.

The LLRI is comprised of landholder and community representatives, local councils, natural resource management groups, research institutions and conservation organisations with notable members including Queensland Trust for Nature (QTFN) and the Turner Family Foundation. The initiative aims to work synergistically with local government and State strategic plans including Ipswich City Council's *Natural Environment Strategy 2023*, the *Scenic Rim Biodiversity Strategy 2015-2025* and *ShapingSEQ 2023* to provide outcomes that align with the visions of the State and local councils.

Aspirational targets under the *LLR Strategic Plan 2022-2027* include becoming a targeted area for *"Private Landholder Partnerships programs with various levels of government, such as Nature Refuges, Land for Wildlife, Voluntary Conservation Agreements and Voluntary Conservation Covenants and for other council initiatives"* by 2027. The presence of a large offset program adjoining the currently proposed expanse of the LLR will not only bolster existing habitat links but will provide a pathway for future conservation outcomes within the adjoining areas.

The offset area provides opportunities for improved landscape connectivity to nearby nature refuges, conservation parks and established offsets for the koala and grey-headed flying-fox. This includes:

- Old Hiddenvalue Nature Refuge located 3.5 km north-west of the offset area.
- Aroona Nature Reserve managed by QTFN, located over two properties situated approximately 4.9 km and 5.7 km south-west of the offset area.
- Mount Beau Brummell Conservation Park located approximately 7.4 km south-west of the offset area.

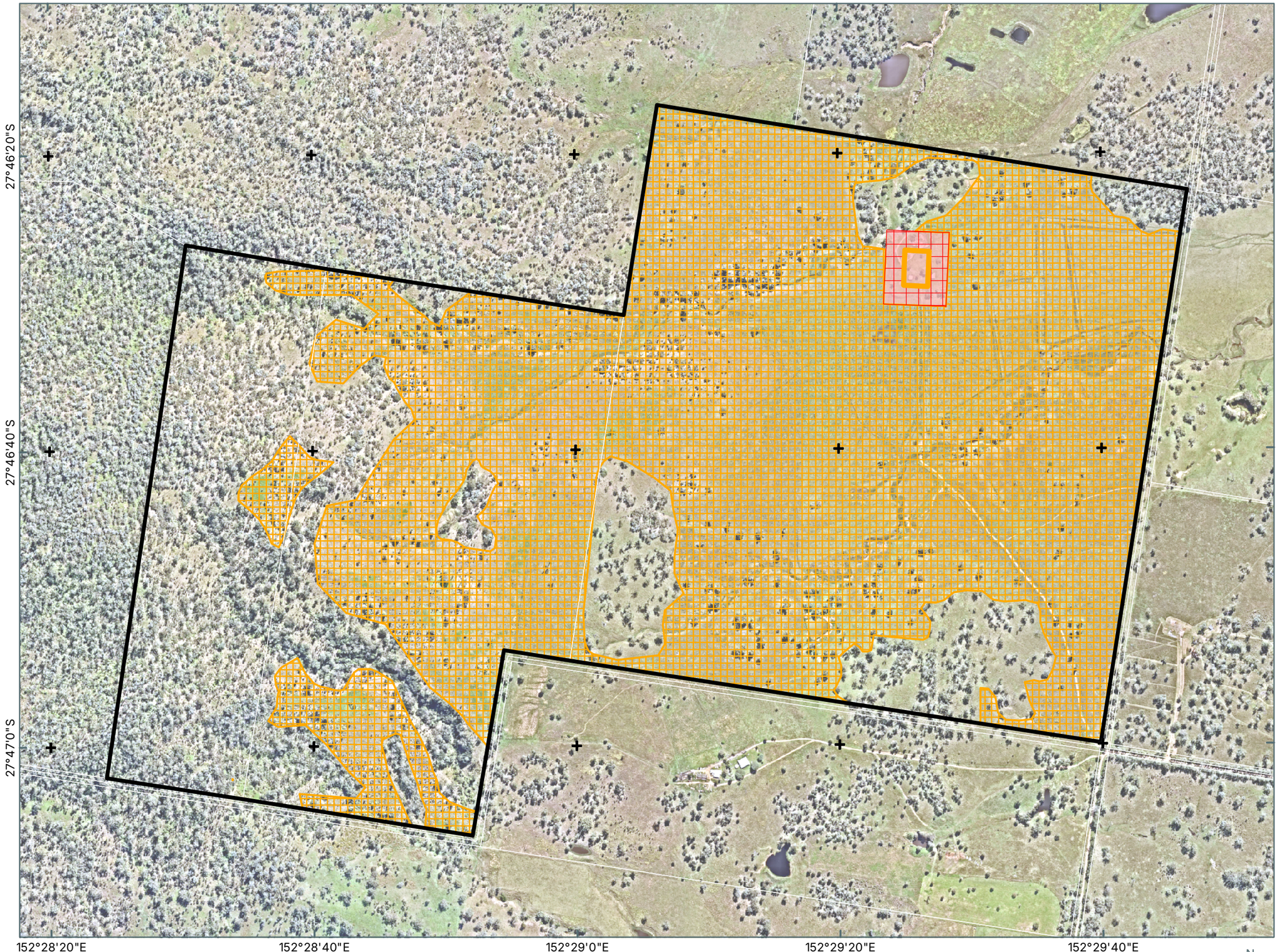
Plan 6 demonstrates how the offset area is connected to the above areas through the LLR.

With reference to State and Regional planned corridors, the South East Queensland Regional Plan Regional Biodiversity Corridor spans from the Noosa headland in the north, down to Mount Barney and Lamington National Park on the Queensland border. The corridor aims to encompass large tracts of vegetation, terrestrial connectivity, aquatic connectivity, species richness, diversity and refugia, ecosystem representation and uniqueness and climate resilience areas (Queensland Government 2017). The regional biodiversity corridor forms part of the Great Eastern Ranges terrestrial corridor which extends from the mountains of Victoria to the Atherton Tablelands in far north Queensland (Mackey et al. 2010). The Great Eastern Ranges corridor provides habitat and movement for a range of species that have Federal, State and Local significance, supports significant cultural heritage values and offers scenic amenity and outdoor recreation opportunities (Mackey et al. 2010).

As mentioned previously, existing vegetation within the offset area will ultimately promote connectivity to State and Regional mapped corridors via the LLR. The offset will conserve freehold land adjoining a locally significant biodiversity corridor, ultimately improving linkages to large patches of vegetation and habitat for MNES. This linkage provides a valuable contiguous habitat corridor, ensuring habitat fragmentation is minimised and improving the connectivity of habitat within SEQ, therefore contributing to the future protection and persistence of the targeted MNES.

The offset is well positioned to provide high conservation values that once rehabilitated through the management actions proposed in this OAMP, will contribute to the provision of protected, well-connected, and high-quality habitat for the koala, grey-headed flying-fox, swift parrot and regent honeyeater within the region. By improving potential habitat on site via natural revegetation, replanting, and management of pests, weeds and threats, the property will provide a desirable biodiversity outcome and measurable ecological gains for the targeted MNES. This aligns with offset principle 1 of the EPBC Act Environmental Offsets Policy (EOP) which states "*suitable offsets must deliver an overall conservation outcome that improves or maintains the viability of the protected matter*."

04. OFFSET SITE HABITAT CREATION AREAS



Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders Havill.Unless a development approval states otherwise, this is not an approved plan.
Layer Sources
Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community
© State of Queensland (Department of Resources) 2026.
Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/
* Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Qld DCDB
- Offset Site [227.6 ha]
- Non-Offset Land Use Area [2 ha]
- Building Location Envelope - 0.4 ha
- Asset Protection Zone / Bushfire Management Zone - 1.6 ha
- Habitat Creation Areas [155.4 ha]

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

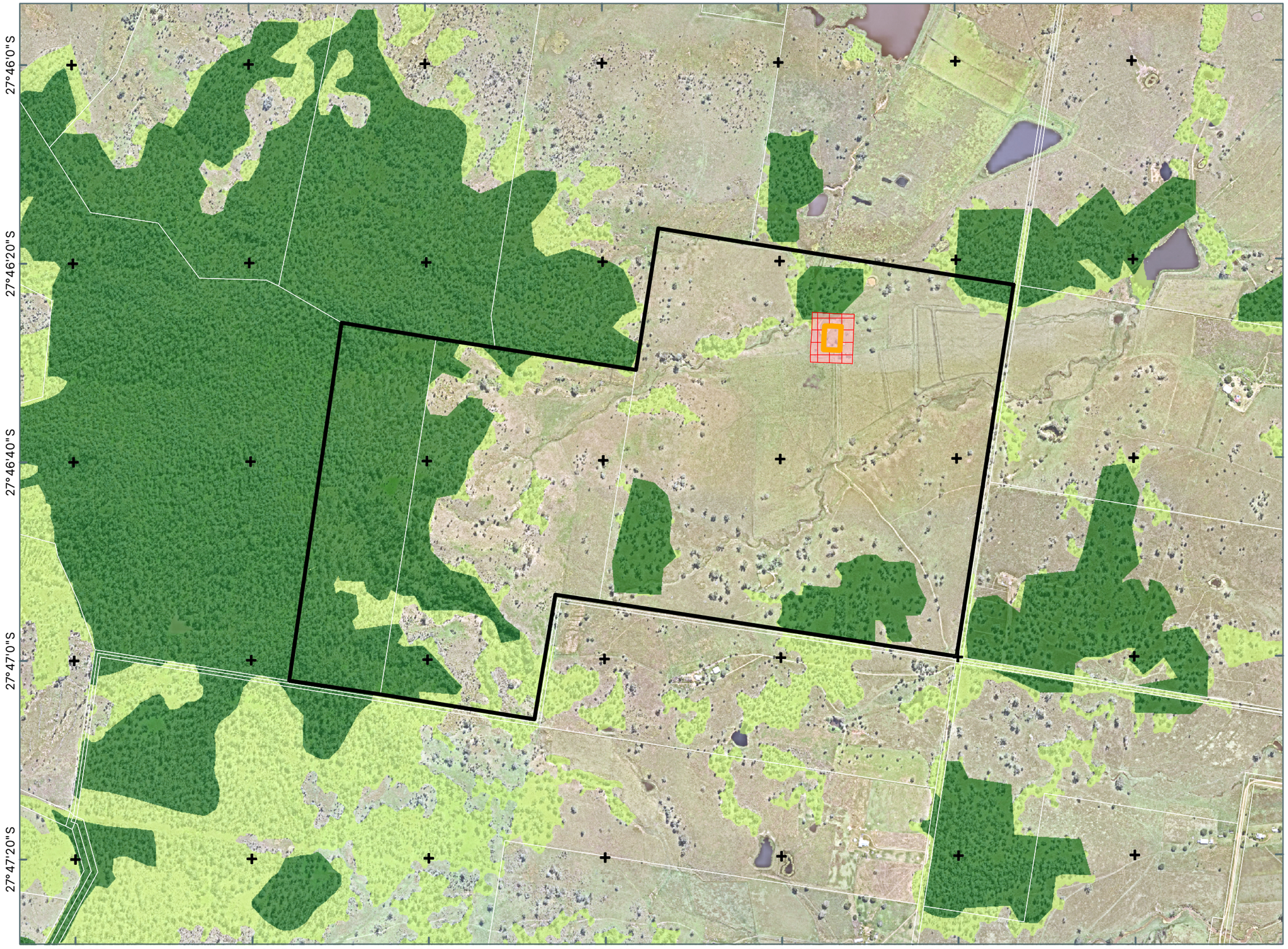
0 50 100 150 200 m
Transverse Mercator
GDA 2020 | Zone 56
1:8,000 @ A3

Address / RPD: MOUNT WALKER WEST

12/01/2026

9612 E 04 MWW Habitat Creation A

05. OFFSET SITE CONNECTING HABITAT

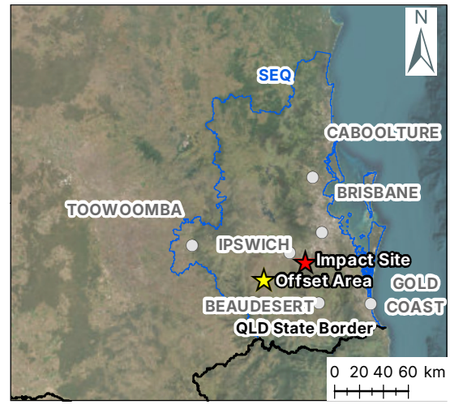


Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders Havill.Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community
© State of Queensland (Department of Resources) 2026.
Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/
* Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Qld DCDB
- Offset Area [227.6 ha]
- Non-Offset Land Use Area [2 ha]
- Building Location Envelope - 0.4 ha
- Asset Protection Zone / Bushfire Management Zone - 1.6 ha
- Mapped Koala habitat areas
- Likely Koala habitat areas – treed areas



Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

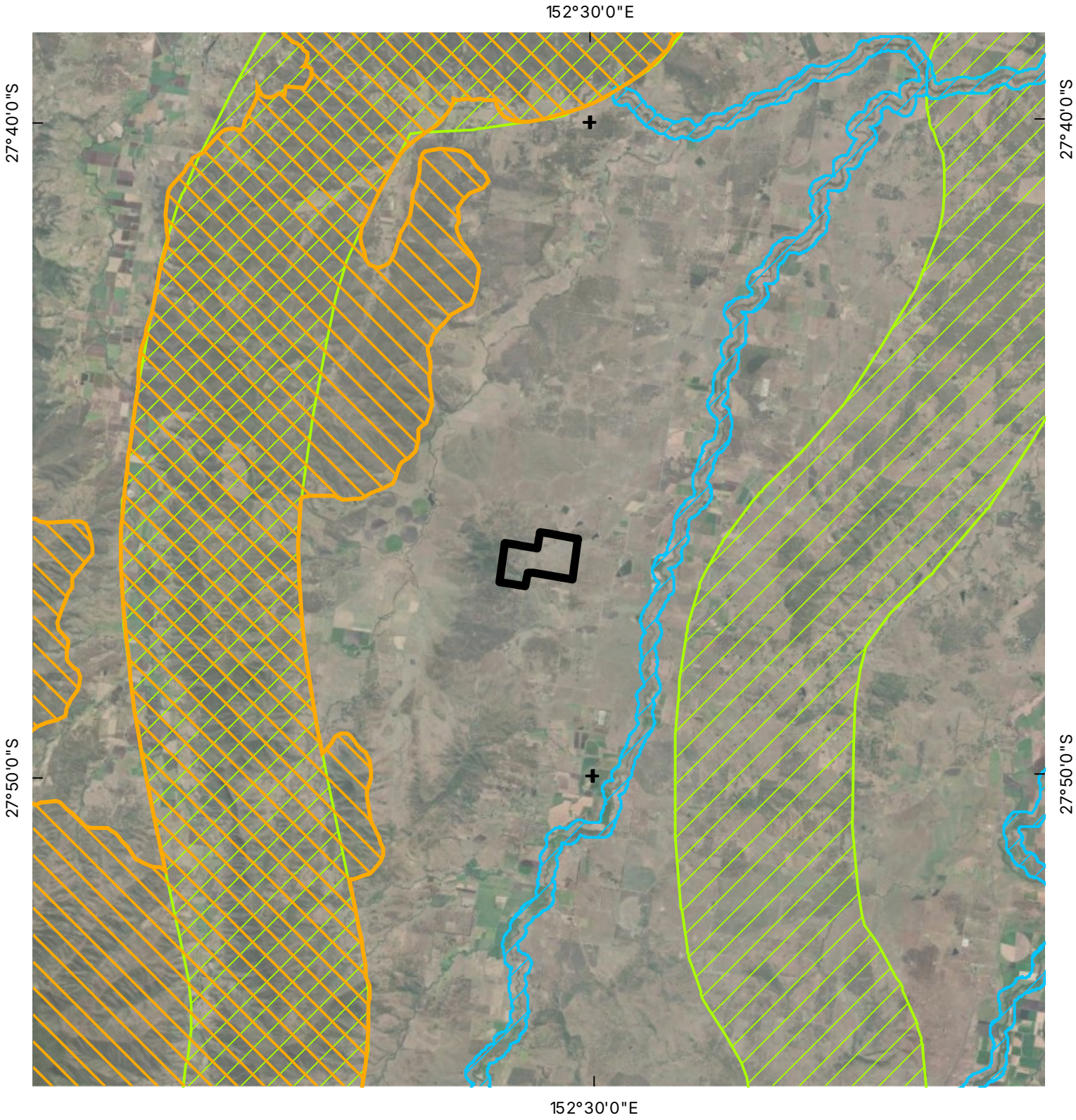
MOUNT WALKER WEST

0 100 200 300 m
N
Transverse Mercator
GDA 2020 | Zone 56
1:12,000 @ A3

Address / RPD: MOUNT WALKER WEST

12/01/2026

9612 E 05 MWW Offset Connect A



LEGEND

- Offset Site
- SEQ Regional Plan 2017: Regional Biodiversity Corridor
- Biodiversity Planning Assessment: Regional Significance Corridor
- Biodiversity Planning Assessment: State Significance Corridor

FIGURE 9

SOUTH EAST QUEENSLAND BIOREGIONAL PLANNING ASSESSMENT – CORRIDORS

PROJECT
MOUNT WALKER WEST OFFSET SITE

COORDINATE SYSTEM
GDA 2020 MGA Z56

SCALE (A4)
1:150,000

0 1 2 3 4 5 km

N

CLIENT
CHERISH ENTERPRISES

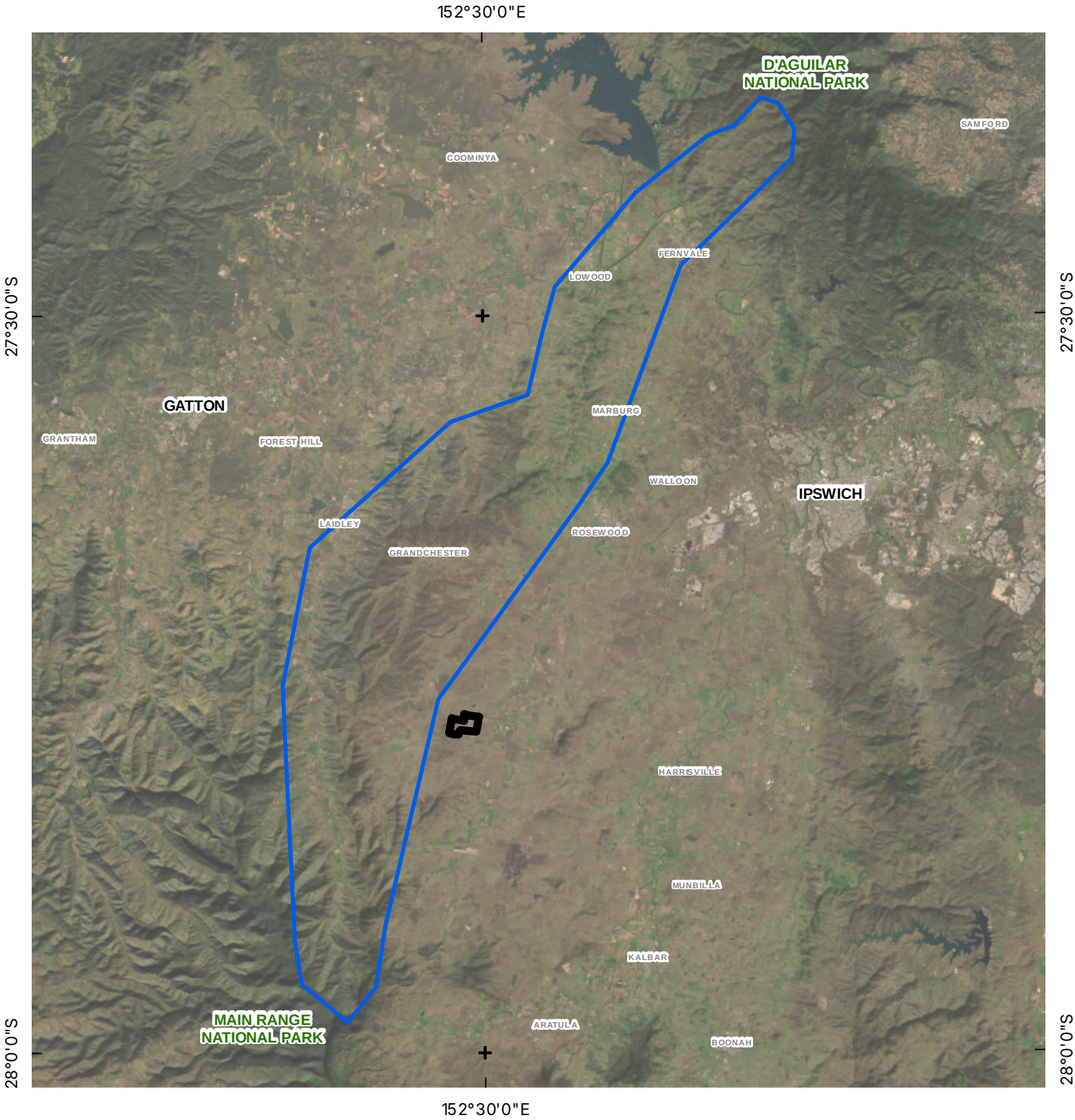
Saunders Havill
BOWEN HILLS | SPRINGFIELD
1300 123 744
mail@saundershavill.com

DISCLAIMER These plans have been prepared for the exclusive use of the client. Saunders Havill cannot accept reponsibility for any use of or reliance upon the contents of these drawings by any third party.

LAYER SOURCE *© State of Queensland 2025*

FILE REFERENCE
9612 E MWW Figure 9 SEQ BPA A

DATE 28/11/2025



LEGEND

- Offset Site
- Little Liverpool Range

FIGURE 10

LITTLE LIVERPOOL RANGE

PROJECT
MOUNT WALKER WEST OFFSET SITE

COORDINATE SYSTEM
GDA 2020 MGA Z56

SCALE (A4)
1:400,000

0 5 10 15 km

N

CLIENT
CHERISH ENTERPRISES

Saunders Havill
BOWEN HILLS | SPRINGFIELD
1300 123 744
mail@saundershavill.com

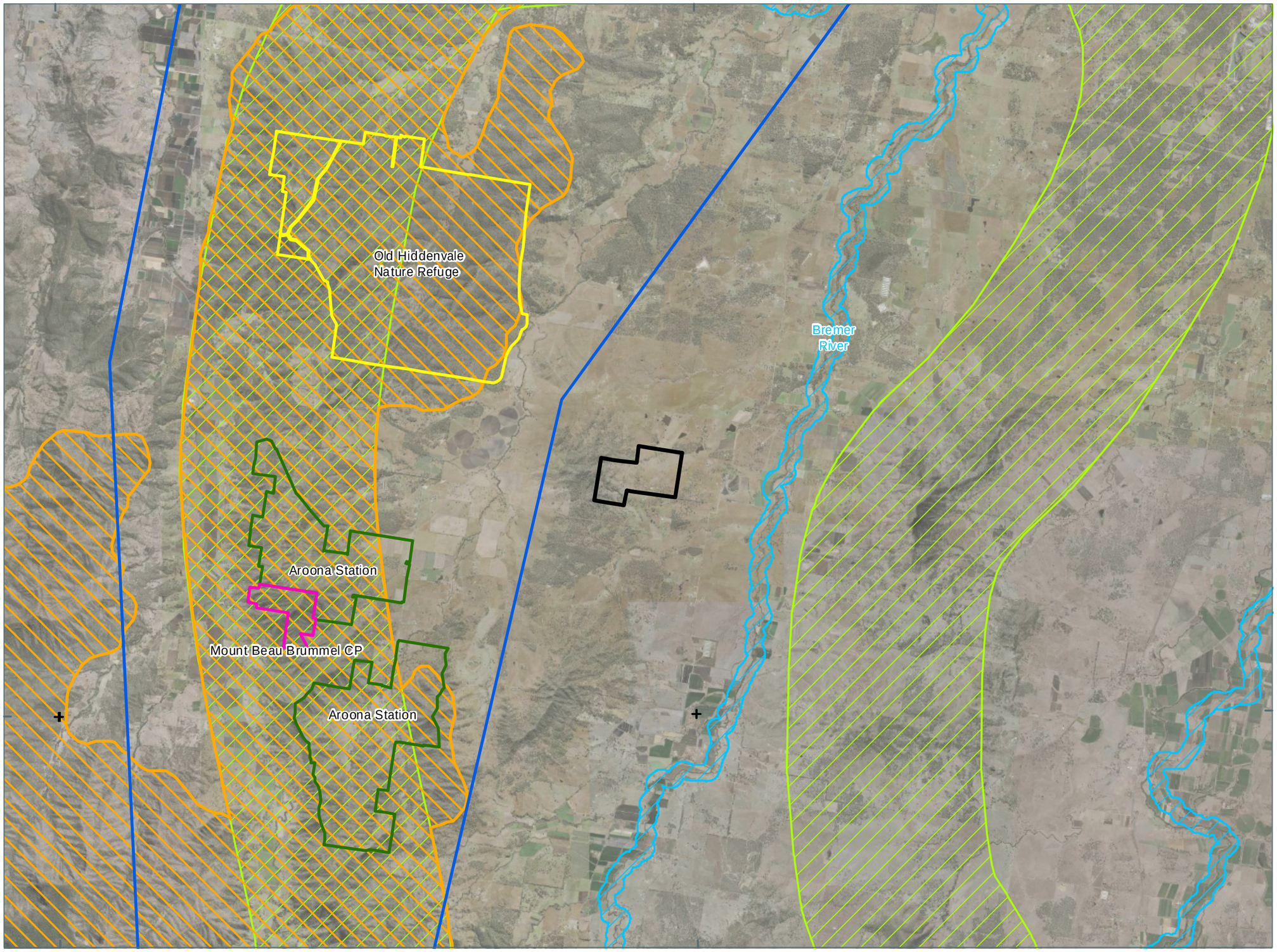
DISCLAIMER These plans have been prepared for the exclusive use of the client. Saunders Havill cannot accept reponsibility for any use of or reliance upon the contents of these drawings by any third party.

LAYER SOURCE *© State of Queensland 2025*

FILE REFERENCE
9612 E MWW Figure 10 LLR A

DATE 28/11/2025

06. REGIONAL CONNECTIVITY ASSESSMENT



Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders Havill. Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
Includes material © State of Queensland (Department of Resources); © Planet Labs Netherlands B.V. reproduced under licence from Planet and Geoplex, all rights reserved, 2025.
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
© State of Queensland (Department of Resources) 2025.
Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/
* Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Offset Area
- SEQ Regional Plan 2017: Regional Biodiversity Corridor
- Biodiversity Planning Assessment: Regional Significance Corridor
- Biodiversity Planning Assessment: State Significance Corridor
- Nature Refuge - Old Hiddenvale
- Approved Offsets - Aroona Station
- Conservation Park – Mount Beau Brummel
- Little Liverpool Range Extent

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

0 1 2 3 km
N
Transverse Mercator
GDA 2020 | Zone 56
1:100,000 @ A3

Address / RPD: MOUNT WALKER WEST

28/11/2025

9612 E 06 MWW Nature Refuges A

4.1.3 Koala Offset Values

Population analysis

Ipswich supports a regionally significant and genetically distinctive population of koalas. Population size estimates based on a 2016 study by Bussey and Ellis suggest suggested a conservative population size of at least 4,000 koalas across the Ipswich LGA. The Rhodes et al. (2015) survey also indicates that the koala density in Ipswich is approximately 0.033 koalas/ha based on surveys completed in 2011 and 2012. It is noted that recent data-driven population estimates for the koala published in May 2025 by the National Koala Monitoring Program (NKMP) in collaboration with the CSIRO suggest a higher population estimate of koala populations within Queensland than previously estimated. Specific estimates for the Ipswich LGA have not been published.

Genetic analyses of Ipswich koala populations such as Kjeldsen et al. (2015) indicate the Ipswich–Beaudesert population is genetically distinct from coastal koala populations, increasing its conservation value as a source of genetic diversity for the region. Importantly, koalas in Ipswich are known to be regularly sighted within fragmented and peri-urban landscapes including riparian corridors, roadside vegetation and isolated trees in grazing paddocks (ICC, 2017). This spatial and ecological resilience suggests koala protection must not only protect large, high-value habitat remnants, but also recognise and preserve scattered habitat patches and connectivity corridors that sustain the broader population.

Local and State Planning Intent

The Koala Conservation and Habitat Management Plan (KCHMP) (ICC, 2017) is a key planning document used by ICC and informed by Ipswich koala population data and habitat mapping to identify strategic areas for rehabilitation.

Mount Walker, located adjoining Mount Walker West, is identified as a 'priority rehabilitation area' (PRA) under the KCHMP. PRAs are defined as rural areas where there is a high level of threat from high-speed roads and clearing for grazing, with the aim of increasing vegetation cover and connectivity as well as active conservation management (ICC, 2017).

At the State level, the offset area is mapped as containing koala habitat area, the location of which is based on the State regulated vegetation mapping, and outside of these areas is identified as a koala habitat restoration area (refer **Figure 11** and **Figure 12**). Koala habitat restoration areas have been identified by the Queensland Government as being potentially suitable for restoration and establishment as koala habitat areas, on the basis of having high conservation opportunities and low threats.

The location of the offset area within the same LGA as the impact area will also enable stakeholder groups such as the Ipswich Koala Protection Society (IKPS) to connect and utilise the offset land for koala-based conservation activities.

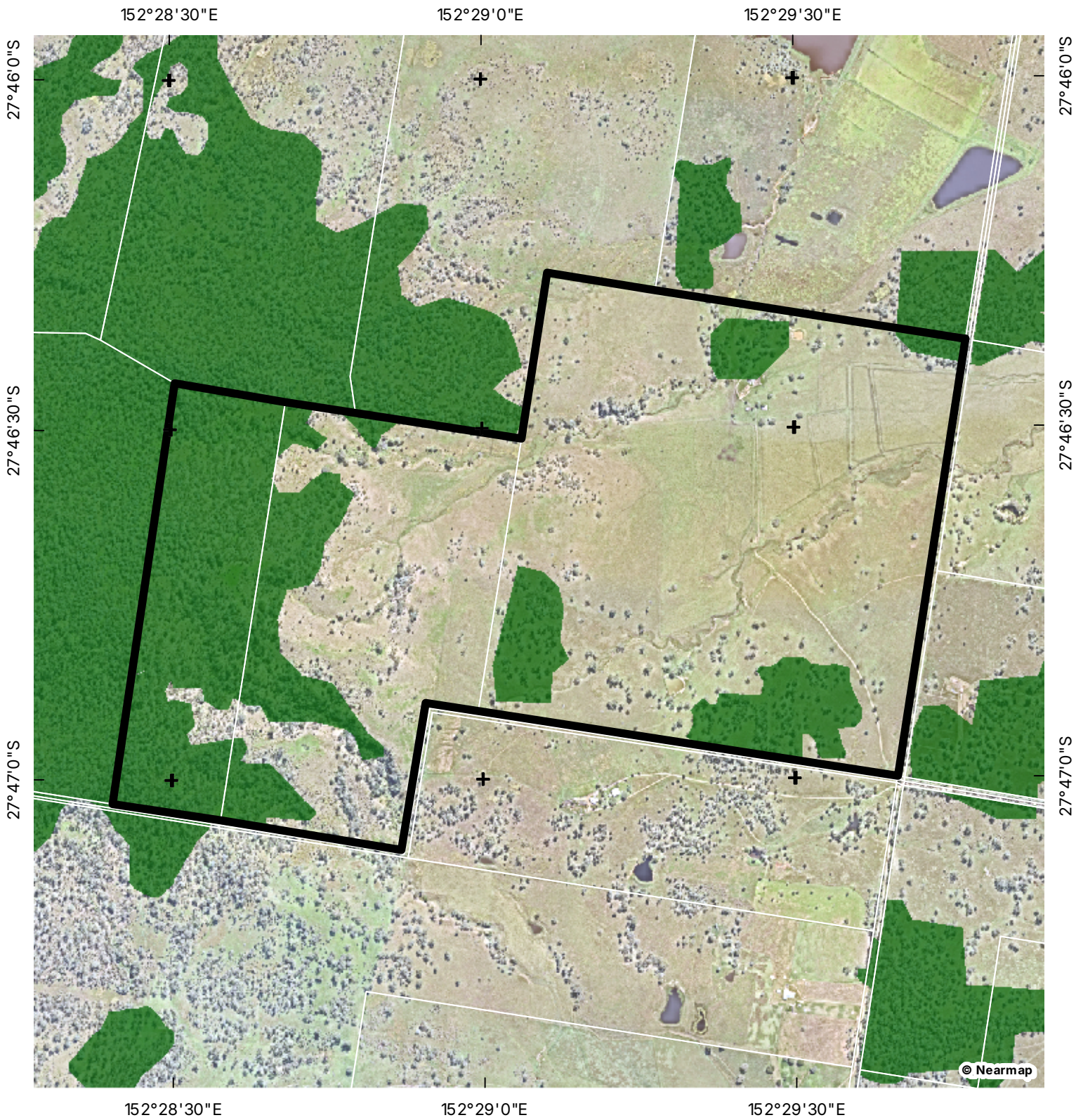
Records and Habitat values

The offset area is dominated by highly degraded grazing areas, with small patches of retained and regrowth eucalypt vegetation and a larger, relatively intact patch present within the western portion of the offset area. Existing habitat to support the koala is comprised of regional ecosystems 12.8.17 and 12.8.16 which are vegetation communities dominated by koala foraging tree species including *Eucalyptus crebra, E. melanophloia, E. melliodora* and *E. tereticornis*. Retained remnant value trees within cleared paddock areas also represent high value koala foraging habitat in the form of *Eucalyptus tereticornis* indicative of pre-clear RE12.3.3. The *LLR Strategic Plan 2022-2027* identifies RE12.3.3 as a key habitat restoration area for the koala.

There are a high number of records within 20 km of the offset area. Records are present within 5 km of the and adjoining the offset area with the majority located within urban hubs associated with the City of Greater Springfield and adjoining suburbs (refer **Plan 7**). It is noted in the KCHMP (ICC, 2017) that while the suburb of Mount Walker, located adjoining Mount Walker West, has relatively few koala records, it contains suitable koala habitat and areas ideal for rehabilitation. Mount Walker has fewer people per hectare compared to more populated suburbs, so it is expected that this is one of the primary reasons for a lack of sightings.

Notably, evidence of koala was confirmed within the vegetated areas of the offset area in the form of scats (refer **Photo set 9**).

Photo set 9: Koala scats observed within offset area.



LEGEND

- Qld DCDB
- Offset Site
- Koala Habitat Areas
- Koala Priority Areas

FIGURE 11

STATE KOALA HABITAT AREA (QLD)

PROJECT
MOUNT WALKER WEST OFFSET SITE

COORDINATE SYSTEM
GDA 2020 MGA Z56

SCALE (A4)
1:14,000

0 100 200 300 400 500 m

N

CLIENT
CHERISH ENTERPRISES

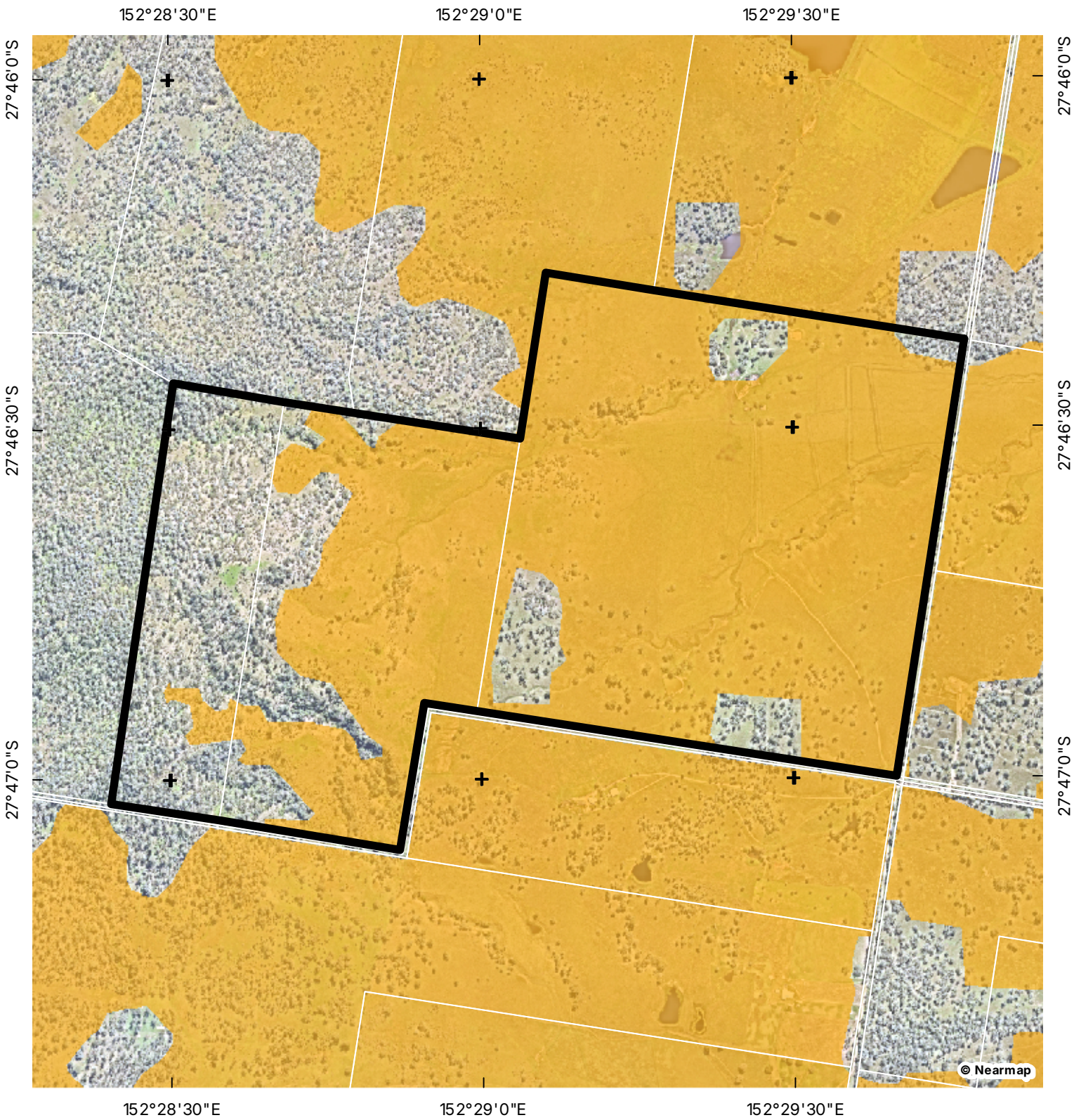
Saunders Havill
BOWEN HILLS | SPRINGFIELD
1300 123 744
mail@saundershavill.com

DISCLAIMER These plans have been prepared for the exclusive use of the client. Saunders Havill cannot accept reponsibility for any use of or reliance upon the contents of these drawings by any third party.

LAYER SOURCE *© State of Queensland 2025*

FILE REFERENCE
9612 E MWW Figure 11 Koala 2019 A

DATE 28/11/2025



LEGEND

- Qld DCDB
- Offset Site
- Koala Habitat Restoration Areas

FIGURE 12

STATE KOALA HABITAT RESTORATION AREAS (QLD)

CLIENT
CHERISH ENTERPRISES

PROJECT
MOUNT WALKER WEST OFFSET SITE

COORDINATE SYSTEM
GDA 2020 MGA Z56

SCALE (A4)
1:14,000

0 100 200 300 400 500 m

N

Saunders Havill
BOWEN HILLS | SPRINGFIELD
1300 123 744
mail@saundershavill.com

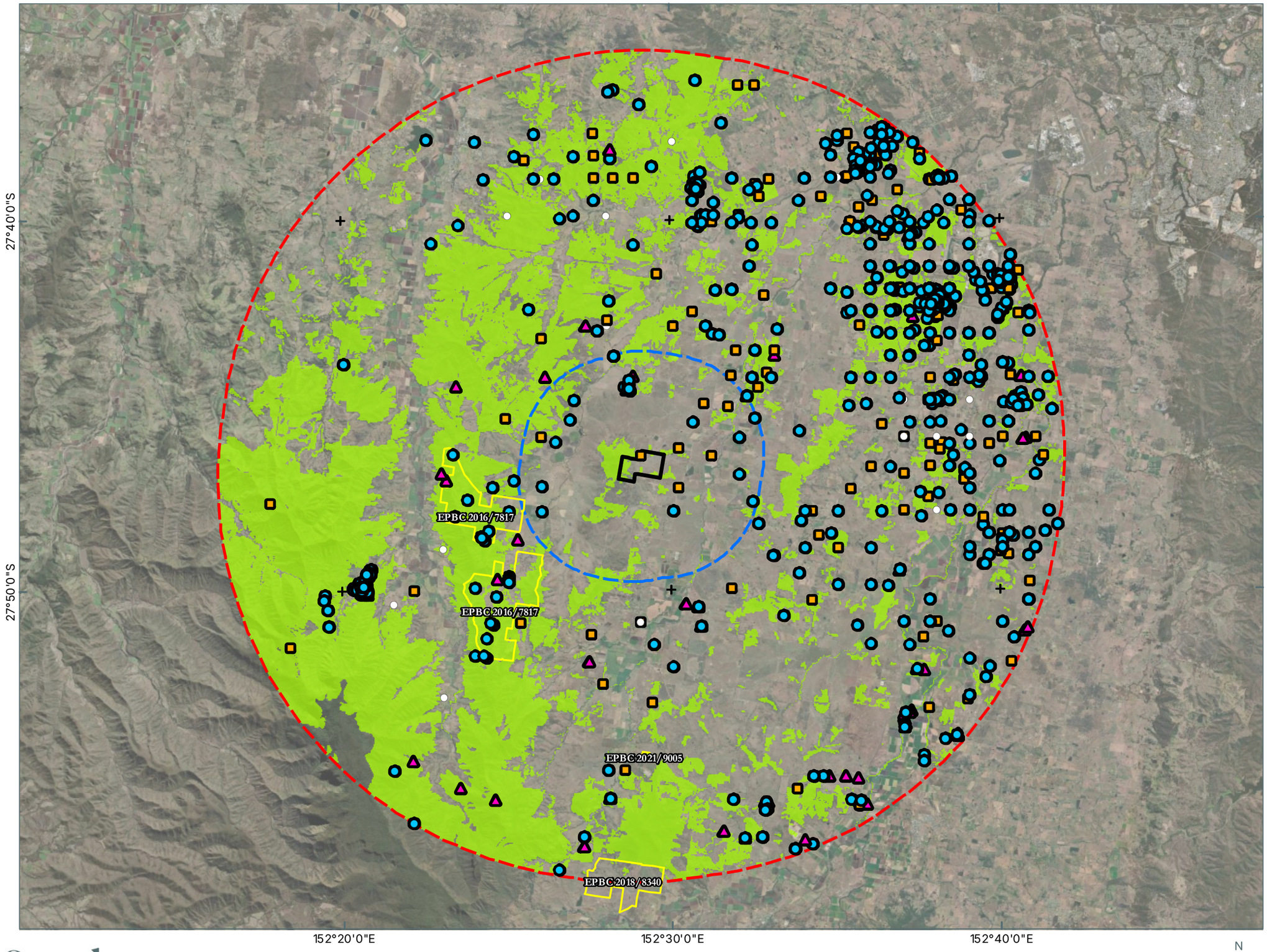
DISCLAIMER These plans have been prepared for the exclusive useof the client. Saunders Havill cannot accept reponsibility for any use of or reliance upon the contents of these drawings by any third party.

LAYER SOURCE *© State of Queensland 2025*

FILE REFERENCE
9612 E MWW Figure 12 KRA A

DATE 28/11/2025

07. KOALA RECORDS AND HABITAT



Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders Havill.Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
© State of Queensland (Department of Resources) 2025.
Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/
* Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Offset Area [227.6 ha]
- Offset Area 5km Buffer
- Offset Area 20km Buffer
- Existing Approved Koala Offsets
- Potential and known Koala habitat areas within 20km of offset area [36.3%]
- Koala (Phascolarctos cinereus) records within 20km of offset area recorded without a sighting date [61]
- Koala (Phascolarctos cinereus) records within 20km of offset area recorded over 20 years ago [284]
- Koala (Phascolarctos cinereus) records within 20km of offset area recorded between 5-20 years ago [1,370]
- Koala (Phascolarctos cinereus) records within 20km of offset area recorded within the last 5 years [63]

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

0 1 2 3 4 5 km
N
Transverse Mercator 1:190,000
GDA 2020 | Zone 56 @ A3

Address / RPD: MOUNT WALKER WEST

28/11/2025

9612 E 07 MWW Koala Records A

4.1.4 Grey-headed Flying-fox Offset Values

Research by Eby and Law (2008) identifies scarcity of food sources, particularly during winter and spring, as a limiting factor for the grey-headed flying-fox survival. Lack of winter and spring foraging resources can result in animal weight loss and seasonal movement of camp numbers (Eby and Law, 2008). Tree species known to provide nectar, flower or fruit resources for the grey-headed flying-fox within 50 km of a known population or roosting site is considered critical habitat for the species.

The offset area contains habitat to support the grey-headed flying-fox within remnant and high value regrowth RE12.8.17/12.8.16 which are vegetation communities confirmed to be dominated by foraging species including several winter and spring foraging species *E. crebra, E. melanophloia, E. melliodora*, *Corymbia tessellaris* and *E. tereticornis*. In addition, *C. clarksoniana* is proposed as part of the planting palette for broadscale revegetation of RE12.3.3. Existing cleared areas are mapped with pre-clear RE12.8.17/12.8.16 and RE12.3.3 which will be restored full-strata as part of rehabilitation activities to increase the volume of winter and spring foraging resources.

A review of the grey-headed flying-fox population data available through the CSIRO Data Access Portal (McKeown and Vanderduys, 2024) identified several known roosts (active and inactive) within 20 km and 40 km of the offset area of which there are a number of shared roosts between the impact and offset area within a 40 km buffer (refer **Plan 8**). This overlap of foraging buffers provides opportunity for GHFF foraging individuals to which forage at the impact site to forage within the offset area.

It is noted roost activity can change spatially and temporally and intermittent monitoring data provides an unclear picture of which roosts are currently active. The Interactive Flying-Fox Web Viewer which was intermittently updated with monitoring data from various roost sites between August 2012 and November 2022 was decommissioned on 25 June 2025. The location of the above identified roost sites is unlikely to reflect grey-headed flying-fox activity at all points in time, rather, provides a broad area of known occurrence, highlighting roost sites which are currently occupied, previously occupied or may be occupied again in the future.

4.1.5 Swift Parrot Offset Values

Swift parrots are usually seen in small parties of up to 30 birds, or occasionally in flagger flocks (of several hundred birds) around sources of abundant food. Swift parrots breed in Tasmania and then move to mainland Australia in Autumn for the non-breeding season. They feed preferentially in the largest trees available (Kennedy and Overs, 2001) and on psyllid lerps, seeds and fruit (DCCEEW, 2024). Commonly used lerp infested trees include inland *E. macrocarpa*, *E. moluccana*, *E. pilularis*, and *E. melliodora*. There are 10 species identified as preferred foraging tree species under the *National Recovery Plan for the Swift Parrot* (DCCEEW, 2024) including *E. robusta*, *C. maculata*/*C. citriodora*, *E. melliodora*, *C. gummifera*, *E. tereticornis*, *E. sideroxylon*, *E. albens, E. leucoxylon* and *E. tricarpa*.

The offset area contains existing patches of RE12.8.17/12.8.16 and pre-clear RE12.3.3 which are vegetation communities known to contain preferred foraging species for the swift parrot including *E. melliodora*, *E. tereticornis* confirmed through ground-truthing assessment. Existing cleared areas are mapped as pre-clear RE12.8.17/12.8.16 and RE12.3.3 and will be restored full-strata as part of rehabilitation activities to increase the volume of preferred foraging resources.

A review of public database records (Atlas of Living Australia (ALA)) indicates several records within 20 km of the offset area. It is noted that these records have been generalised within a 0.2 x 0.2 degree cell (29 km area), however, the presence of these records confirms broader usage patterns within the landscape. A habitat analysis combining potential habitat and records of this species within 20 km of the offset area is provided in **Plan 9**.

4.1.6 Regent Honeyeater Offset Values

The regent honeyeater is endemic to mainland south-eastern Australia. It has a patchy distribution which extends from south-east Queensland, through New South Wales and the Australian Capital Territory, to central Victoria. Records are widely distributed across its range, however, is only found regularly at a few localities in New South Wales and Victoria where most of the sightings have been recorded. There are four known key breeding areas, three in New South Wales and one in Victoria.

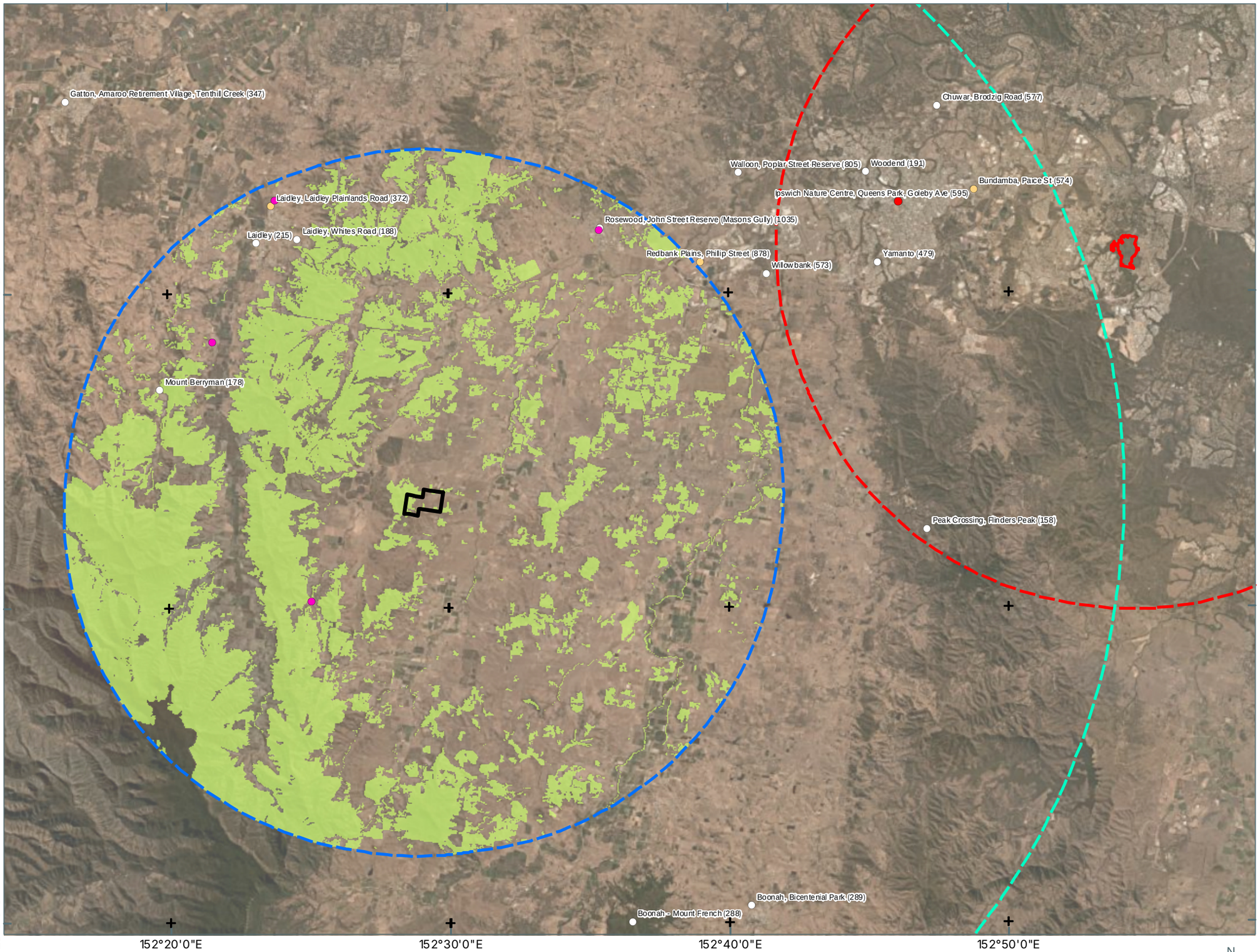
The species mostly inhabits inland slopes of the Great Dividing Range, in areas of low to moderate relief with moist, fertile soils. It is most commonly associated with box-ironbark eucalypt woodland and dry sclerophyll forest, but also inhabits riparian vegetation such as sheoak (*Casuarina* sp.) where it feeds on needle-leaved mistletoe and sometimes breeds. It sometimes utilises lowland coastal forest, which may act as a refuge when its usual habitat is affected by drought. It also uses a range of other habitats including remnant patches in farmland and urban areas, roadside reserves and travelling stock routes.

The regent honeyeater's diet primarily consists of nectar, however, also includes invertebrates (mostly insects) and their exudates (e.g. lerps and honeydew), and occasionally fruit. Its time spent foraging for nectar ranges from 10% to 90% depending on availability. It obtains nectar chiefly from eucalypts and mistletoe and appears reliant on select species which provide reliable nectar flows. It prefers taller and larger diameter trees for foraging, as these typically produce more nectar. Preferred foraging tree species for the regent honeyeater identified under the *National Recovery Plan for the Regent Honeyeater* includes *E. sideroxylon, E. melliodora, E. albens, E. leucoxylon, C. maculata/C. citriodora, E. robusta.* Mistletoe species important for foraging include *Amyema cambagei*, *A. miquelii* and *Dendropthoe vitellina* (DoE, 2016).

The offset area contains existing patches of RE12.8.17/12.8.16 which are vegetation communities known to contain preferred foraging species for the regent honeyeater including *E. melliodora*, confirmed through ground-truthing assessment. Existing cleared areas are mapped as pre-clear RE12.8.17/12.8.16 and will be restored full-strata as part of rehabilitation activities to increase the volume of preferred foraging resources.

A review of public database records (ALA) indicates several records within 20 km of the offset area. It is noted that these records have been generalised within a 0.2 x 0.2 degree cell (29 km area), however, the presence of these records confirms broader usage patterns within the landscape. A habitat analysis combining potential habitat and records of this species within 20 km of the offset area is provided in **Plan 10**.

08. GHFF RECORDS AND HABITAT



Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders Havill. Unless a development approval states otherwise, this is not an approved plan.

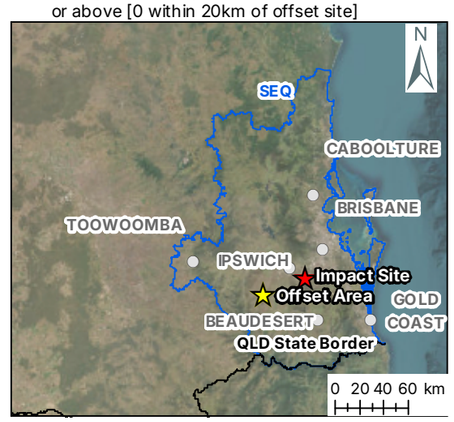
Layer Sources
Includes material © State of Queensland (Department of Resources); © Planet Labs Netherlands B.V. reproduced under licence from Planet and Geoplex, all rights reserved, 2025.
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
© State of Queensland (Department of Resources) 2025.
Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/
* Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Offset Area
- Impact Site
- Impact Site 20km Buffer
- Offset Area 20km Buffer
- Offset Area 40km Buffer
- Potential and known Grey-headed Flying-fox foraging habitat within 20km of offset area [36%]
- Grey-headed Flying-fox observations within 20km of offset area recorded within the past 10 years [4]

Grey-headed Flying-fox Roosts within 40km of Offset Area (Fed. Gov. 2024)

- Grey-headed Flying Fox roost inactive within recent surveys [4 within 20km of offset site]
- Grey-headed Flying Fox roost active within recent surveys [1 within 20km of offset site]
- Grey-headed Flying Fox roost active within recent surveys with a population level of 3 or above [0 within 20km of offset site]
- Nationally significant Grey-headed Flying Fox roost active within recent surveys [0 within 20km of offset site]
- Nationally significant Grey-headed Flying Fox roost active within recent surveys with a population level of 3 or above [0 within 20km of offset site]



Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

0 1 2 3 4 5 km

N

Transverse Mercator
GDA 2020 | Zone 56

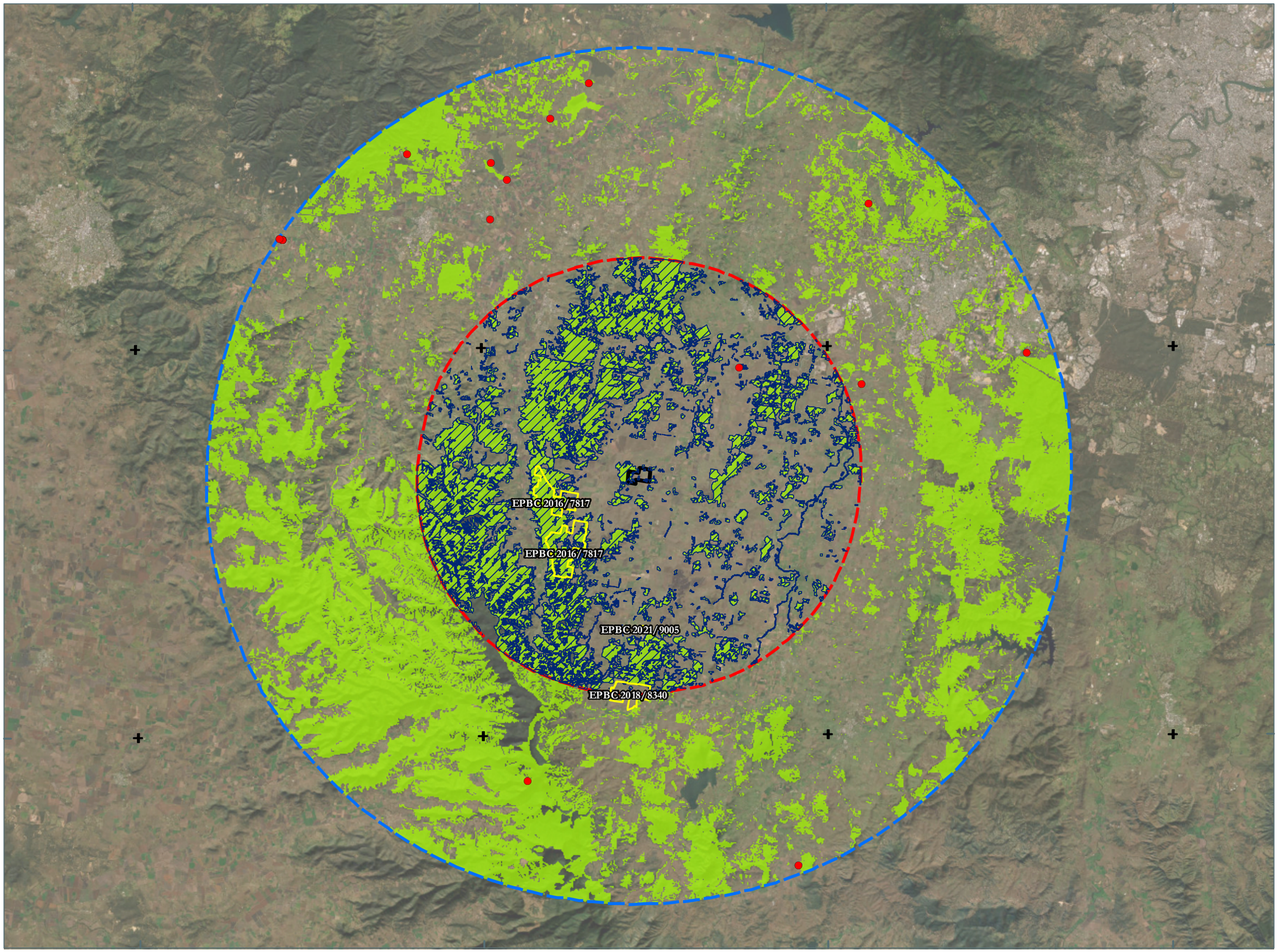
1:225,000
@ A3

Address / RPD: MOUNT WALKER WEST

28/11/2025

9612 E 08 MWW GHFF Records A

09. SWIFT PARROT RECORDS AND HABITAT



Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders Havill.Unless a development approval states otherwise,this is not an approved plan.
Layer Sources
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
© State of Queensland (Department of Resources) 2025.
Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/
* Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Offset Area [227.6 ha]
- Offset Area 20km Buffer
- Offset Area 40km Buffer
- Existing Approved Swift Parrot Offsets
- Swift Parrot records within 40km of offset area
- **Note:** Records are generalised on a grid system for protection of the species. [18]
- Potential and known Swift Parrot foraging habitat within 40km of offset area
- Potential and known Swift Parrot foraging habitat within 20km of offset area [34.1%]

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

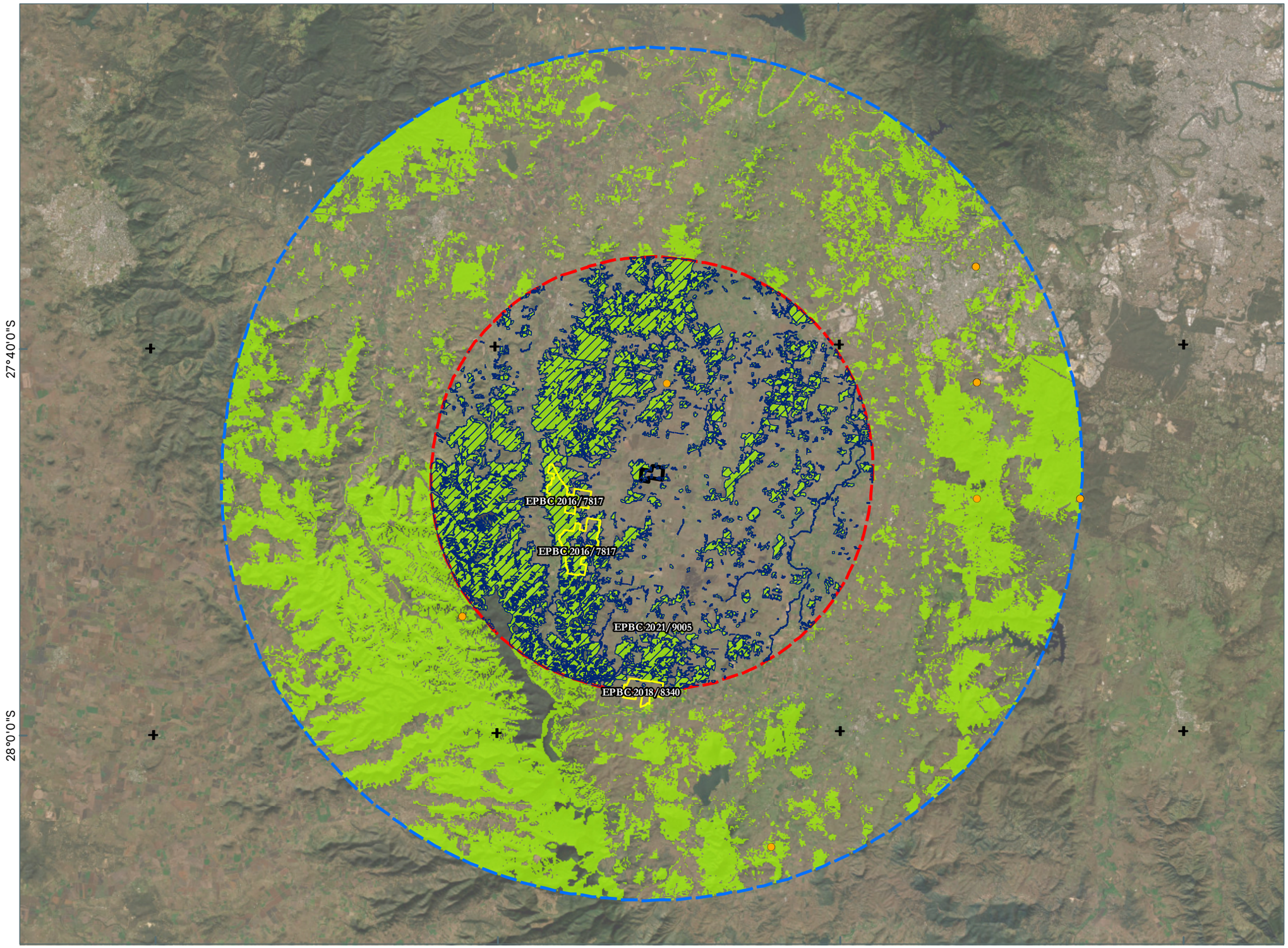
0 2 4 6 8 10 km
Transverse Mercator
GDA 2020 | Zone 56
1:370,000 @ A3

Address / RPD: MOUNT WALKER WEST

28/11/2025

9612 E 09 MWW SP Records A

10. REGENT HONEYEATER RECORDS AND HABITAT



Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders HavillUnless a development approval states otherwise, this is not an approved plan.

Layer Sources
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
© State of Queensland (Department of Resources) 2025.
Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/

* Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Offset Area [227.6 ha]
- Offset Area 20km Buffer
- Offset Area 40km Buffer
- Existing Approved Regent Honeyeater Offsets
- Regent Honeyeater records within 40km of offset area
  Note: Records are generalised on a grid system for protection of the species. [20]
- Potential and known Regent Honeyeater foraging habitat within 40km of offset area
- Potential and known Regent Honeyeater foraging habitat within 20km of offset area [34.1%]

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

0 2 4 6 8 10 km
Transverse Mercator
GDA 2020 | Zone 56
1:370,000 @ A3

Address / RPD: MOUNT WALKER WEST

28/11/2025

9612 E 10 MWW RH Records A

4.2. Management of Existing Threats

4.2.1 Summary of Threats

A number of existing threats to MNES and their habitat are present within the offset area. This includes:

- Clearing and intensive grazing activity degrading habitat and waterways.
- Ploughing and harvesting land for fodder.
- Uncontrolled wildfire.
- Barbed wire.
- Significant weed infestations of weeds listed as Category 3 – Restricted under the *Biosecurity Act 2014* and Weeds of National Significant (WONS) including *Lantana camara* (lantana), *Senecio madagascariensis* (fireweed) and *Opuntia tomentosa* (velvety tree-pear) (refer **Table 9**).
- Uncontrolled presence of non-native vertebrate pest species which may predate on MNES or degrade habitat values.

A summary of threats in relation to the specific MNES is provided in **Table 10**.

Table 9: Offset area key invasive flora species

Species	*Biosecurity Act 2014* – Restricted Category	WONS	ICC Declared Pest Animals or Weeds
***Lantana camara* (lantana)**	3	Yes	Yes
***Senecio madagascariensis* (fireweed)**	3	Yes	Yes
***Opuntia tomentosa* (velvety tree-pear)**	3	Yes	Yes
Sporobolus pyramidalis and S. natalensis (giant rat's tail grass	3	No	Yes
***Lantana montevidensis* (creeping lantana)**	3	No	Yes
***Celtis sinensis* (Chinese elm)**	3	No	No

Table 10: Offset area major threats MNES species

MNES Offset Target Species	Major threats to MNES present within offset property
***Phascolarctos cinereus* (koala)**	• Encounter mortality from wild dogs (*Canis familiaris dingo, Canis familiaris dingo X Canis familiaris, Canis familiaris*) • *Lantana camara* adversely affects the ability of koalas to move between trees • Habitat clearing and degradation of habitat • Uncontrolled wildfire
***Pteropus poliocephalus* (grey-headed flying-fox)**	• Barbed wire fencing (entanglement) • Habitat clearing and degradation of habitat • Uncontrolled wildfire
***Lathamus discolor* (swift parrot)**	• Predation by feral cats (*Felis catus*) and European red fox (*Vulpes vulpes*) • Habitat clearing and degradation of habitat • Uncontrolled wildfire

MNES Offset Target Species	Major threats to MNES present within offset property
Anthochaera phrygia (regent honeyeater)	• The primary threats to the regent honeyeater relate to the species' small population size, habitat loss and fragmentation, competition, and degradation of remnant habitat. However, given that feral cats are opportunistic hunters it is likely they are also a threat to regent honeyeater. • Habitat clearing and degradation of habitat • Uncontrolled wildfire

4.2.2 Discontinuation of Current Management

The offset area is actively utilised for cattle grazing which involves the use of the following degrading management activities:

- Intensive grazing to ensure ground cover levels are maintained, subsoil moisture is retained, and pasture growth is encouraged.
- Targeted spraying/slashing of regrowth and weeds to encourage spread of pasture grass.
- Controlled burns to remove weeds and regrowth to promote pasture grass.
- Utilisation of fencing and gates for cattle control.

As part of the offset, all degrading management activities will be discontinued.

4.2.3 Non-native Vertebrate Pests

The offset area is and has been utilised for pastoral practices which attracts threats to both livestock and native wildlife. Non-native vertebrate pests including predator and herbivore species are known to occur within the local region and have been confirmed on-site through baseline camera monitoring (refer **Photo set 10**). Within a 20 km radius of the offset area the Queensland WildNet database identifies three (3) *Canis familiaris* (wild dog) records, three (3) *Vulpes vulpes* (European red fox) records, one (1) *Felis catus* (feral cat), and three (3) *Lepus europaeus* (European brown hare). Notably, wild dogs are known to travel up to 20 km seeking prey, with home ranges of individuals likely to overlap with the offset area.

Non-native vertebrate pest species can be categorised into high, medium and low priority based on their relative impacts to MNES. The most prominent pest species which is known to impact the koala is the wild dog (*Canis familiaris dingo, Canis familiaris dingo X Canis familiaris, Canis familiaris*). This conclusion is based on several federal government documents including:

- DAWE Conservation Advice for *Phascolarctos cinereus* (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory
- Australian Wool Innovation (2020) National Wild Dog Action Plan 2020 – 2030

The ICC lists wild dogs (*Canis lupus familiaris*) as declared pest animals and runs an ongoing baiting program alongside landholders to reduce numbers.

Medium priority threats to koala, grey-headed flying-fox and swift parrot include feral cat (*Felis catus*) and European red fox (*Vulpes vulpes*). These species are not listed as a key threatening process to the MNES species however both are known to be opportunistic predators with significant impacts to native species:

- Department of Environment Threat Abatement Plan for Predation by Feral Cats
- DEWHA Threat Abatement Plan for Predation by the European Red Fox

It is also acknowledged that although they aren't listed as a direct threatening process to the target MNES species, feral pigs (*Sus scrofa*) are opportunistic omnivores and will consume a wide range of animals including small mammals

and birds. Feral pigs are also widely known to cause significant environmental destruction to soil and vegetation via digging, spreading weeds and consumption, particularly surrounding waterbodies. Therefore, the presence of feral pigs within the offset site cause destruction of current habitat value and water resources, and indirectly impacting essential habitat areas for the listed MNES. This is similarly the case for feral rusa deer (*Cervus timorensis*) which are known to damage native vegetation, spread weed seeds and foul water and European rabbit (*Oryctilagus cuniculus*) which impact native vegetation.

Photo set 10: Wild dogs within offset area.

4.3. Environmental Offset Policy Assessment

The objective of this OAMP is to outline appropriate management actions which achieve the offset outcomes specified within the EPBC Act and provide an overall improved conservation outcome and net gain in MNES habitat and thereby ensuring the long-term viability of koala, grey-headed flying-fox, swift parrot and regent honeyeater populations.

The implementation of this OAMP will enhance habitat for MNES through improvements to vegetation, reduction and key threats and provision of shelter and safe movement opportunity. **Table 11** lists the principles of the EPBC Act Environmental Offsets Policy and describes how the proposed offset strategy has been developed to adhere to these principles.

Table 11: Offset suitability analysis – Environmental Offset Policy

EOP Requirements Suitable offsets must:	**Delivery**
Deliver an overall conservation outcome that improves or maintains the viability of the aspect of the protected matter	The offset area program will deliver a conservation gain for the koala, grey-headed flying-fox, swift parrot and regent honeyeater through: a) The creation of new habitat for both protected matters through the revegetation of 155.4 ha of degraded grazing land and assisted natural regeneration to 70.2 ha of regrowth and remnant vegetation. The revegetation is to consist of a variety of foraging species known to be utilised by the targeted species including preferred foraging tree species for the swift parrot and regent honeyeater (*Eucalyptus tereticornis* and *Eucalyptus melliodora*), along with other endemic species occurring on-site and consistent with the pre-clear Regional Ecosystems. b) Locating adjacent to the LLR to provide mutual conservation benefits through overlapping population processes, bolstered stepping-stone connectivity to nearby nature refuges and opportunity for stakeholder engagement. c) Creating important habitat node and enhanced landscape connectivity for the protected matters within an established rural landscape, enabled through connection to the Little Liverpool Range corridor. d) Introducing, funding and continually improving offset area management actions to reduce and manage threats (non-native feral animals, weeds) in protected and created habitat areas. e) Averting potential direct and indirect losses of 225.6 ha of offset land enabled through rural zoning via legally securing the land in perpetuity via a suitable mechanism being a Voluntary Declaration area under the *Vegetation Management Act 1999* or a covenant under the *Land Act 1994* or *Land Titles Act 1994*. This removes future wholesale and selective clearing opportunities and through the management plan removes ongoing impacts caused by livestock intrusion into habitat areas. f) Aligning with Queensland Government's and Ipswich City Council's vision for koala targeted restoration areas within a rural dominated landscape. Through the achievement of the above, the proposed offset meets the conservation gains listed in the relevant conservation advices and recovery plans for each MNES.

EOP Requirements Suitable offsets must:	Delivery
Be built around direct offsets but may include other compensatory measures	The offset area includes legally securing the land area and undertaking necessary improvements to achieve a portion of offset requirements calculated for the Springfield Residential Development. This offset relates will partially acquit impacts to the koala, grey-headed flying-fox, swift parrot and regent honeyeater habitat through direct offsets with the balance of offset requirement to be delivered across two additional land-based offsets (Esk Landholdings Offset Area and Avonvale Offset Area).
Be in proportion to the level of statutory protection that applies to the protected matter	At the time of the EPBC referral, the koala and grey-headed flying-fox were listed under the EPBC Act as 'Vulnerable.' Under the International Union for Conservation of Nature data the probability of annual extinction is 0.2. The swift parrot and regent honeyeater are listed under the EPBC Act as 'Critically Endangered.' Under the International Union for Conservation of Nature data the probability of annual extinction is 0.2 for Vulnerable species and 6.8 for Critically Endangered species. These factors apply through the metadata of the Offset Assessment Guide calculator sheets for which each species has been assessed as achieving part of overall offset requirements for each MNES.
Be of a size and scale proportionate to the residual impacts on the protected matter	Direct and indirect impacts for the protected matters have been calculated at the impact site using the Modified Habitat Quality Assessment (MHQA) for the koala and the Foraging Habitat Assessment (FHA) methods for grey-headed flying-fox, swift parrot and regent honeyeater. The Quantum Impact (QI) for each species is listed as: • Koala (89.60 QI ha) • Grey-headed Flying-fox (89.60 QI ha) • Swift Parrot (9,983 habitat features impacted) • Regent Honeyeater (9,868 habitat features impacted) To achieve part of the offset requirements for these impacts, a direct land-based outcome is proposed over 225.6 ha which includes 155.4 ha of entirely through habitat recreation activities on cleared grazing land. The percentage of the overall impacts acquitted through this direct offset is: • Koala – 50.02% • Grey-headed Flying-fox – 66.89% • Swift Parrot – 91.92% • Regent Honeyeater – 37.40% The balance of offset requirements will be delivered across two additional land-based offsets (Esk Landholdings Offset Area and Avonvale Offset Area).
Effectively account for and manage the risks of the offset not succeeding	This OAMP identifies 8 key risks to some or all of the offset principles and outcomes not being achieved. Each of these risks have influenced the specific management actions proposed in the relevant Environmental Management Zone where the risk may occur and more importantly the monitoring, measuring of success and adaptive management for the offset succeeding. Suitably qualified professionals and rehabilitation contractors will be engaged to ensure that the management outcomes of the offset land are implemented as proposed and the risk of the offset not succeeding is reduced.

EOP Requirements Suitable offsets must:	Delivery
	Reasonable and achievable completion criteria have been developed such as an 80% survival rate for plantings so not to over-estimate the potential conservation benefits of the offset program. Rehabilitation and revegetation activities will be guided by a site-specific Rehabilitation Management Plan which includes a built-in monitoring program to enable adaptive management where required. Repetitive monitoring, survey replication and an adaptive management framework will be implemented under this OAMP to ensure any corrective actions are identified and implemented for the life of the offset.
Be additional to what is already required, determined by law or planning regulations, or agreed to under other schemes or programs	The Springfield Residential Development is located within the Springfield Structure Plan area declared by the State Government as a priority area for development therefore offsets under the Queensland Government's *Environmental Offset Act 2014* are not applicable. Therefore, without the triggering of the EPBC Act and subsequent requirement to obtain approval, the offset as proposed in the OAMP is not required for any of the protected matters under State or Local legislation. Additionally, the offset area would not be protected in perpetuity for conservation purposes otherwise due to the zoning as 'rural' under the *Ipswich City Plan 2025*.
Be efficient, effective, timely, transparent, scientifically robust, and reasonable	Through conditions of approval the offset area will be legally secured prior to the commencement of any clearing on the impact site. The offset area will be legally secured through a suitable mechanism being a Voluntary Declaration (VDEC) under the Queensland *Vegetation Management Act 1999*. The offset area will be permanently secured via a legal mechanism that is approved by the Land Holder and the Department. Draft terms of the permanent legal mechanism to be submitted for approval within 18 months of commencement of the action. Within 12 months of approval of the draft terms the offset site must be permanently secured. The means of legally securing the land protects the land and values and is binding on future owners. The declaration and management plan will be noted on the land title, which informs prospective buyers of current declarations and management plans and where copies are available. This information is important to the property market as future owners will be bound by the plan and declaration. The legally securing of the land will be made through declaring the area as having High Nature Conservation Values. The VDEC and subsequent permanent securement mechanism will be lodged and legally secured by evidence of encumbrance on Registered Land Title prior to the commencement of any clearing works at the proposed action site. The OAMP schedules a list of existing or specifically designed scientific methodologies for the measuring of base line and improved outcomes for the protected matters. Detailed baseline studies have been completed over the approved offset area and are used to inform the outcomes of this version of the OAMP. The OAMP also requires the use of tertiary trained and experienced experts along with appropriately certified and experienced contractors for the implementation of the proposed management actions.

EOP Requirements Suitable offsets must:	Delivery
Have transparent governance arrangements including being able to be readily measures, monitored, audited and enforced	This OAMP provides a detailed monitoring and reporting framework, performance criteria, and corrective actions (Sections 7 and 8). These provide minimum requirements for success/failure of management actions and triggers for corrective actions. The approval holder will engage qualified and experienced consultants and specialists periodically throughout the offset delivery to ensure the offset outcomes are achieved. Section 491 of the EPBC Act makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. As such, engaged consultants and specialists are required to complete a declaration of accuracy in reports provided to the Department, acknowledging their responsibility and accountability for information provided to the Department. Clearly articulated goals are set within this OAMP for each proposed action within each Assessment Unit or Environmental Management Zone. Collectively, these goals link directly to the achievement of the overall conservation gain for the protected matters as designed, assessed and calculated through the selection and delivery of the offset. The management actions and implementation schedule to be included in the offset management plan are designed to be measured, monitored, audited and enforced year upon year during the life of the offset.

5. Environmental Outcomes

This OAMP identifies outcomes focused management actions pursuant the EPBC Act for the provision of *Phascolarctos cinereus* (koala), *Pteropus poliocephalus* (grey-headed flying-fox), *Lathamus discolor* (swift parrot) and *Anthochaera phrygia* (regent honeyeater) habitat offset. The management objectives for the MWW Offset Area, in alignment with the Environmental Offsets Policy (EOP) will:

- Deliver an overall conservation outcome that improves the viability of habitat for the koala, grey-headed flying-fox, swift parrot and regent honeyeater.
- Provide a direct offset that is in proportion to the level of statutory protection that applies to the koala, grey-headed flying-fox, swift parrot and regent honeyeater.
- Be of a size and scale proportionate to the residual impacts on habitat for the koala, grey-headed flying-fox, swift parrot and regent honeyeater.
- Effectively account for and manage the risks of the offset not being successful within the required management timeframe.
- Provide a conservation gain additional to what is already required by a duty of care or to any environmental planning laws at any level of Government.
- Be efficient, effective, timely, transparent, scientifically robust, and reasonable with appropriate transparent governance arrangements in place for measuring, monitoring, auditing and enforcing the management of the offset.
- Provide detailed descriptions of the management actions to be implemented including responsibilities, monitoring requirements and completion criteria. Implementation of these actions will facilitate the proposed environmental outcomes and ecological uplift of habitat within the offset area.

5.1. Offset Assessment Guide – Summary of MNES Offset Compensation

Offset compensation for the impacts on MNES is derived from the EPBC Act Offset Assessment Guide (OAG) calculator and habitat quality gains based on anticipated outcomes from successful implementation of the management actions.

A summary of OAG calculator inputs and justifications and proposed habitat quality improvements for koala, grey-headed flying-fox, swift parrot and regent honeyeater are included in the following subsections.

5.1.1 Koala

Refer to **Table 12** for OAG calculator inputs and justifications for the koala. **Table 13** provides proposed habitat quality improvements and resulting impact compensation. Detailed environmental outcomes showing the specific attributes which will be improved by the offset actions including interim milestones are provided at **Appendix A.** Refer to **Appendix B** for the detailed OAG calculator sheets.

Table 12: Offset Assessment Guide Parameters – Koala

Parameter	Rationale
Impact (Area)	128 ha
Quantum of Impact (Quality)	A score of 7 / 10
Quantum Impact (Area)	89.60 ha

Parameter	Rationale
Risk Related Time Horizon	The proposed offset area will be legally secured in perpetuity; hence, the maximum score of 20 years.
Time Until Ecological Benefit	Measures prescribed in this OAMP are expected to achieve the predicted increase in habitat quality over a period of 20 years. This timeframe is broadly recognised for regrowth vegetation to meet remnant status (50% canopy cover and 70% canopy height, Neldner et al. 2023).
Start Area	225.6 ha
Start Quality	Refer **Table 13**.
Risk of Loss without Offset	It is understood risk of loss is to be set at 0% without any comprehensive evidence to the contrary.
Risk of Loss with Offset	It is understood risk of loss is to be set at 0% without any comprehensive evidence to the contrary.
Confidence in Result (Risk of Loss)	As risk of loss is set at 0%, a high score of 90% is used for confidence in result.
Future Quality without Offset	Existing habitat quality is expected to be maintained or potentially reduce if the current land use / management regime is continued. Under management for grazing over 20 years and without the offset, current habitat quality for koala is highly unlikely to improve, and some attributes are likely to deteriorate where regrowth is subject to periodic clearing for cattle grazing and/or maintenance/fire regimes. Refer **Table 13**.
Future Quality with Offset	Refer **Table 13**.
Confidence in Result (Future Quality)	A confidence of 75% for non-remnant AUs (1 and 2) and 85% for remnant and regrowth AUs (3 and 4). While habitat quality improvements are proposed for AUs 3 and 4, these do not contribute to part of the offset acquittal.

Table 13: Koala baseline MHQA and offset improvement scores

Assessment Unit	Area (ha)	Habitat Quality Score		Offset Acquittal
		Baseline (rounded score)	Future (rounded score)	
AU1	50.8	3.40 (3)	6.86 (7)	16.34%
AU2	104.7	3.44 (3)	6.71 (7)	33.68%
AU3	62	6.51 (7)	7.10 (7)	0%
AU4	8.1	6.71 (7)	7.10 (7)	0%
Total	**225.6**			**50.02%**

5.1.2 Grey-headed Flying-fox

Refer to **Table 14** for OAG calculator inputs and justifications for the grey-headed flying-fox. **Table 15** provides proposed habitat quality improvements and resulting impact compensation. Detailed environmental outcomes showing the specific attributes which will be improved by the offset actions including interim milestones are provided at **Appendix A**. Refer to **Appendix B** for the detailed OAG calculator sheets.

Table 14: Offset Assessment Guide Parameters – Grey-headed Flying-fox

Parameter	Rationale
Impact (Area)	128 ha
Quantum of Impact (Quality)	A score of 7 / 10
Quantum Impact (Area)	89.60 ha
Risk Related Time Horizon	The proposed offset area will be legally secured in perpetuity; hence, the maximum score of 20 years.
Time Until Ecological Benefit	Measures prescribed in this OAMP are expected to achieve the predicted increase in habitat quality over a period of 20 years. This timeframe is broadly recognised for regrowth vegetation to meet remnant status (50% canopy cover and 70% canopy height, Neldner et al. 2023).
Start Area	225.6 ha
Start Quality	Refer **Table 15**.
Risk of Loss without Offset	It is understood risk of loss is to be set at 0% without any comprehensive evidence to the contrary.
Risk of Loss with Offset	It is understood risk of loss is to be set at 0% without any comprehensive evidence to the contrary.
Confidence in Result (Risk of Loss)	As risk of loss is set at 0%, a high score of 90% is used for confidence in result.
Future Quality without Offset	Existing habitat quality is expected to be maintained or potentially reduce if the current land use / management regime is continued. Under management for grazing over 20 years and without the offset, current habitat quality for koala is highly unlikely to improve, and some attributes are likely to deteriorate where regrowth is subject to periodic clearing for cattle grazing and/or maintenance/fire regimes. Refer **Table 15**.
Future Quality with Offset	Refer **Table 15**.
Confidence in Result (Future Quality)	A confidence of 75% for non-remnant AUs (1 and 2) and 85% for remnant and regrowth AUs (3 and 4).

Table 15: GHFF baseline FHA and offset improvement scores

Assessment Unit	Area (ha)	Habitat Quality Score		Offset Acquittal
		Baseline (rounded score)	Future (rounded score)	
AU1	50.8	2.33 (2)	7.17 (7)	20.43%

AU2	104.7	3.03 (3)	7.17 (7)	33.68%
AU3	62	4.52 (5)	7.17 (7)	11.3%
AU4	8.1	4.80 (5)	7.17 (7)	1.48%
Total	**225.6**			**66.89%**

5.1.3 Swift Parrot

Refer to **Table 16** for OAG calculator inputs and justifications for the swift parrot. **Table 17** provides proposed habitat quality improvements and resulting impact compensation. Detailed environmental outcomes showing the specific attributes which will be improved by the offset actions including interim milestones are provided at **Appendix A**. Refer to **Appendix B** for the detailed OAG calculator sheets.

Table 16: Offset Assessment Guide Parameters – Swift Parrot

Parameter	Rationale
Quantum of Impact	9,983 habitat features
Risk Related Time Horizon	The proposed offset area will be legally secured in perpetuity; hence, the maximum score of 20 years.
Start Value	Refer **Table 17**.
Future Value Without Offset	Existing habitat quality is expected to be maintained if the current land use / management regime is continued. Under management for grazing over 20 years and without the offset, current habitat quality for the swift parrot is unlikely to improve, and some attributes may deteriorate where regrowth is subject to periodic clearing for cattle grazing and/or maintenance/fire regimes that are not compatible with ecosystem improvement are employed. Refer **Table 17**.
Future Value With Offset	Rehabilitation and planting of two (2) preferred foraging tree species – *Eucalyptus tereticornis* and *Eucalyptus melliodora*. Refer **Table 17**.
Confidence in Result (Future Quality)	75% across all AUs, supported by a detailed Rehabilitation Management Plan developed for the offset area (refer **Appendix C**).

Table 17: Swift Parrot feature-based impact compensation and OAG calculator inputs

Assessment Unit	Area (ha)	Start value	Future value without offset	Future value with offset	Impact compensation
AU1	50.8	0	0	16256	32.76%
AU2	104.7	0	0	26752	53.92%
AU3	62	207	30	2708	5.04%
AU4	8.1	20	109	117	0.20%
Total	**225.6**	**227**	**227**	**45833**	**91.92%**

Note:
Start value inputted as the existing number of non-juvenile preferred foraging trees
Future value without offset inputted as the existing number of non-juvenile preferred foraging trees

Future value with offset inputted as net total of preferred foraging trees (*i.e.,* number to be planted + number of existing) inclusive of an 80% survival rate of preferred foraging trees planted

5.1.4 Regent Honeyeater

Refer to **Table 18** for OAG calculator inputs and justifications for the regent honeyeater. **Table 19** provides proposed habitat quality improvements and resulting impact compensation. Detailed environmental outcomes showing the specific attributes which will be improved by the offset actions including interim milestones are provided at **Appendix A.** Refer to **Appendix B** for the detailed OAG calculator sheets.

Table 18: Offset Assessment Guide Parameters –Regent Honeyeater

Parameter	Rationale
Quantum of Impact	9,868 habitat features
Risk Related Time Horizon	The proposed offset area will be legally secured in perpetuity; hence, the maximum score of 20 years.
Start Value	Refer **Table 19**.
Future Value Without Offset	Existing habitat quality is expected to be maintained if the current land use / management regime is continued. Under management for grazing over 20 years and without the offset, current habitat quality for the regent honeyeater is unlikely to improve, and some attributes may deteriorate where regrowth is subject to periodic clearing for cattle grazing and/or maintenance/fire regimes that are not compatible with ecosystem improvement are employed. Refer **Table 19**.
Future Value With Offset	Rehabilitation and planting of one (1) preferred foraging tree species – *Eucalyptus melliodora*. Refer **Table 19**.
Confidence in Result (Future Quality)	75% across all AUs, supported by a detailed Rehabilitation Management Plan developed for the offset area (refer **Appendix C**).

Table 19: Regent Honeyeater feature-based impact compensation and OAG calculator inputs

Assessment Unit	Area (ha)	Start value	Future value without offset	Future value with offset	Impact compensation
AU1	50.8	0	0	0	0%
AU2	104.7	0	0	16720	34.09%
AU3	62	103	103	1667	3.19%
AU4	8.1	0	0	60	0.12%
Total	**225.6**	**103**	**103**	**45833**	**37.40%**

Note:
Start value inputted as the existing number of non-juvenile preferred foraging trees
Future value without offset inputted as the existing number of non-juvenile preferred foraging trees
Future value with offset inputted as net total of preferred foraging trees (*i.e.,* number to be planted + number of existing) inclusive of an 80% survival rate of preferred foraging trees planted

5.2. Completion Criteria and Performance Targets

The management framework is designed to achieve the proposed environmental outcomes detailed in **Section 5.1** and **Appendix A**.

A summary of management actions and associated completion criteria required to achieve the environmental outcomes are provided in **Table 20**. The management actions will result in a net gain of the overall habitat quality for the koala, grey-headed flying-fox, swift parrot and regent honeyeater within the offset area over the period of effect of the offset through active management, maintenance, monitoring and reporting.

This OAMP includes completion criteria and performance targets that evidence protection or improvement of MNES habitat. For the purpose of the plan:

a) **completion criteria** are longer term time-bound values, specified for measurable parameters, that if attained and maintained ensure the plan's environmental outcomes are achieved; and

b) **performance targets** are time-bound short- and medium-term targets guided by prescribed management measures, for management interventions and environmental condition, that are used to monitor, evaluate, review and improve the effectiveness of the plan to offset impacts.

Tracking of progress against the environmental outcomes will be measured at milestone monitoring years using the baseline survey methodologies detailed in **Section 6**. A schedule of monitoring and reporting is provided in **Section 7.8.3**.

Table 20: Completion criteria and performance targets

Management action	OAMP section	Performance targets	Completion criteria
1 – Legally secure offset area	**7.3**	• The offset area is legally secured via the Voluntary Declaration (VDEC) process administered under the *Queensland Vegetation Management Action 1999* prior to clearing commencing within the impact site. • The Department is notified within 5 business days of the legal securement, marking the commencement of implementation of the OAMP. • The offset area is not used for other purposes – site access is restricted.	• The offset area will be permanently secured via a legal mechanism that is approved by the Land Holder and the Department. Draft terms of the permanent legal mechanism to be submitted for approval within 18 months of commencement of the action. Within 12 months of approval of the draft terms the offset site must be permanently secured. • The offset area is not used for other purposes – site access is restricted.
2 – Non-native vertebrate pest management	**7.4**	• Development and implementation of a property-wide feral animal management program specifying techniques (trapping, baiting, shooting) and ongoing monitoring methods (including datasheets) to be utilised will be completed within Year 1 of the offset. • Commence pest management from Year 2 of the offset. • A suitably qualified pest management contractor will be engaged to manage pests within the offset area for the life of the offset.	• Reduce risk of injury or death of koala from non-native predator attacks. • Non-native vertebrate pests and evidence of pests are suppressed within the offset area.
3 – Weeds of National Significance management	7.5	• Establish photo monitoring locations in Year 1 of the OMP prior to treatment of Weeds of National Significance (WONS) commencing. • All WONS will receive initial treatment within Year 1 of the offset to allow for planting works to commence.	• The management actions must reduce the extent of, or maintain, WONS weed cover below 5% of the entire offset area by the end of Year 10 of the offset and be maintained for the life of the offset.

Management action	OAMP section	Performance targets	Completion criteria
		• Follow-up treatment of WONS will occur annually or as required, determined by the suitably qualified regeneration contractor and RMP (refer **Appendix C**).	
4 – Bushfire Management	**7.6**	• A Bushfire Management Plan (BMP) will be developed within 1 year of the date of the legal securement of the offset and implemented in accordance with relevant Queensland guidelines and endorsed by an experienced bushfire practitioner to reduce potential threats from fires to MNES.	• Reduced risk of high intensity fires within the offset area. • Vegetation composition and restoration regime is not negatively affected by prescribed fire regimes. • Firebreaks and fuel loads are maintained through the life of the offset.
5 – Habitat creation and regeneration	**7.7**	• Collect seed stock required for planting during Year 1. • Commence seed propagation with external or on-site nursery during Year 1. • Commence site preparation works in Year 1. • Complete baseline photo monitoring in Year 1. • Commence broadscale planting in Year 2. • Implement the RMP (refer **Appendix C**) for the life of the offset.	• Rehabilitated areas are established, regenerated and mapped as remnant vegetation under Queensland's VMA successor legislation by Year 20 which requires 70% of canopy height and 50% of expected cover according to the relevant Regional Ecosystem benchmark to be reached. • Site Condition attributes for koala and grey-headed flying-fox improve in accordance with environmental outcomes provided at **Appendix A**. • Planting density of non-juvenile preferred foraging trees for swift parrot and regent honeyeater proposed in **Table 17** and **Table 19** and prescribed in the Rehabilitation Management Plan (**Appendix C**) are achieved by Year 20. Further breakdown of planting densities per assessment unit is provided in **Sections 6.2.3** and **6.2.4**.
6 – Fencing and signage	**7.8**	• Fencing and signage is installed and retrofitted by the end of Year 1 of the offset and maintained for the life of the offset. • Prevention of livestock from the entering the offset area utilising fauna friendly livestock exclusion fencing.	• Fauna friendly barbed-wire fencing resulting in mortalities or injury to MNES is repaired or rectified within 2 weeks of being recorded.

Management action	OAMP section	Performance targets	Completion criteria
			• Damaged fencing or weak points resulting in stock breaches or unauthorised access is rectified within 2 weeks of being recorded.

6. Baseline Surveys

6.1. Methodology

A number of technical survey methodologies have been implemented at the offset area to established baseline habitat quality values for the subject MNES and to inform offset management actions and outcomes. Surveys were completed by a suitably qualified field ecologist (refer **Appendix D**). These are documented in detail in the following subsections and includes:

1. Assessment Unit and infill planting area delineation
2. Koala Habitat – Modified Quality Habitat Assessment (MHQA) Tool
3. Grey-headed Flying-fox – Foraging Habitat Assessment (FHA)
4. Swift Parrot – Foraging Habitat Assessment
5. Regent Honeyeater – Foraging Habitat Assessment
6. Baseline Weed Surveys
7. Baseline Pest Surveys

Refer to **Table 21** and the subsections below for specific details on survey dates for each method applied.

Table 21: Baseline field survey methods summary

Date	Temperature (°C)	Rainfall (mm)	Methods implemented
11 August 2025	4.6 min – 22.4 max	0	General offset ground-truthing, koala activity surveys
22 September 2025	9.2 min – 30.1 max	0	Install baited camera traps, Assessment Unit delineation, MHQA and FHA surveys and barbed wire fence mapping
23 September 2025	8.5 min – 25.4 max	0	MHQA and FHA surveys, koala activity surveys
26 September 2025	6.5 min – 29.9 max	0	MHQA and FHA surveys, koala activity surveys
30 September 2025	11.7 min – 33.7 max	0	MHQA and FHA surveys, koala activity surveys
1 October 2025	12.5 min – 31.6 max	0	Weed mapping and transects, spotlighting meander #1
2 October 2025	16.6 min – 34.7 max	0.2	Weed mapping and transects
8 October 2025	13.3 min – 33.0 max	0	Weed mapping and transects
20 October 2025	15.7 min – 31.7 max	0	Collect baited camera traps, spotlighting meander #2

NB: Data sourced from Bureau of Meteorology (BoM): Temperature from Station 040004 Amberley AMO, rainfall from Station 040912 Franklyn Vale Alert.

6.1.1 Assessment Unit Delineation

The offset area was delineated into Assessment Units (AUs) using a combination of desktop review of State regulated vegetation mapping and ground-truthing delineation of land zones (Wilson and Taylor, 2012) and vegetation characteristics. AU delineation was determined using the method prescribed in the Queensland State Government's *Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy* (Version 1.2 April 2017).

AUs were delineated into four (4) distinct units to capture variation in vegetation structure and land zones. While the majority of the offset area is mapped as composite RE12.8.17/12.8.16, these were delineated into areas characterised as non-remnant, regrowth and remnant. The four (4) AUs are described below and shown on **Plan 11**.

Assessment Unit 1 – Non-remnant RE12.3.3

AU1 is 50.8 ha in size consists of cleared open grazing paddocks encompassing low-lying areas of the site characterised as land zone 3 *i.e.,* alluvial river and creek flats (Wilson and Taylor, 2012). The area of pre-clear RE12.3.3 was ground-truthed to be larger than suggested from the pre-clear mapping. This AU is characterised by its lack of structural complexity with a generally absent native tree, shrub and forb species presence and is dominated by a mix of exotic pasture grasses and native grass species such as *Cynodon dactylon* (Queensland couch) and *Heteropogon refractus* (barbed wire grass) with exotic herbaceous and leguminous weeds (refer **Photo set 11**). This AU contains sporadic weed infestations with *Lantana camara* infestations observed throughout the area. AU1 retains scattered large eucalypt trees used as shade for livestock and otherwise contains limited habitat values for MNES.

Photo set 11: Assessment Unit 1 – Non-remnant RE12.3.3.

Assessment Unit 2 – Non-remnant RE12.8.17/12.8.16

AU2 is 104.7 ha in size and consists of cleared open grazing paddocks encompassing undulating foothills and plains characterised as land zone 8 *i.e.,* basalt plains and hills (Wilson and Taylor, 2012). This AU is characterised by its lack of structural complexity with a generally absent native tree, shrub and forb species presence and is dominated by a mix of exotic pasture grasses and native grass species such as *Cynodon dactylon* (Queensland couch) and *Heteropogon refractus* (barbed wire grass) with exotic herbaceous and leguminous weeds (refer **Photo set 12**). This AU contains sporadic weed infestations with *Lantana camara* infestations observed throughout the area. AU2 retains scattered large trees used as shade for livestock and otherwise contains limited habitat values for MNES.

Photo set 12: Assessment Unit 2 – Non-remnant RE12.8.17/12.8.16

Assessment Unit 3 – Regrowth RE12.8.17/12.8.16

AU3 is 62 ha in size and consists of native regrowth vegetation encompassing undulating foothills and plains characterised as land zone 8 *i.e.,* basalt plains and hills (Wilson and Taylor, 2012). This AU is comprised of native vegetation consistent with composite RE12.8.17/12.8.16. Observed characterises align with its mapped status as regrowth vegetation with canopy heights typically less than 10 m. Native shrub and groundcover species are consistent throughout the AU with tree species regeneration occurring (refer **Photo set 13**). This AU contains sporadic weed infestations of *Lantana camara* and areas historically thinned where canopy cover is reduced.

Photo set 13: Assessment Unit 3 – Regrowth RE12.8.17/12.8.16

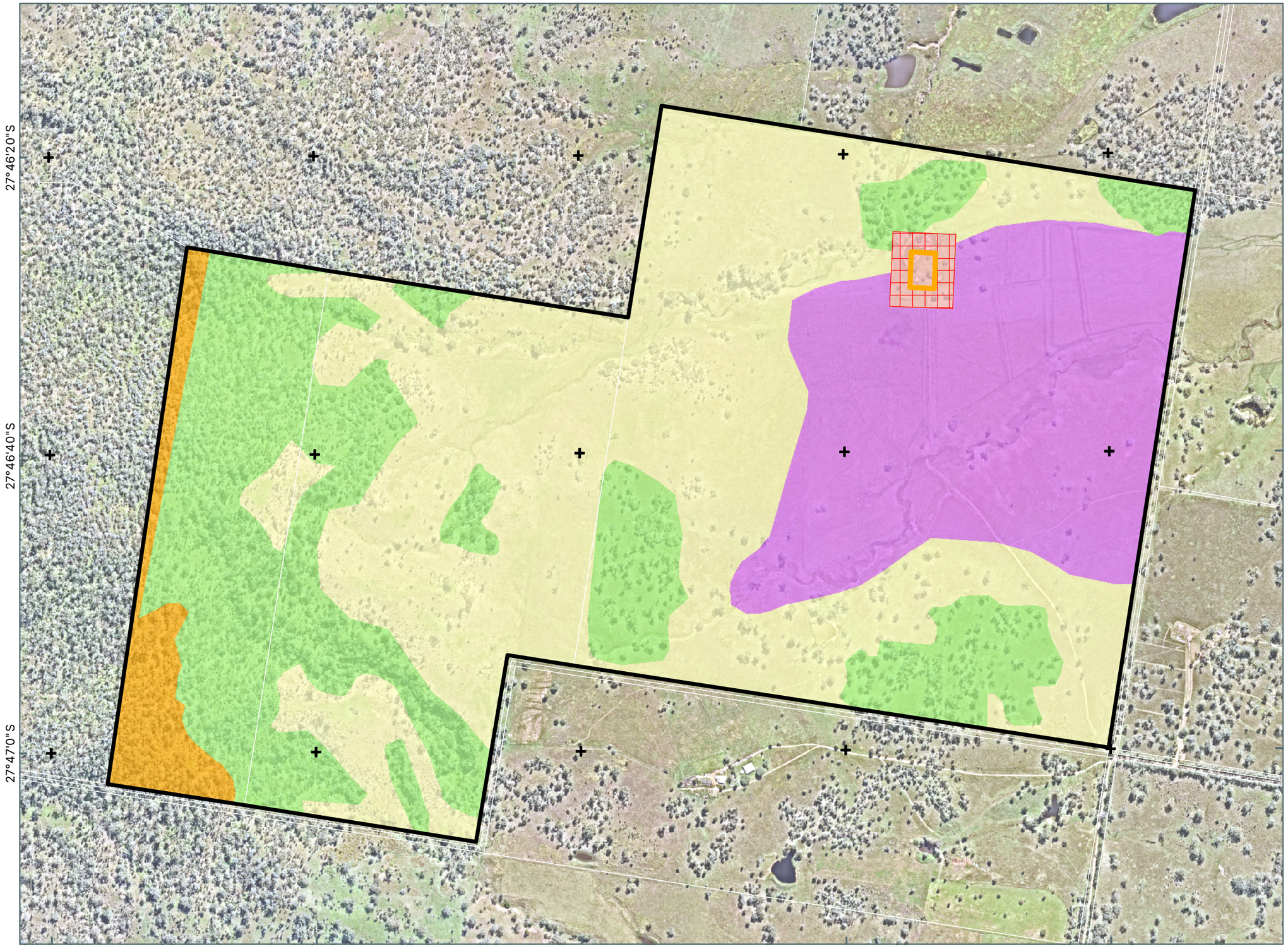
Assessment Unit 4 – Remnant RE12.8.17/12.8.16

AU4 is 8.1 ha in size and consists of native remnant vegetation encompassing undulating foothills and plains characterised as land zone 8 *i.e.,* basalt plains and hills (Wilson and Taylor, 2012). This AU is comprised of remnant vegetation consistent with composite RE12.8.17/12.8.16 (refer **Photo set 14**). This AU areas of moderate to dense sporadic weed infestations of *Lantana camara* and areas and cleared patches where infill planting will be required (refer **Photo set 15**).

Photo set 14: Assessment Unit 4 – Remnant RE12.8.17/12.8.16

Photo set 15: Assessment Unit 4 – Remnant RE12.8.17/12.8.16 – cleared patch.

11. OFFSET AREA ASSESSMENT UNITS



Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders Havill.Unless a development approval states otherwise, this is not an approved plan.
Layer Sources
Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community
© State of Queensland (Department of Resources) 2026.
Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/
* Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Qld DCDB
- Offset Area [227.6 ha]
- Non-Offset Land Use Area [2 ha]
- Building Location Envelope - 0.4 ha
- Asset Protection Zone / Bushfire Management Zone - 1.6 ha

Assessment Units

- *Assessment Unit 1:* Non-remnant RE 12.3.3 [50.8 ha]
- *Assessment Unit 2:* Non-remnant RE 12.8.17 [104.7 ha]
- *Assessment Unit 3:* Regrowth RE 12.8.17 [62 ha]
- *Assessment Unit 4:* Remnant RE 12.8.17 [8.1 ha]

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

0 50 100 150 200 m
Transverse Mercator
GDA 2020 | Zone 56
1:8,000 @ A3

N

Address / RPD: MOUNT WALKER WEST

12/01/2026

9612 E 11 MWW Offset AUs A

6.1.2 Koala – Modified Habitat Quality Assessment Tool

To determine the quantum impact and quality of the habitat suitable for koala on-site, vegetation / habitat quality was derived from the Modified Habitat Quality Assessment (MHQA) tool. This assessment approach utilises the Queensland *Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy* (version 1.2) and Queensland *BioCondition Assessment* method combined with site context and species stocking rate assessments to determine the habitat quality of the referral area.

The following section details the methodology utilised to assess the site condition, site context and species stocking rate under the MHQA.

Site Condition (30 %)

Assessing site condition is an integral step in determining specific quantification of impacts, while also determining whether an offset site is suitable to establish a desired capacity to support the prescribed environmental matters being offset. The on-site condition is a key element of habitat quality and has a direct influence on the biodiversity it supports. Site condition is assessed using a suite of attributes to describe the structure and function of the vegetation community and is benchmarked against the expected range for a relatively undisturbed community.

A total of 12 MHQA transects were completed within the offset area (refer **Table 22** and **Plan 12**). The site condition assessment under the MHQA is assessed using 15 condition characteristics. Each condition characteristic and the relevant scoring and benchmark percentage is provided in **Table 23**.

Table 22: Summary of Assessment Units and MHQA transects

AU	Assessment Unit	Area (ha)	Transects
1	Non-remnant RE 12.3.3	50.8	4, 5 and 6
2	Non-remnant RE 12.8.17/12.8.16	104.7	9, 10, 11 and 12
3	Regrowth RE 12.8.17/12.8.16	62	1, 7 and 8
4	Remnant RE 12.8.17/12.8	8.1	2 and 3

Table 23: Koala site condition scoring attributes (BioCondition Manual)

Site condition attribute	Scoring and benchmark percentage				
(1) Recruitment of woody perennial species in ecologically dominant layer in EDL*	Score	0	3		5
	Benchmark	<20%	≥20-75%		≥75%
(2) Native plant species richness – trees	Score	0	2.5		5
	Benchmark	<25%	≥25-90%		≥90%
(3) Native plant species richness – shrubs	Score	0	2.5		5
	Benchmark	<25%	≥25-90%		≥90%
(4) Native plant species richness – grasses	Score	0	2.5		5
	Benchmark	<25%	≥25-90%		≥90%
(5) Native plant species richness – forbs	Score	0	2.5		5
	Benchmark	<25%	≥25-90%		≥90%
(6) Tree canopy height	Score	0	3		5
	Benchmark	<25%	≥25-70%		≥70%
(7) Tree canopy cover	Score	0	2	3	5
	Benchmark	<10%	≥10%-<50%	≥200%	≥50-200%
(8) Shrub canopy cover	Score	0	3		5
	Benchmark	<10%	≥10%-<50% or ≥200%		≥50-<200%

Site condition attribute	Scoring and benchmark percentage				
(9) Native perennial grass cover	Score	0	1	3	5
	Benchmark	<10%	≥10-50%	≥50-90%	≥90%
(10) Organic litter	Score	0	3		5
	Benchmark	<10%	≥10%-50% or ≥200%		≥50-<200%
(11) Large trees	Score	0	5	10	15
	Benchmark	0%	0-50%	≥50-100%	≥100%
(12) Coarse woody debris	Score	0	2		5
	Benchmark	<10%	<50% or ≥200%		≥50% or <200%
(13) Non-native plant cover	Score	0	3	5	10
	Benchmark	>50%	≥25-50%	≥5-25%	<5%
(14) Quality and availability of food and foraging habitat	Score	1	5		10
	Benchmark	<33%	33-66%		>66%
(15) Quality and availability of shelter	Score	1	5		10
	Benchmark	<33%	33-66%		>66%

Assessment methodology of the above condition characteristics mostly do not differ from the traditional terrestrial habitat quality assessment. In developing the MHQA to better incorporate MNES, two (2) species habitat index characteristics, being (1) 'quality and availability of food and foraging habitat', and (2) 'quality and availability of shelter', have been added to the site condition indicator.

The two koala habitat index attributes are based on relevant site condition attributes that are considered to contribute to quality and availability of food and foraging habitat and quality and availability and shelter. The following six site condition attributes are utilised

- (1) Recruitment of woody perennial species in ecologically dominant layer in EDL
- (2) Native plant species richness – trees
- (6) Tree canopy height
- (7) Tree canopy cover
- (8) Shrub canopy cover
- (11) Large trees

For vegetation communities considered as koala habitat (*i.e.*, those containing *Eucalyptus*, *Corymbia*, *Angophora*, *Melaleuca*, or *Lophostemon* as part of the EDL), these attributes are all considered relevant to this scoring metric as each attribute contributes directly to the availability of foraging and shelter habitat.

Under the Habitat Quality Guideline from which these attributes are derived, each attribute is weighted equally, out of a score of 5, with the exception of 'large trees' which contributes a maximum score of 15. For the purpose of scoring the quality and availability of food and foraging habitat and quality and availability of shelter, the above attributes are proposed to be weighted equally based on relative value to the koala. The widely used minimum threshold for a koala foraging tree is a 'non-juvenile' tree (*i.e.*, ≥100mm DBH). As non-juvenile koala foraging trees are considered a foraging resource, large trees relative to the benchmark are not necessarily considered to provide greater habitat value than attributes such as 'canopy height' and 'native plant species richness – trees.' Therefore, an equal weighting has been applied to all six attributes as there is considered lack of evidence to suggest a higher weighting of any attribute relative to the value it provides for koala specifically.

A total weighted score out of 100 is achieved utilising an equally weighted score of the above attributes. Based on the overall weighted score, a score for 'quality and availability of food and foraging habitat' and 'quality and availability and shelter' is then scored as follows:

- <33 = 1
- 33 – 66 = 5
- >66 = 10

Site Context (30 %)

The site context assessment considers the landscape characteristics adjoining the site. Site context is measured using a suite of attributes to describe the location of the habitat within the surrounding landscape and the influence of its associated threats. This assessment also considers the influence of adjacent vegetated areas and ecological corridors. Under the MHQA, site context is measured using seven characteristics. In developing the MHQA, three species habitat index characteristics were nominated to form part of the site context characteristics: role of site location to overall species population in the state, threats to the species, and species mobility capacity. The seven characteristics are listed below with details of how each are measured in accordance with the *Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy* (version 1.2).

- Size of patch – measured as the area of vegetation in which the assessment unit(s) is contained, and add on all other directly connecting areas of koala habitat (refer **Plan 13**).
- Connectedness – measured as the length koala habitat along the boundary of the site, calculated as a percentage (refer **Plan 13**).
- Context – measured as the percentage of koala habitat within a 1 km radius of the site (refer **Plan 13**).
- Ecological corridors – determine the proximity of the site to state, bioregional, regional or sub-regional corridors (terrestrial or riparian). An 'ecological corridor' is represented as any 'Riparian' or 'Terrestrial' feature within the 'CORR_TYPE' attribute table of the 'Queensland biodiversity and vegetation offsets special features' map (refer **Figure 9**).
- Role of site location to species overall population in the state – scored as the observed role of the site in relation to the overall population of the species considering the effect that damage to or removal of the site would have to the likelihood of overall population survival.
- Threats to the species – scored based on the number and severity of threatening processes observed at or adjacent to the site which may include clearing associated with development, creation of a barrier to movement, introduction or spread of disease or pathogens, risk of high-intensity fires, degradation of habitat from hydrological change and introducing or increasing mortality attributed to vehicle strike or dog attacks.
- Species mobility capacity – scored based on the presence and severity of factors that would contribute to a reduction in the mobility of the species such as barriers that would result in a long-term reduction in genetic fitness or access to important resources.

Unlike the traditional habitat quality assessment methodology where site connectedness is assessed against the surrounding remnant vegetation only, the MHQA size of patch, site connectedness and site context is assessed against identified koala habitat.

Koala habitat within the landscape is based on the mapping of Category B (remnant) and Category C (high value regrowth) vegetation containing suitable regional ecosystems to support the koala identified by the Queensland Herbarium. While remnant and regrowth eucalypt forest vegetation is critical habitat for koala, koalas are capable of utilising areas containing non-remnant vegetation or high value regrowth vegetation that does not yet achieve remnant status. Areas of Category X (non-remnant) areas identified as dispersal habitat are also included in the koala habitat mapping which are mapped using GIS. Therefore, site context under the MHQA accounts for broad koala habitat values rather only remnant vegetation as traditionally applied under the Habitat Quality Guideline.

Scoring attributes extracted from the Habitat Quality Guideline are provided in **Table 24**.

Table 24: Koala site context scoring attributes

Site context attribute	Scoring and benchmark percentage				
Size of patch	0	2	5	7	10
	<5 ha	5-25 ha	26-100 ha	101-200 ha	>200 ha
Connectedness	0	2	4		5
	0-10%	>10-<50%	50-75%		>75% or >500 ha
Context	0	2	4		5
	<10% habitat	>10-30% habitat	>30-75% habitat		>75% habitat
Ecological corridors	0	4	6		
	Not within	Sharing a common boundary	Within (whole or part)		
Role of the site location to species overall population in the state	1	4	5		
	Not or unlikely to be critical to survival of the koala	Likely to be critical to survival of the koala	Critical to the survival of the koala		
Threats to the species	1	7	15		
	High threat level	Moderate threat level	Low threat level		
Species mobility capacity	1	4	7	10	
	Severely restricted (76-100% reduction)	High restricted (51-75% reduction)	Moderately restricted (26-50% reduction)	Minor restriction (0-25% reduction)	

Species Stocking Rate (40 %)

The MHQA incorporates species stocking rate as an attribute not discussed under the traditional terrestrial habitat assessment methodology. Species stocking rates are estimates of the koala carrying capacity of the site at the time of undertaking the survey. Given the discreet nature of the koala and limited to no published literature on habitat carrying capacity of the species, the species stocking rate scoring methodology has been derived through the collation of site-specific surveys and surrounding contextual habitat analysis. Species stocking rate is calculated using the following parameters:

- Species presence on or adjacent to the site – whether or not evidence of koala has been recorded within or adjoining the site. Evidence may be direct in the form of observation of koalas, or indirect via the presence of scats.
- Species usage of the site (habitat type and evidenced usage) – the type of habitat includes vegetation structure such as whether it contains remnant, regrowth or non-remnant vegetation values, and evidenced usage is the confirmed presence or use of the species within the habitat. Both factors are used to inform the species usage of the site. Depending on the level of variability in vegetation and usage patterns across the site, this characteristic may be scored differently for assessment units.
- Approximate density of the species on the site – measured through the use of Spot Assessment Technique (SAT) (Phillips *et al.* 2011) and targeted searches with a high probability of detection, including UAV drone surveys. The combination of methods produces a higher reliability of data when extrapolating koala density. The SAT method is an industry recognised technique for identifying presence/absence of koala and

measuring activity. SAT survey results are interpreted using the broad population categories provided in the Australian Koala Foundation Koala activity level classification table to infer an activity level or approximate density. These categories being 'East Coast (low)', 'East Coast (med-high)' and 'Western (med-high)' (refer **Section 6.1.3**)). Depending on the population category applied, koala activity is described as 0%, 'low', 'moderate', or 'high'.

- Role/importance of species population on site – the extent to which the site is considered a key source population for breeding, dispersal, is necessary for maintaining genetic diversity or near the limit of the species' range.

For subjective criteria where it is unclear whether a particular attribute score is achieved, the precautionary approach is applied to favour the higher score. **Table 25** outlines the attributes utilised to assess species stocking rate.

Table 25: Koala Species Stocking Rate Scoring

Attribute	**Scoring and criteria**				
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score (/10)	0	5	10	
		No	Yes – adjacent to site	Yes – on-site	
Species usage of the site (habitat type and evidenced usage)	Score (/15)	0	5	10	15
		Not habitat	Dispersal habitat	Foraging habitat	Breeding habitat
Approximate density (per ha)	Score (/30)	0	10	20	30
		0%	Low	Medium	High
Role/importance of species population on site*	Score (/15)	0	5	10	15
		0	5-15	20-35	40-45
Total SSR	/70				
SSR Score	/4				

*Species Stocking Rate supplementary table – Total supplementary score 0 = 0, 5-15 = 5, 20-35 = 10, 40-45 = 15			
Key source population for breeding	Score (/10)	0	10
		No	Yes/Possibly
Key source population for dispersal	Score (/5)	0	5
		No	Yes/Possibly
Necessary for maintaining genetic diversity	Score (/15)	0	15
		No	Yes/Possibly
Near the limit of the species range	Score (/15)	0	15
		No	Yes

Scoring Weight Justification

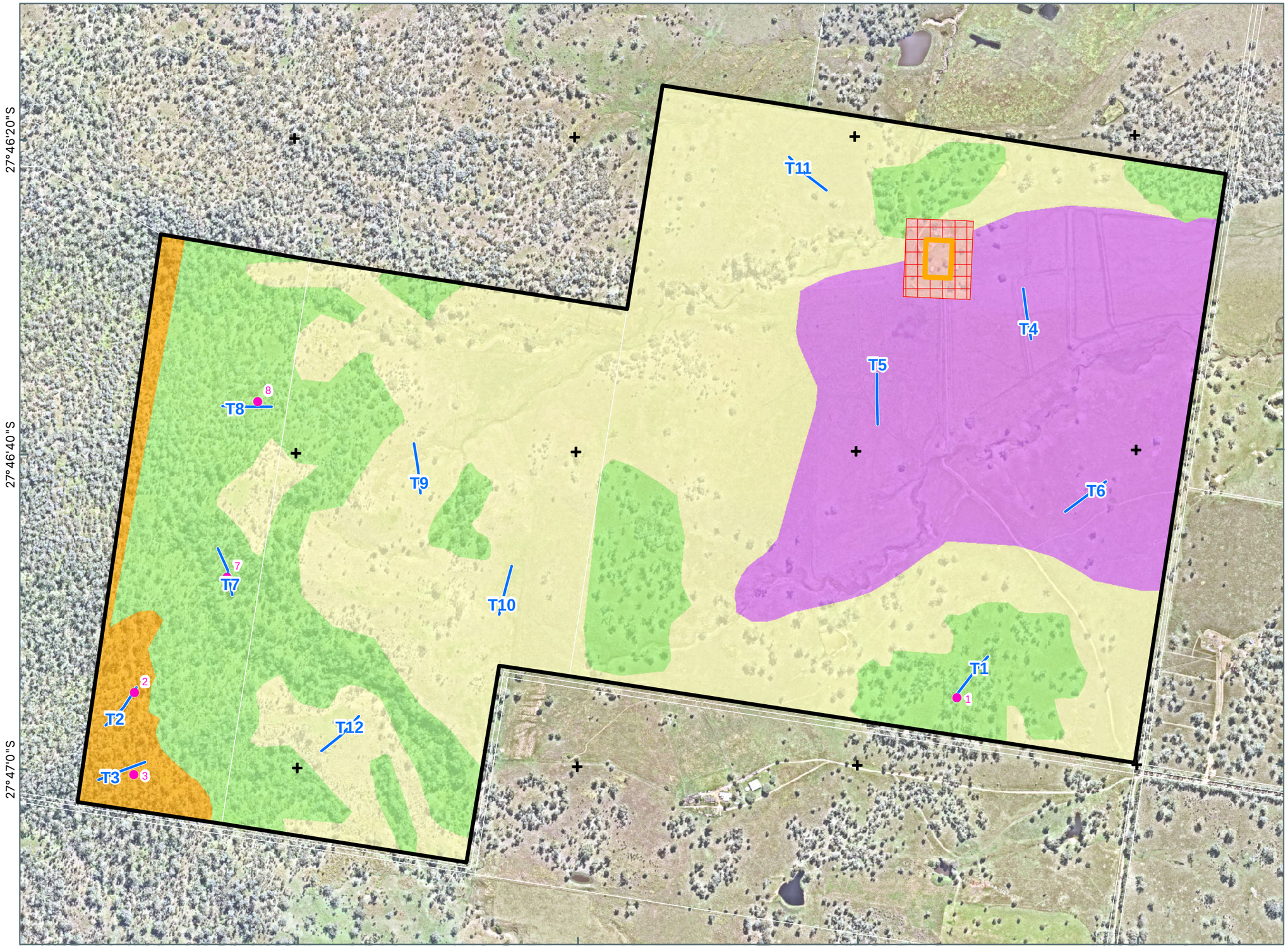
For this project, site condition was given a weighted score out of 3, site context was given a weighted score out of 3, while species stocking rate was given a weighted score out of 4. The species stocking rate is an important component when assessing the overall habitat quality of a site as it indicates species usage and the capacity of a given area to support the koala therefore was weighted more heavily.

Site condition was weighted with a score out of 3. The koala is known to occupy a variety of habitats, ranging from non-remnant regrowth eucalypt forest / woodland through to old growth remnant forest / woodland. However, the site condition of the habitat is considered to directly influence the long-term koala carrying capacity.

Site context was weighted with a score out of 3. Site context is considered an important component when assessing the koala as it directly relates to the long-term survival rate of the species. The proximity of the site to other areas of suitable habitat, the movement pattern through the landscape of the koala (and / or barriers inhibiting movement), and threats to the species are important attributes to assess when considering the overall functionality of the site.

It is considered that the provision of this weighted scoring most accurately quantifies the ecological requirements of the koala, which will then assist in determining whether an offset site is suitable to establish a desired capacity to support the prescribed environmental matters being offset.

12. BASELINE MHQA SURVEYS AND ASSESSMENT UNITS



Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders Havill.Unless a development approval states otherwise, this is not an approved plan.

Layer Sources

Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community

© State of Queensland (Department of Resources) 2026.

Updated data available at

http://qldspatial.information.qld.gov.au/catalogue/

* Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Qld DCDB
- Offset Area [227.6 ha]
- Non-Offset Land Use Area [2 ha]
- Building Location Envelope - 0.4 ha
- Asset Protection Zone / Bushfire Management Zone - 1.6 ha
- SAT Survey
- MHQA Transects

Assessment Units

Assessment Unit 1:
Non-remnant RE 12.3.3
[50.8 ha]

Assessment Unit 2:
Non-remnant RE 12.8.17
[104.7 ha]

Assessment Unit 3:
Regrowth RE 12.8.17
[62 ha]

Assessment Unit 4:
Remnant RE 12.8.17
[8.1 ha]

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

0 50 100 150 200 m

Transverse Mercator
GDA 2020 | Zone 56

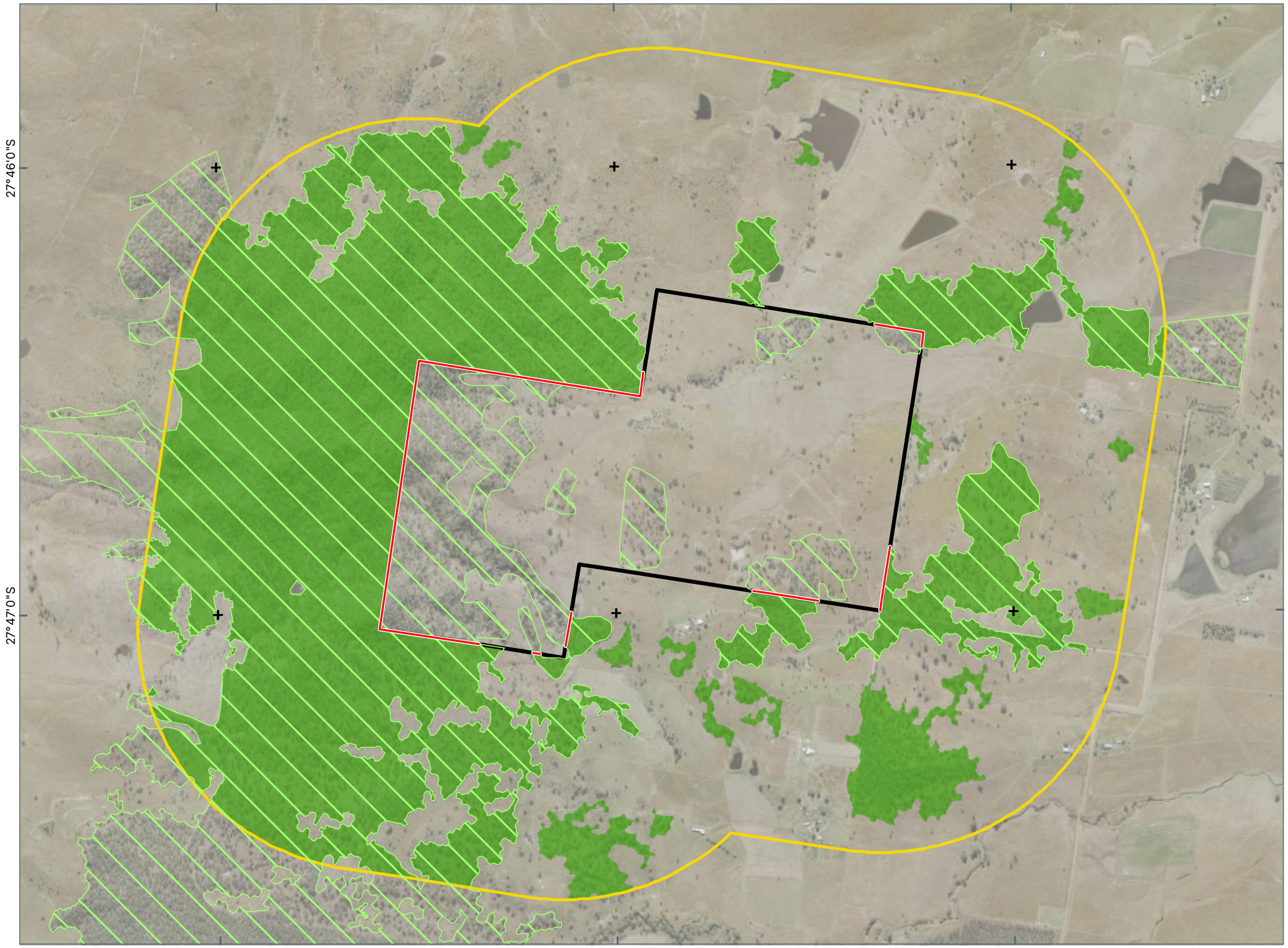
1:7,575
@ A3

Address / RPD: MOUNT WALKER WEST

26/01/30

9612 E 12 MWW Offset AUs MHQA B

13. KOALA CONTEXT ASSESSMENT



Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders Havill.Unless a development approval states otherwise, this is not an approved plan.
Layer Sources
Includes material © State of Queensland (Department of Resources); © Planet Labs Netherlands B.V. reproduced under licence from Planet and Geoplex, all rights reserved, 2025.
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
© State of Queensland (Department of Resources) 2025.
Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/

LEGEND

- Offset Area
- 1km Offset Area Buffer
- Percentage of offset area boundary length supporting a connection off and on site to Koala critical habitat - 49%
- Percentage of Koala critical habitat within 1km of offset area (46%)
- Size of Koala critical habitat patch adjoining offset area > 500 ha

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

0 100 200 300 400 m

N

Transverse Mercator
GDA 2020 | Zone 56

1:16,000
@ A3

Address / RPD: MOUNT WALKER WEST

28/11/2025

9612 E 13 MWW Offset KCA A

6.1.3 Spot Assessment Technique Surveys

Baseline koala activity levels were determined through utilising the SAT survey methodology (Phillips and Callaghan, 2011). The SAT method is an industry recognised technique for identifying presence/absence of koala and informs the species stocking rate assessment described in **Section 6.1.2**. A total of five (5) SAT surveys were completed across the offset area in conjunction with MHQA transects 1, 2, 3, 7 and 8 where adequate tree densities were available to target presence of koala (refer **Plan 12**).

SAT surveys were only completed in areas with adequate tree density within a 100 X 100 m area (1.0 ha) *i.e.,* a minimum of 30 non-juvenile trees. The MHQA transect line forming the centre line of the assessment area with a 50 m search area either side. A SAT survey was only conducted if 30 or more non-juvenile trees were present in the 1 ha search area. Tree density was also confirmed through considering the number of non-juvenile trees within the 100 X 20 m plot area (0.2 ha) used for the GHFF FHA methodology (described in **Section 6.1.4**), whereby if fewer than six (6) trees were counted within the 0.2 ha area then it provided additional evidence that there was likely fewer than 30 non-juvenile trees within the 1 ha search area and a SAT survey was not required.

6.1.4 Grey-headed Flying-fox Foraging Habitat Assessment Tool

The offset area was assessed using the GHFF Foraging Habitat Assessment (GHFF FHA) tool developed by the Saunders Havill Group which adopts characteristics of the Queensland *Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy* (Version 1.2 April 2017), while also integrating published scientific literature on GHFF foraging habitat.

The traditional terrestrial habitat quality assessment assesses three (3) core indicators—site condition, site context and species habitat index.

The GHFF FHA tool combines the aspects of the three (3) core indicators and published scientific literature into two (site condition and site context) with site condition being weighted with 40 % and site context weighted at 30 % of the final score. The balance of the weighting (30 %) has been attributed to the third indicator which is independent of the traditional habitat quality assessment, being species stocking rate. The species stocking rate assessment incorporated in the GHFF FHA tool is focussed on 'foraging habitat' for GHFF rather than GHFF stocking rates (presence/absence of the species). This assessment of 'foraging habitat' for species stocking rate has been incorporated in the GHFF FHA tool as GHFF roosting camp or species presence was not observed on-site, however, suitable foraging habitat for the species was evident. Therefore, the density of foraging habitat available on-site is considered an appropriate assessment benchmark for species stocking rate.

The following section details the methodology utilised to assess the site condition, site context and species stocking rate under the GHFF FHA.

Site Condition (40 %)

Assessing site condition is an integral step in determining specific quantification of impacts, while also determining whether an offset site is suitable to establish a desired capacity to support the prescribed environmental matters being offset. The on-site condition is a key element of habitat quality and has a direct influence on the biodiversity it supports. Site condition is assessed using a suite of attributes to describe the structure and function of the vegetation community and is benchmarked against the expected range for a relatively undisturbed community.

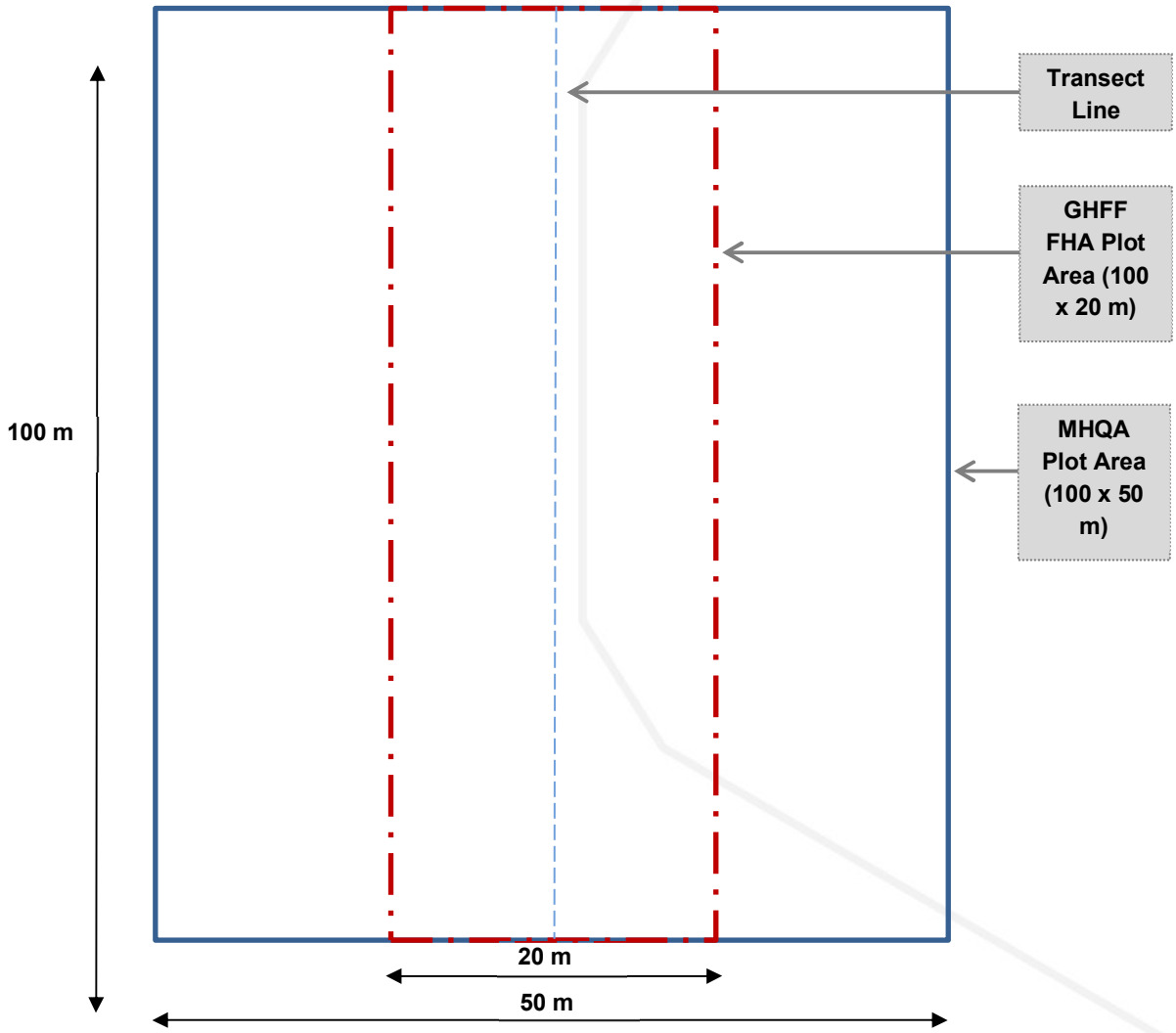
The site condition assessment under the GHFF FHA is assessed using six condition characteristics being:

- Vegetation condition;
- Species richness (canopy trees);
- Flower scores (average);
- Timing of biological shortages;
- Quality of foraging habitat (trees >0.65 wt p*r); and
- Non-native plant cover.

Assessment methodology of the above condition characteristics is outlined below:

- *Vegetation condition* – This condition characteristic is assessed using the Queensland *Vegetation Management Act 1999* vegetation community status definition, being Category B (remnant), Category C (high-value regrowth) and Category X (non-remnant). This characteristic is scored from a desktop mapping perspective and verified on-ground during assessment. Refer to **Table 26** for the benchmark scoring values for this condition characteristic.
- *Species richness (canopy trees)* – This condition characteristic is assessed using a 100 m X 20 m plot following the contour of the land when possible. Within the plot, all canopy tree and subcanopy tree specimens are recorded. It should be noted that non-GHFF foraging species are also documented. Refer to **Table 27** for the benchmark scoring values for this condition characteristic.
- *Flower scores (average)* – This condition characteristic is assessed by analysing and cross-referencing the species recorded in the 'species richness (canopy trees)' characteristic with the published literature, specifically the information within *Ranking the feeding habitat of Grey-headed flying foxes for conservation management* (Eby and Law 2008) and the *Draft Recovery Plan for the Grey-headed Flying-fox* (DoEE 2017) and determining the flower score of the recorded canopy species. The individual score for each flowering GHFF foraging tree is then divided by the number of species recorded (GHFF foraging and non-GHFF foraging trees) to produce an average. The benchmark values for this condition characteristic have been derived from the findings published by Eby and Law (2008) (*Ranking the feeding habitat of Grey-headed flying foxes for conservation management*). Refer to **Table 28** for the benchmark scoring values for this condition characteristic.
- *Timing of biological shortages* – This condition characteristic is assessed by analysing and cross-referencing the species recorded in the 'species richness (canopy trees)' characteristic with the published literature, specifically the information within *Ranking the feeding habitat of Grey-headed flying foxes for conservation management* (Eby and Law 2008) and the *Draft Recovery Plan for the Grey-headed Flying-fox* (DoEE 2017) and determining the ability of the canopy species in the vegetation community to produce foraging habitat during biological shortages (food shortages, pregnancy and birthing, lactation, mating and conception, migration paths and fruit industries). It should be noted that this condition characteristic is weighted and 'food shortages' has been weighted heavier than the balance of the characteristics which are equal, as 'food shortages' is recognised as a major issue. Refer to **Table 29** for the benchmark scoring values for this condition characteristic.
- *Quality of foraging habitat* – This condition characteristic is assessed by analysing and cross-referencing the species recorded in the 'species richness (canopy trees)' characteristic with the published literature, specifically the information within *Ranking the feeding habitat of Grey-headed flying foxes for conservation management* (Eby and Law 2008) and the *Draft Recovery Plan for the Grey-headed Flying-fox* (DoEE 2017) and determining which canopy species recorded contain a flower score greater than 0.65 wt p*r and is recognised as a significant food plant by Eby and Law (2008). It should be noted that species recorded that are not prescribed a value by Eby and Law (2008) but are recognised as GHFF foraging trees, have been given an average weighted value of related species or, in the case of *Eucalyptus crebra* (Narrow-leaved Ironbark) been prescribed a value of 0.65 and classified as a significant food plant given its importance as a winter flowering species as acknowledged in the *Draft Recovery Plan for the Grey-headed Flying-fox* (DoEE 2017). Refer to **Table 30** for the benchmark scoring values for this condition characteristic.
- *Non-native plant cover* – This condition characteristic is assessed using a 100 m X 20 m plot following the contour of the land when possible. All non-native plant cover was assessed by estimating the cover of exotic species over the 100 m X 20 m plot. Refer to **Table 31** for the benchmark scoring values for this condition characteristic.

It should be noted that for on-ground assessment purposes, the 100 m X 20 m plot utilised for the GHFF FHA overlaps with the on-ground condition characteristics of the koala MHQA. Refer to the **Insert 1** below for location of GHFF FHA within the MHQA Plot.



Insert 1: MHQA and GHFF FHA Plot Location Diagram

Site Context (30 %)

The site context assessment considers the landscape characteristics adjoining the site. Site context is measured using a suite of attributes to describe the location of the habitat within the surrounding landscape and the influence of its associated threats. This assessment also considers the influence of adjacent vegetated areas and ecological corridors. Under the GHFF FHA, site context is measured using the following six characteristics:

- Size of patch;
- Connectedness (active GHFF roost camps in a 20 km radius);
- Context (percentage of GHFF foraging habitat in a 20 km radius);
- Ecological corridors;
- Role of site location to species overall population in the state (active GHFF 'level 3' roost camps in a 20 km radius as shown on the CSIRO Data Access Portal (McKeown and Vanderduys, 2024)); and
- Threats to the species.

Assessment methodology of the above context characteristics is outlined below:

- *Size of patch* – This context characteristic is assessed using a modified version of the traditional habitat quality assessment with the directly connected patch of GHFF foraging habitat to site measured. This context characteristic is measured using GIS. Refer to **Table 32** for the benchmark scoring values for this context characteristic and **Plan 14** for GIS.
- *Connectedness* – This context characteristic is assessed by analysing the number of active GHFF roost camps (over the most recent monitoring period (8/22 – 8/23)) within a 20 km radius of the site. For consistency purposes this assessment is to utilise the data provided on the CSIRO Data Access Portal (McKeown and Vanderduys, 2024). Refer to **Table 33** for the benchmark scoring values for this context characteristic and **Plan 14** for GIS.
- *Context* – This context characteristic is assessed using a modified version of the traditional habitat quality assessment with the percentage of GHFF foraging habitat within a 20 km buffer of the site measured. This context characteristic is measured using GIS. Refer to **Table 34** for the benchmark scoring values for this context characteristic and **Plan 14** for GIS.
- *Ecological corridors* – This context characteristic is assessed using the traditional habitat quality assessment methodology which involves determining the proximity of the site to state, bioregional, regional or sub-regional corridors. Refer to **Table 35** for the benchmark scoring values for this context characteristic and **Figure 9** for location of corridors.
- *Threats to species* – This context characteristic is assessed by analysing the published scientific literature regarding threats to GHFF and determining the number and severity of the threatening processes observed at or adjacent to the site. Refer to **Table 36** for the benchmark scoring values for this context characteristic.
- *Role of site location to species overall population in the state (active GHFF 'level 3' roost camps in a 20 km radius)* – This context characteristic is assessed by determining the number of active GHFF roost camps level 3 or greater (over the most recent monitoring period (8/22 – 8/23)) within a 20 km radius of the site. For consistency purposes this assessment is to utilise the data provided on the national flying-fox monitoring viewer (Australian Government). Refer to **Table 37** for the benchmark scoring values for this context characteristic and **Plan 14** for GIS.

Species Stocking Rate (40 %)

The GHFF FHA incorporates species stocking rate as an attribute not discussed under the traditional terrestrial habitat assessment methodology. As discussed above, species stocking rate for GHFF associated with this proposed action is related to the density of GHFF foraging habitat at the site at the time of undertaking the survey.

Baseline GHFF foraging tree surveys were undertaken by utilising the stem count methodology provided in the *Methodology for surveying and mapping regional ecosystems and vegetation communities in Queensland (version 5.0)* (Neldner et al. 2019).

This methodology involves assigning the strata for canopy (T1) and subcanopy (T2) and then counting the number of individual tree specimens within the 100 m X 20 m plot (0.2 ha) that are classed as foraging species for GHFF. A tree that branches into two or more stems above 30 cm above the ground is counted as one individual. The stem density of canopy species recorded within the 0.2 ha plot is multiplied by five (5) to produce a stem density per ha. This number is then compared to the benchmark stem density per ha based on the sum of the T1 and T2 stem densities for RE12.3.3 and RE12.8.17 as the dominant RE out of composite RE12.8.17/12.8.16. Based on the technical descriptions, the average stem density taken as the sum of T1 and T2 is calculated as 275 for RE12.3.3 and 580 for RE12.8.17. Refer to **Table 38** for benchmark scoring values for species stocking rate.

The species stocking rate scoring was determined by analysing the Technical Descriptions of Regional Ecosystems of Southeast Queensland (Queensland Herbarium, 2018) and the stem density per hectare associated with the technical description of the regional ecosystem.

Table 26: GHFF FHA Vegetation Condition Scoring

Score	Description
5	Category X / non-remnant
10	Category C / regrowth
20	Category B / remnant

Table 27: GHFF FHA Canopy Species Richness Scoring

Score	Description
0	0 GHFF foraging species
5	1 – 3 GHFF foraging species
10	4 – 6 GHFF foraging species
20	> 6 GHFF foraging species

Table 28: GHFF FHA Flower Score (average) Scoring

Score	Description
2	0.01 – 0.25
5	0.26 – 0.50
8	0.51 – 0.75
10	0.76 – 1.00

Table 29: GHFF FHA Timing of Biological Shortages Scoring

Score	Description
2.5	Food shortages
1.5	Pregnancy and birthing
1.5	Lactation
1.5	Mating and conception
1.5	Migration paths
1.5	Fruit industries
Total (/10)	Combine total of above

*Table 30: GHFF FHA Quality of Foraging Habitat (trees >0.65 wt p*r) Scoring*

Score	Description
0	0 significant GHFF foraging tree species
5	1 – 3 significant GHFF foraging tree species
10	4 – 6 significant GHFF foraging tree species
20	> 6 significant GHFF foraging tree species

Table 31: GHFF FHA Non-Native Plant Cover Scoring

Score	Description
1	> 50 % non-native plant cover
5	25 – 50 % non-native plant cover
10	5 – 25 % non-native plant cover
20	< 5 % non-native plant cover

Table 32 GHFF FHA Size of Patch Scoring

Score	Description
0	< 5 hectares
2	5 – 25 hectares
5	26 – 100 hectares
7	101 – 200 hectares
10	> 200 hectares

Table 33: GHFF FHA Connectedness Scoring

Score	Description
0	< 1 active Grey-headed Flying-fox camp within a 20 km radius
3	1 – 3 active Grey-headed Flying-fox camp within a 20 km radius
6	4 – 6 active Grey-headed Flying-fox camp within a 20 km radius
10	> 6 active Grey-headed Flying-fox camp within a 20 km radius

Table 34: GHFF FHA Context Scoring

Score	Description
0	< 10 % Grey-headed Flying-fox foraging habitat within a 20 km radius
3	10 – 30 % Grey-headed Flying-fox foraging habitat within a 20 km radius
6	31 – 75 % Grey-headed Flying-fox foraging habitat within a 20 km radius
10	> 75 % Grey-headed Flying-fox foraging habitat within a 20 km radius

Table 35: GHFF FHA Ecological Corridors Scoring

Score	Description
0	Not within an ecological corridor
6	Sharing a common boundary with an ecological corridor
10	Within an ecological corridor

Table 36: Threats to species (GHFF) scoring

Score	Description
1	High level threat to the species
5	Moderate level threat to the species
10	Low level threat to the species

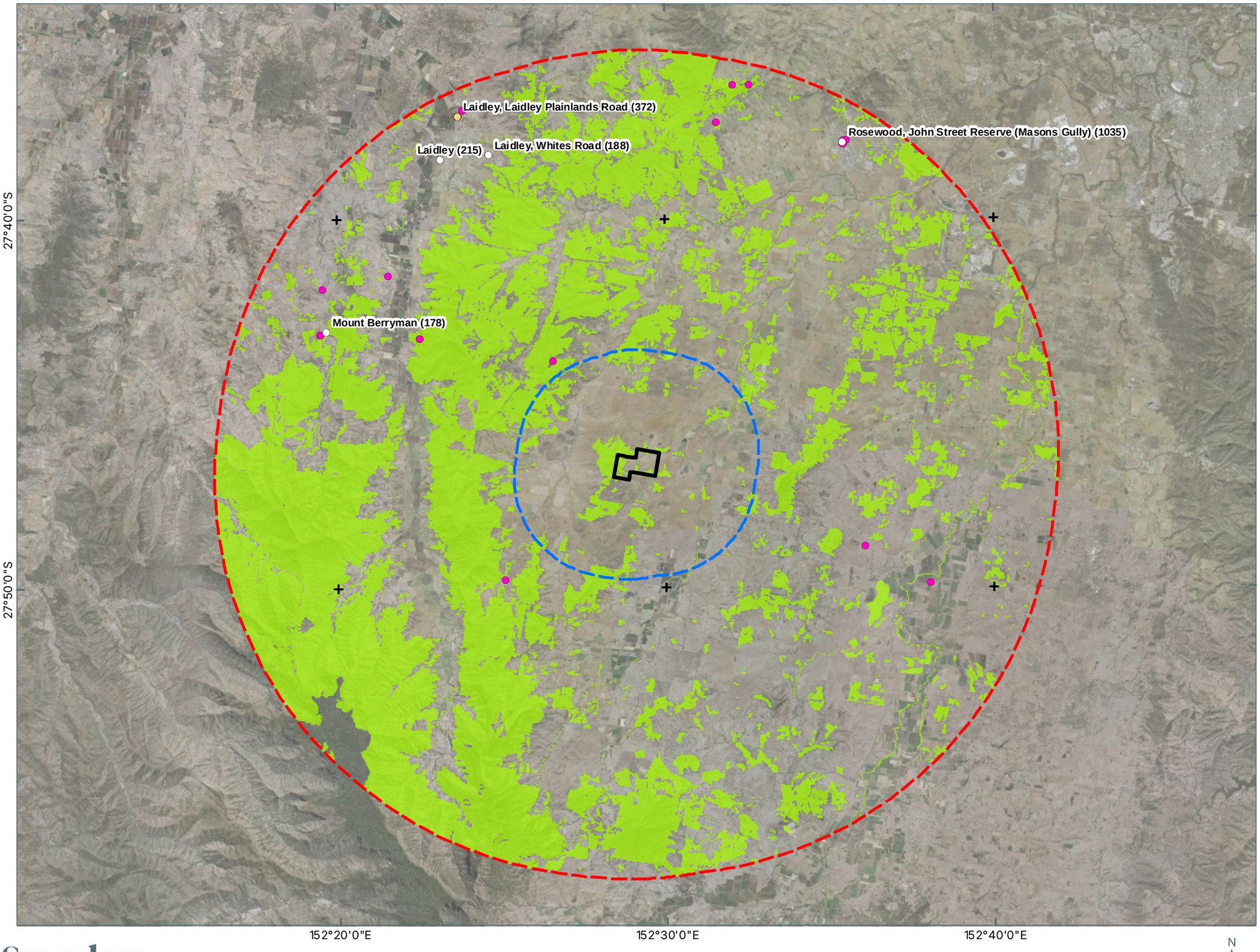
Table 37: Role of site location to GHFF overall population in the State scoring

Score	Description
0	<1 active level 3 Grey-headed Flying-fox camp within a 20 km radius
1	1 – 2 active level 3 Grey-headed Flying-fox camp within a 20 km radius
6	3 – 4 active level 3 Grey-headed Flying-fox camp within a 20 km radius
10	≥5 active level 3 Grey-headed Flying-fox camp within a 20 km radius

Table 38: GHFF Species Stocking Rate Scoring

Score	RE12.3.3	RE12.8.17
2	0-62	0-73
4	65-127	74-314
6	128-200	315-425
8	201-260	426-568
10	261-289	569-592
8	290-360	593-628
6	361-420	629-846
4	421-480	847-1088
2	>480	>1088

14. GHFF CONTEXT ASSESSMENT



Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders Havill. Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
Includes material © State of Queensland (Department of Resources); © Planet Labs Netherlands B.V. reproduced under licence from Planet and Geoplex, all rights reserved, 2025.
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
© State of Queensland (Department of Resources) 2025.
Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/
* Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Offset Area
- 5km Offset Area Buffer
- 20km Offset Area Buffer
- Potential and known Grey-headed Flying-fox foraging habitat within 20km of offset area [36.3%]
- Grey-headed Flying-fox records within 20km of offset area [43]

GHFF Roosts (Fed. Gov., 2024)

- Grey-headed Flying Fox roost inactive within recent surveys [4]
- Grey-headed Flying Fox roost active within recent surveys [1]
- Grey-headed Flying Fox roost active within recent surveys with a population level of 3 or above [0]
- Nationally significant Grey-headed Flying Fox roost active within recent surveys [0]
- Nationally significant Grey-headed Flying Fox roost active within recent surveys with a population level of 3 or above [0]

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

0 1 2 3 4 5 km
Transverse Mercator
GDA 2020 | Zone 56
1:190,000 @ A3

Address / RPD: MOUNT WALKER WEST

28/11/2025

9612 E 14 MWW Offset GHFFCA A

6.1.5 Swift Parrot – Foraging Habitat Assessment

To quantify baseline habitat and future value for the swift parrot, a feature-based assessment method was utilised. The method involves calculating the number of individual habitat features located within the offset area and the number that will be reinstated as part of the offset.

A habitat feature for the swift parrot is defined as a non-juvenile tree (*i.e.,* ≥100 mm DBH) which is a preferred foraging tree species identified under the *National Recovery Plan for the Swift Parrot* (DCCEEW, 2024). Listed preferred foraging tree species include:

- *Eucalyptus leucoxylon* (yellow gum)
- *Eucalyptus tricarpa* (red ironbark)
- *Eucalyptus sideroxylon* (mugga ironbark)
- *Eucalyptus macrocarpa* (grey box)
- *Eucalyptus albens* (white box)
- *Eucalyptus melliodora* (yellow box)
- *Eucalyptus robusta* (swamp mahogany)
- *Eucalyptus tereticornis* (forest red gum)
- *Eucalyptus pilularis* (blackbutt)
- *Corymbia maculata* (spotted gum). It is noted that in Queensland *Corymbia citriodora* is recognised synonymously with *Corymbia maculata*.

The methodology, comprising four (4) steps is described below with details as to how the calculations have been used to inform the OAG and rehabilitation program.

1. Baseline tree density

In order to understand the existing foraging habitat value for the swift parrot and the planting capacity of the offset area, the existing density of trees is required to be calculated and extrapolated.

The density of all trees including preferred foraging trees was extrapolated from stem density data collected at 12 MHQA transect locations (refer **Plan 12**). The four (4) AUs and associated transect site numbers are as follows:

- AU1 represents non-remnant paddock RE12.3.3 habitat (Transects 4, 5 and 6).
- AU2 represents non-remnant paddock RE12.8.17/12.8.16 habitat (Transects 9, 10, 11 and 12).
- AU3 represents sparse to dense regrowth RE12.8.17/12.8.16 habitat with infill planting areas (Transects 1, 7 and 8).
- AU4 represents remnant RE12.8.17/12.8.16 with infill planting areas (Transects 2 and 3).

Stem density data at each MHQA transect was collected in accordance with the stem count methodology provided in the *Methodology for surveying and mapping regional ecosystems and vegetation communities in Queensland (version 5.0)* (Neldner *et al.* 2019). The methodology detailed in Neldner et al. (2019) uses a plot area of 50 X 10 m. For the purposes of this assessment, the area was modified to 100 X 20 m to align with the MHQA plot, however, the actual count assessment method remains the same.

This methodology involves counting the number of individual non-juvenile tree specimens within each 100 m X 20 m plot (0.2 ha) including those that are listed as preferred foraging species for the swift parrot. A tree that branches into two or more stems 30 cm above the ground is counted as one individual.

For each AU, the number of non-juvenile trees and separately, of non-juvenile preferred foraging trees, was averaged across all habitat quality transects within the corresponding AU to produce the mean number of trees and preferred foraging trees within a 100 X 20 m plot area (0.2 ha). The average stem density of non-juvenile trees and non-juvenile preferred foraging trees recorded within the 0.2 ha plot was multiplied by five (5) to produce an estimate of the number

of trees and preferred foraging trees per ha. This was then multiplied by the area of the AU to determine an estimate of non-juvenile trees and non-juvenile preferred foraging trees within each AU.

2. Planting capacity

The planting capacity or number of trees (all species) that can be supported within each AU was determined based on the following planting densities proposed in accordance with the South East Queensland Ecological Restoration Framework (SEQERF) (Chenoweth EPLA, 2012):

- 1 tree per 10 m^2 or 1000 trees per hectare for non-remnant paddock
- 1 per 50 m^2 or 200 tree per hectare for sparse regrowth
- 1 per 100 m^2 or 100 trees per hectare for dense regrowth
- 1 per 1000 m^2 or 10 trees per hectare for remnant

The proposed density rate was multiplied by the size of the AU (excluding waterbodies) to determine the overall planting capacity. Due to variation in the density of tree coverage within AUs 3 and 4, it was necessary to divide these AUs further into sub-units to capture appropriate planting densities depending on location within the AUs. Refer to **Plan 15** for the location of sub-units. These have been divided as follows with associated planting densities as above:

- Assessment Unit 1 – Non-remnant Paddock
- Assessment Unit 2 – Non-remnant Paddock
- Assessment Unit 3
    - AU3.1 – Dense Regrowth
    - AU3.2 – Sparse Regrowth
    - AU3.3 – Infill Planting
- Assessment Unit 4
    - AU4.1 – Remnant
    - AU4.2 – Infill Planting

Each AU is assigned a planting palette of tree species developed based on the pre-clear regional ecosystem mapping and local availability of seed stock. Each planting palette comprises a mix of preferred foraging species for the swift parrot, other eucalypt trees and pioneer species such as *Acacia* sp. Preferred foraging tree species comprise a percentage of the total planting palette where it is suitable for the pre-clear RE and/or consistent with the local seed stock.

3. Preferred foraging species planting

The number of preferred foraging trees that will be planted per AU is calculated as the planting capacity multiplied by the percentage of preferred foraging trees. Where there are multiple species of preferred foraging tree species, these are added together to produce a total number of preferred foraging tree species to be planted.

An 80% survival rate is applied to both the on-ground planting value and the adjusted value to receive the total number of preferred foraging species proposed to be successfully delivered as a result of the offset. A Rehabilitation Management Plan (RMP) (refer **Appendix C**) has been prepared which includes details on the proposed planting methodology and planting palette.

4. Net total of preferred foraging trees

The final step is to determine the net total of preferred foraging trees that will be located within each AU combining the proposed offset and baseline data. This is calculated as the total count of preferred foraging trees to be planted inclusive of an 80% survival rate, plus the baseline count of non-juvenile preferred foraging trees.

For the purposes of the OAG calculator, the net total of preferred foraging trees inclusive of an 80% survival rate of planted trees is inputted as the 'Future value with offset.'

6.1.6 Regent Honeyeater – Foraging Habitat Assessment

To quantify baseline and future habitat value for the regent honeyeater, a feature-based assessment method was utilised. The method involves calculating the number of individual habitat features located within the offset area and the number that will be reinstated as part of the offset.

A habitat feature for the regent honeyeater is defined as a non-juvenile tree (*i.e.,* ≥100 mm DBH) which is a preferred foraging tree species identified under the *National Recovery Plan for the Regent Honeyeater* (DoE, 2016). Listed preferred foraging tree species include:

- *Eucalyptus leucoxylon* (yellow gum)
- *Eucalyptus sideroxylon* (mugga ironbark)
- *Eucalyptus albens* (white box)
- *Eucalyptus melliodora* (yellow box)
- *Eucalyptus robusta* (swamp mahogany)
- *Corymbia maculata* (spotted gum). It is noted that in Queensland *Corymbia citriodora* is recognised synonymously with *Corymbia maculata*.

The methodology, comprising four (4) steps is described below with details as to how the calculations have been used to inform the OAG and rehabilitation program.

1. Baseline tree density

In order to understand the existing foraging habitat value for the regent honeyeater and the planting capacity of the offset area, the existing density of trees is required to be calculated and extrapolated.

The density of all trees including preferred foraging trees was extrapolated from stem density data collected at 12 MHQA transect locations (refer **Plan 12**). The four (4) AUs and associated transect site numbers are as follows:

- AU1 represents non-remnant paddock RE12.3.3 habitat (Transects 4, 5 and 6).
- AU2 represents non-remnant paddock RE12.8.17/12.8.16 habitat (Transects 9, 10, 11 and 12).
- AU3 represents sparse to dense regrowth RE12.8.17/12.8.16 habitat with infill planting areas (Transects 1, 7 and 8).
- AU4 represents remnant RE12.8.17/12.8.16 with infill planting areas (Transects 2 and 3).

Stem density data at each MHQA transect was collected in accordance with the stem count methodology provided in the *Methodology for surveying and mapping regional ecosystems and vegetation communities in Queensland (version 5.0)* (Neldner *et al.* 2019). The methodology detailed in Neldner et al. (2019) uses a plot area of 50 X 10 m. For the purposes of this assessment, the area was modified to 100 X 20 m to align with the MHQA plot, however, the actual count assessment method remains the same.

This methodology involves counting the number of individual non-juvenile tree specimens within each 100 m X 20 m plot (0.2 ha) including those that are listed as preferred foraging species for the regent honeyeater. A tree that branches into two or more stems 30 cm above the ground is counted as one individual.

For each AU, the number of non-juvenile trees and separately, of non-juvenile preferred foraging trees, was averaged across all habitat quality transects within the corresponding AU to produce the mean number of trees and preferred foraging trees within a 100 X 20 m plot area (0.2 ha). The average stem density of non-juvenile trees and non-juvenile preferred foraging trees recorded within the 0.2 ha plot was multiplied by five (5) to produce an estimate of the number

of trees and preferred foraging trees per ha. This was then multiplied by the area of the AU to determine an estimate of non-juvenile trees and non-juvenile preferred foraging trees within each AU.

2. Planting capacity

The planting capacity or number of trees (all species) that can be supported within each AU was determined based on the following planting densities proposed in accordance with the South East Queensland Ecological Restoration Framework (SEQERF) (Chenoweth EPLA, 2012):

- 1 tree per 10 m^2 or 1000 trees per hectare for non-remnant paddock
- 1 per 50 m^2 or 200 tree per hectare for sparse regrowth
- 1 per 100 m^2 or 100 trees per hectare for dense regrowth
- 1 per 1000 m^2 or 10 trees per hectare for remnant

The proposed density rate was multiplied by the size of the AU (excluding waterbodies) to determine the overall planting capacity. Due to variation in the density of tree coverage within AUs 3 and 4, it was necessary to divide these AUs further into sub-units to capture appropriate planting densities depending on location within the AUs. Refer to **Plan 15** for the location of sub-units. These have been divided as follows with associated planting densities as above:

- Assessment Unit 1 – Non-remnant Paddock
- Assessment Unit 2 – Non-remnant Paddock
- Assessment Unit 3
    - AU3.1 – Dense Regrowth
    - AU3.2 – Sparse Regrowth
    - AU3.3 – Infill Planting
- Assessment Unit 4
    - AU4.1 – Remnant
    - AU4.2 – Infill Planting

Each AU is assigned a planting palette of tree species developed based on the pre-clear regional ecosystem mapping and local availability of seed stock. Each planting palette comprises a mix of preferred foraging species for the regent honeyeater, other eucalypt trees and pioneer species such as *Acacia* sp. Preferred foraging tree species comprise a percentage of the total planting palette where it is suitable for the pre-clear RE and/or consistent with the local seed stock.

3. Preferred foraging species planting

The number of preferred foraging trees that will be planted per AU is calculated as the planting capacity multiplied by the percentage of preferred foraging trees. Where there are multiple species of preferred foraging tree species, these are added together to produce a total number of preferred foraging tree species to be planted.

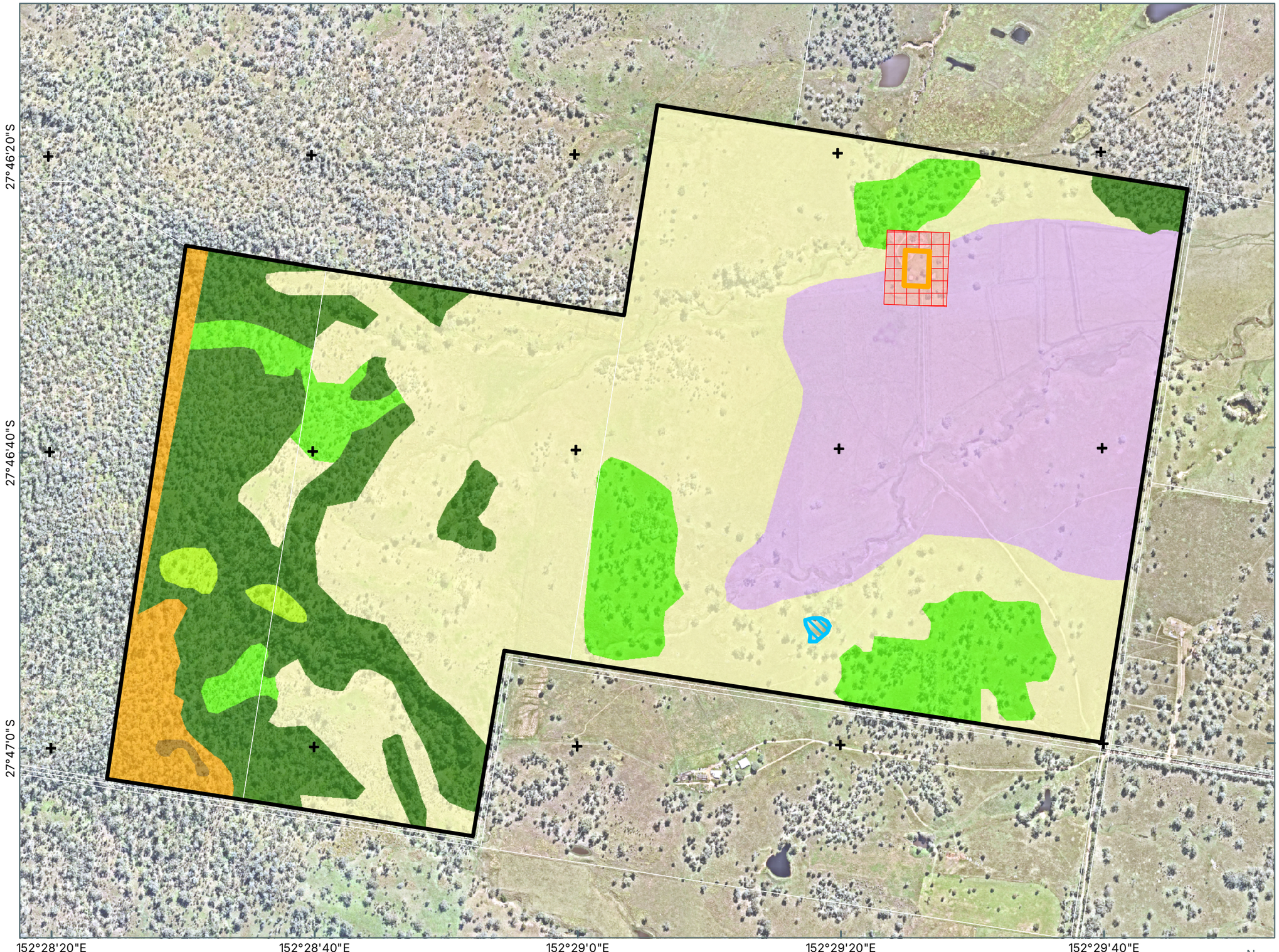
An 80% survival rate is applied to both the on-ground planting value and the adjusted value to receive the total number of preferred foraging species proposed to be successfully delivered as a result of the offset. A Rehabilitation Management Plan (RMP) (refer **Appendix C**) has been prepared which includes details on the proposed planting methodology and planting palette.

4. Net total of preferred foraging trees

The final step is to determine the net total of preferred foraging trees that will be located within each AU combining the proposed offset and baseline data. This is calculated as the total count of preferred foraging trees to be planted inclusive of an 80% survival rate, plus the baseline count of non-juvenile preferred foraging trees.

For the purposes of the OAG calculator, the net total of preferred foraging trees inclusive of an 80% survival rate of planted trees is inputted as the 'Future value with offset.'

15. ASSESSMENT UNIT SUB-UNITS



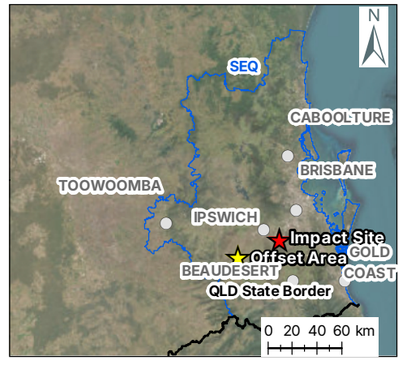
Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders HavillUnless a development approval states otherwise, this is not an approved plan.
Layer Sources
Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community
© State of Queensland (Department of Resources) 2026.
Updated data available at
http://qldspatialinformation.qld.gov.au/catalogue/
* Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Qld DCDB
- Offset Area [227.6 ha]
- Waterbodies [0.2 ha]
- Non-Offset Land Use Area [2 ha]
- Building Location Envelope - 0.4 ha
- Asset Protection Zone / Bushfire Management Zone - 1.6 ha

Assessment Units (Sub-units)

- *Assessment Unit 1:* Non-remnant RE 12.3.3 [50.8 ha]
- *Assessment Unit 2:* Non-remnant RE 12.8.17 [104.7 ha]
- *Assessment Unit 3 Sub-unit 3.1:* Dense Regrowth RE 12.8.17 [37.5 ha]
- *Assessment Unit 3 Sub-unit 3.2:* Sparse Regrowth RE 12.8.17 [23.1 ha]
- *Assessment Unit 3 Sub-unit 3.3:* Infill Planting RE 12.8.17 [1.4 ha]
- *Assessment Unit 4 Sub-unit 4.1:* Remnant RE 12.8.17 [7.8 ha]
- *Assessment Unit 4 Sub-unit 4.2:* Infill Planting RE 12.8.17 [0.3 ha]



Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

0 50 100 150 200 m
Transverse Mercator
GDA 2020 | Zone 56

N
1:8,000
@ A3

Address / RPD: MOUNT WALKER WEST

12/01/2026

9612 E 15 MWW Offset AU Subs A

6.1.7 Motion-triggered Camera Surveys

Surveys for non-native vertebrate pest presence, primarily targeting wild dogs, which are the primary threat to koala posed by invasive species, was completed via the use of motion-triggered camera trapping. Camera trapping involves setting up a fixed digital camera to capture images or video of animals that pass in front of an infrared trigger. The use of camera trapping is an effective method in capturing, assessing and monitoring pest management. At present, DCCEEW does not have a published guideline for detecting feral animals. The *Survey Guidelines for Australia's threatened mammals* (2011) was reviewed as a published methodology for detecting mammals. However, this guideline focuses on highly cryptic threatened species with small home ranges. In contrast, feral animals are far less cryptic and significantly more mobile with larger home ranges than most native species.

As the purpose of this assessment is to survey feral animal abundance, the *Survey Guidelines for Australia's threatened mammals* is considered excessive and impractical for an area of this size. Several papers outline required density of cameras to monitor abundance of specific feral mammals, typically utilising a grid-based system applied over the survey area. The grid-based system is a standard method of unbiased assessment, with the purpose being that each camera is equidistant from the other. The literature recommends grids from 500 m x 500 m, and frequently up to 1 km x 1 km to ensure suitable coverage (refer **Table 40**).

The number of camera traps required for a specific survey area is dependent on the individual characteristics of the survey site (size and variety of vegetation communities) as well as the behaviours of the specific species being targeted (mobility/home range). Threatened species guidelines recommends ten (10) remote cameras per ha, though as mentioned this is a result of its focus on cryptic, less mobile threatened species. Given the large home range of the target species (wild dogs) and size of the offset area, a total of 10 camera traps were installed across the 227.6 ha landholdings for a period of 28 nights from 22 September 2025 to 20 October 2025 (refer **Plan 16**) aiming for a separation of approximately 300 m (refer **Plan 16**). Cameras were located within all vegetation types including within and adjoining open paddocks, drainage lines and in vegetated areas in the western portion of the site. All future pest detection surveys should be conducted at a similar time each year to allow for valid comparisons in species abundance/activity trends. **Table 40** provides a description of camera deployment locations.

Camera trap set up and deployment was conducted as per the Queensland Government's *Terrestrial Vertebrate Fauna Survey Guidelines for Queensland* (June 2022). The guideline advises this survey technique should be employed to identify fauna activity beyond the scope of direct observational studies and with the absence of potential observer impacts. Cameras were attached 30 – 100 cm from the ground on a tree or post and directed towards a bait station placed 1.5 – 2 m from the mounted camera. Bait stations contained chicken necks to target wild dogs and other known potential predators to MNES. The bait station utilised does not allow the target animal to consume the bait. Rainfall was minimal during the survey period, and so it was not necessary to replenish the bait.

Within the pre-determined camera location, cameras were directed towards animal tracks to increase the chances of detection and identification. Heavy, loose vegetation was avoided to reduce the chance of false triggering, and the camera was aimed to avoid sun shining directly onto the lens. Where not possible to place the cameras exactly within the grid system, cameras were placed in the most suitable location and 'site type' (e.g. track, bush, open area).

Table 39: Camera grid size justification

Target Animal	Approx. Home Range	References	Spacing Recommendations
Wild dog	>250 ha	Department of Primary Industries, NSW Government (2018). Guidelines for camera trapping Wild Dogs, foxes and feral cats	1 km
		Northern Territory Government (2015). A guide for the use of remote cameras for wildlife survey in northern territory	500 m

Target Animal	Approx. Home Range	References	Spacing Recommendations
		Contardo, J. E. (2017). Occupancy of free-ranging dogs in relation to infrastructure and habitat on Navarino Island, Cape Horn Reserve, Chile	700 m
		Department of Industry (2017). NSW Wild Dog Management Strategy 2022-2027	700 m
		McNeill et al. (2016). Dingoes at the Doorstep: Home Range Sizes and Activity Patterns of Dingoes and Other Wild Dogs around Urban Areas of North Eastern Australia	700 m

Table 40: Fauna camera trap summary (22 September – 20 October 2025)

ID	Latitude	Longitude	Photo	Location description
1	-27.778014°	152.491627°		Located adjoining a modified drainage gully and minor dam area adjoining open grazing paddock. Cattle frequently observed.
2	-27.772963°	152.494990°		Located in regrowth patch of RE12.8.17/12.8.16, adjoining open grazing paddock.
3	-27.774706°	152.487069°		Located in channel of waterway gully line, adjoining open paddock. Well shaded with consistent water flows. Large trees and consistent shrub cover present.

ID	Latitude	Longitude	Photo	Location description
4	-27.775888°	152.480629°		Located in open paddock, adjoining the upper catchment of a waterway drainage line. Scattered tree coverage with relatively open understorey.
5	-27.779048°	152.480935°		Located in open paddock facing a large farm dam.
6	-27.782212°	152.480167°		Located adjoining a steep gully line in south-western portion of offset area. Predominantly within open paddock, facing toward gully.
7	-27.779048°	152.480935°		Located in modified regrowth of RE12.8.17/12.8.16 facing a small farm dam.

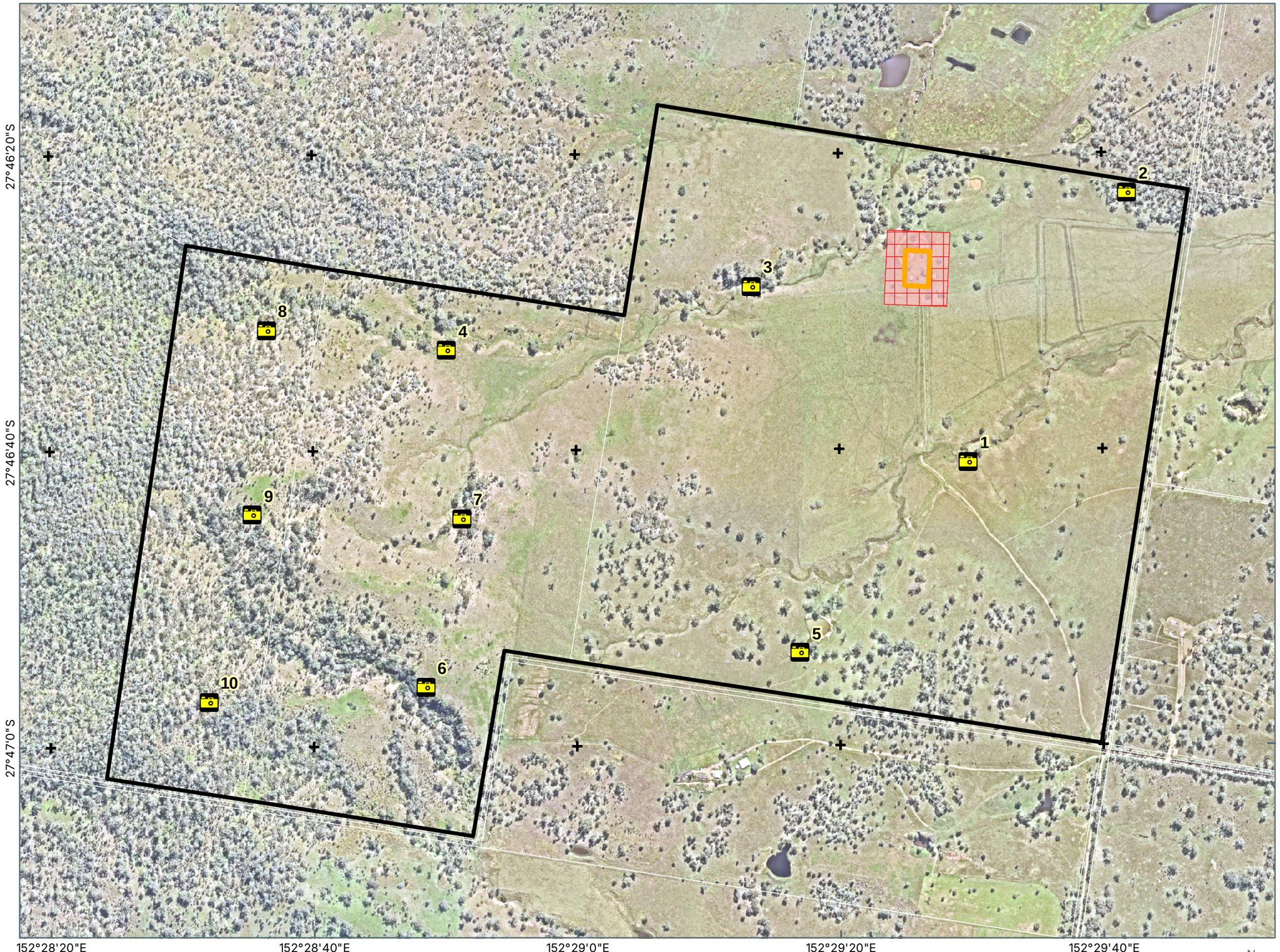
ID	Latitude	Longitude	Photo	Location description
8	-27.775503°	152.476827°		Located in regrowth of RE12.8.17/12.8.16 facing a minor drainage line. Relatively open understorey with scattered juvenile native trees.
9	-27.778966°	152.476513°		Located in regrowth of RE12.8.17/12.8.16 in the western portion of the offset area facing south, downslope.
10	-27.782475°	152.475587°		Located adjoining remnant RE12.8.17/12.8.16 in upper catchment of offset area within south-western portion of offset area.

6.1.8 Relative Abundance Index

The results of the motion-triggered camera detection survey were utilised to provide relative abundance of non-native vertebrate pest species within the offset area, reducing bias and increasing repeatability.

A Relative Abundance Index (RAI) is then calculated for feral animal abundance, using the formula RAI= D/TN x 100, where D is number of individual detections and TN is the total number of camera-trap nights (all cameras combined). This methodology ensures that the surveys are representative of the entire area and are repeatable for future monitoring requirements. A higher RAI indicates a higher pest presence.

16. BASELINE PEST CAMERA MONITORING



Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders Havill.Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community
© State of Queensland (Department of Resources) 2026.
Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/
* Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Qld DCDB
- Offset Area [227.6 ha]
- Non-Offset Land Use Area [2 ha]
- Building Location Envelope - 0.4 ha
- Asset Protection Zone / Bushfire Management Zone - 1.6 ha
- Motion Sensor Fauna Camera

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

0 50 100 150 200 m
Transverse Mercator
GDA 2020 | Zone 56
N
1:8,000 @ A3

Address / RPD: MOUNT WALKER WEST

12/01/2026

9612 E 16 MWW Baseline Camera A

6.1.9 Weeds of National Significance Mapping

The primary weed species targeted by weed surveys within the offset area was *Lantana camara* (lantana) due to its known threats to MNES habitat and classification as a WONS. The secondary target species is *Senecio madagascariensis* (fireweed) due to its known competition to native vegetation and identification as a WONS. The percentage cover of WONS was determined using a two-step method detailed in the *Guidelines for Monitoring Weed Control and recovery of native vegetation* (Auld, 2009).

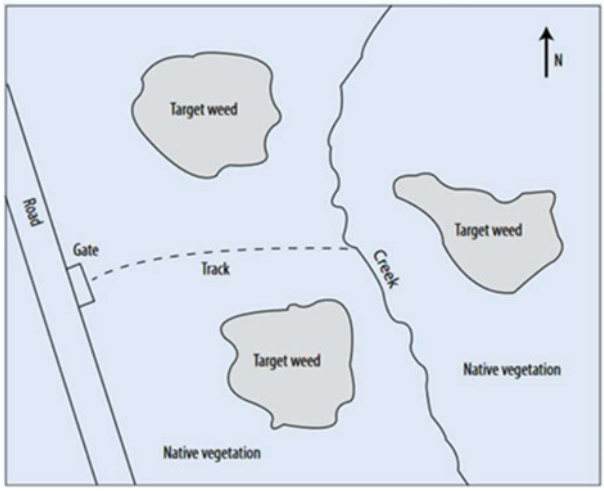
In order to gain a more complete view of weed coverage across the offset area and therefore provide a more succinct idea of weed management activities mapping of weeds on-ground was conducted utilising the following methodology.

Step 1: Delineate weed patches

Using an antenna-based GPS system, the spatial extent or patches of WONS and other weeds within the offset area were mapped on-ground as polygons to produce a 'mud map' of the site (refer **Insert 2**). Each polygon was given an initial visual estimate of WONS percent coverage within the weed management zones (WMZs) and WONS density categories (refer **Plan 17**):

- WMZ 1 – Open pasture – exotic grasses and herbaceous weeds (Low <10%)
- WMZ 2 – Eucalypt woodland with minimal weeds (Low <10%)
- WMZ 3 – Eucalypt woodland – scattered lantana (10-20%)
- WMZ4 – Eucalypt woodland – moderate-high lantana (>60%)

This step is completed to define patches of weeds and subsequently guide the placement of targeted weed transects as a means of accurately estimating percentage cover within a given patch. Where some species are difficult to delineate at this scale, (fireweed) coverage is calculated utilising transects only.



Insert 2: 'Mud map' from Auld (2009) – Figure 1

Step 2: Line-transect method

To quantify the percentage cover the mapped areas the line-transect methodology presented in the *Guidelines for Monitoring Weed Control and recovery of native vegetation* (Auld 2009) was implemented.

In this methodology, the ground cover of a weed is a measure of the perpendicular projection of aerial parts of plants to the ground. This method minimises user variability as cover calculations are not reliant on estimations and is instead accurately measured against a tape, typically standardised at 100 m in length. With this technique, the percentage cover of all weed species (WONS and non-WONS) along the line transect is recorded. Because shrubs may overlap plants growing closer to the ground, the total percentage cover of vegetation over an area may be greater than 100%. The data is recorded in metres but can be interpreted as a percentage (refer **Insert 3**).

A total of 15 100 m transects were established across the offset area which equates to 4 for WMZs 2, 3 and 4 and 5 in WMZ 1 (refer **Plan 17**). Auld (2009) does not prescribe a minimum number of line-transects, a feature of other transect methods such as the BioCondition Assessment Manual. The number of weed transects completed is

considered to provide an adequate estimate of weed percentage and for detecting changes in weed coverage with future monitoring. As such, the location of transects are considered adequate to represent the general condition of the offset area.

Future surveys to estimate the weed cover will emulate the methodologies completed for baseline surveys as per Auld (2009). In addition, MHQA transects also involve a component of weed cover estimation.

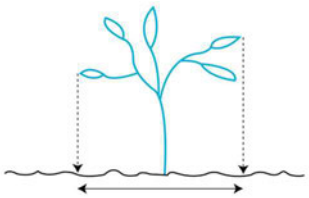


Figure 5. Ground cover of a plant indicated by the horizontal arrowed line.

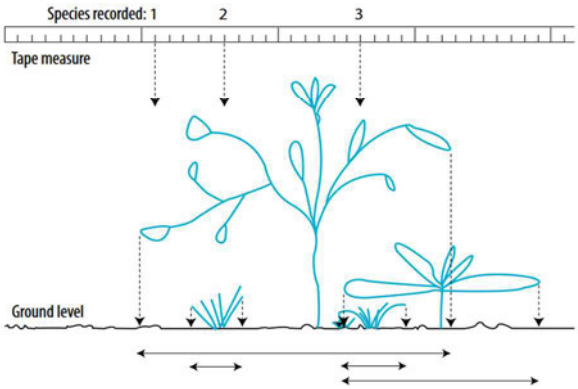
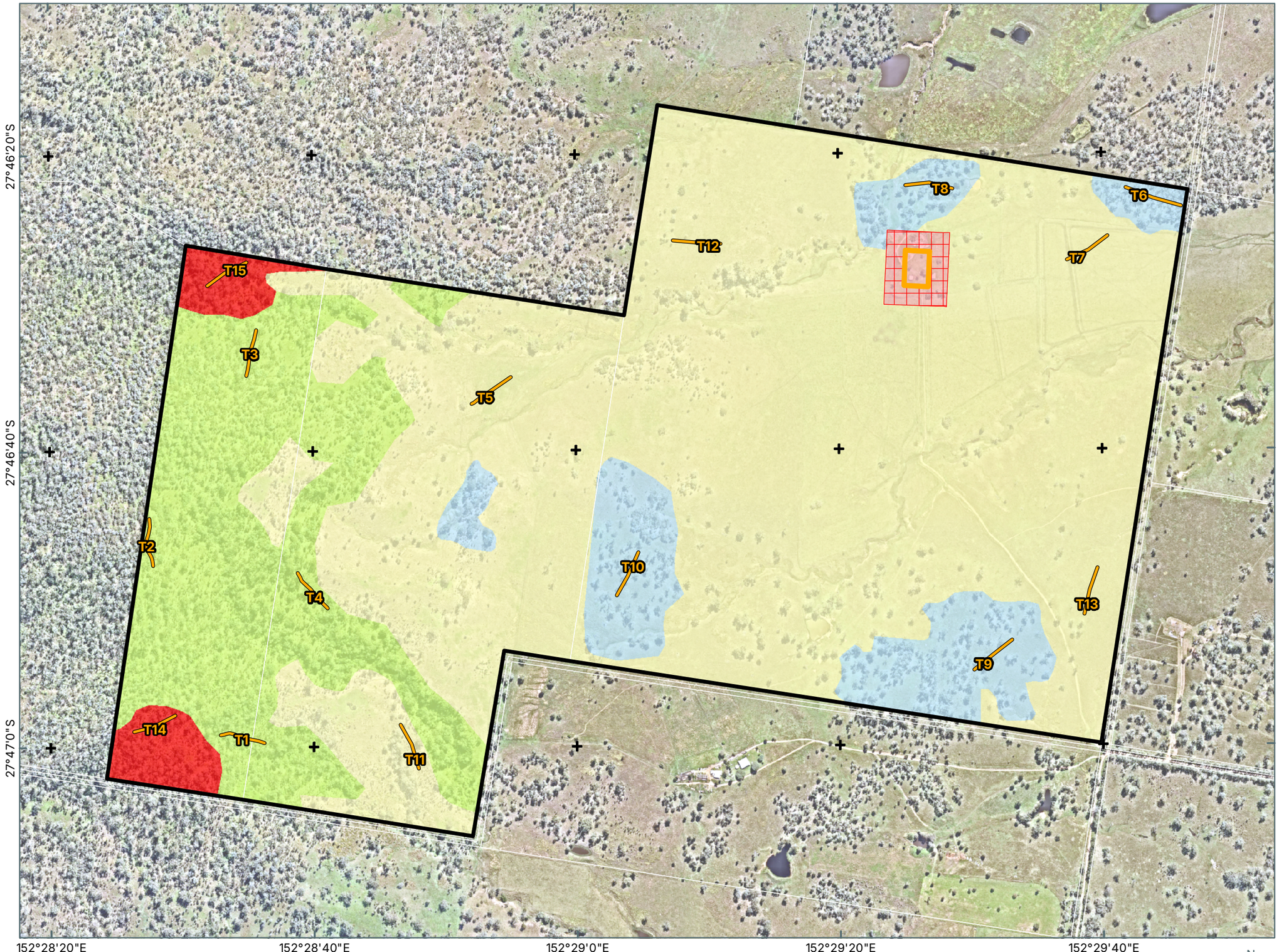


Figure 6. Overlapping vegetation means that total ground cover is often more than 100%. Three different sampling points indicated on the tape measure, used as a line-transect, will record either one, two or three plants.

Insert 3: Method for measuring weed coverage from Auld 2009

17. BASELINE WEED SURVEYS



Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders HavillUnless a development approval states otherwise, this is not an approved plan.
Layer Sources
Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community
© State of Queensland (Department of Resources) 2026.
Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/
* Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Qld DCDB
- Offset Area [227.6 ha]
- Non-Offset Land Use Area [2 ha]
- Building Location Envelope - 0.4 ha
- Asset Protection Zone / Bushfire Management Zone - 1.6 ha
- Weed Transects [15]

Weed Management Zones

Weed Management Zone 1:
Open pasture – exotic grasses and herbaceous weeds (0-10% WONS)
[156.3 ha]

Weed Management Zone 2:
Eucalypt woodland – Minimal weeds (0-10% WONS)
[21 ha]

Weed Management Zone 3:
Eucalypt woodland – Scattered Lantana (10-20% WONS)
[42.5 ha]

Weed Management Zone 4:
Eucalypt woodland – Moderate-High Lantana (>60% WONS)
[5.8 ha]

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

0 50 100 150 200 m
Transverse Mercator
GDA 2020 | Zone 56

N
1:8,000
@ A3

Address / RPD: MOUNT WALKER WEST

12/01/2026

9612 E 17 MWW Baseline Weeds A

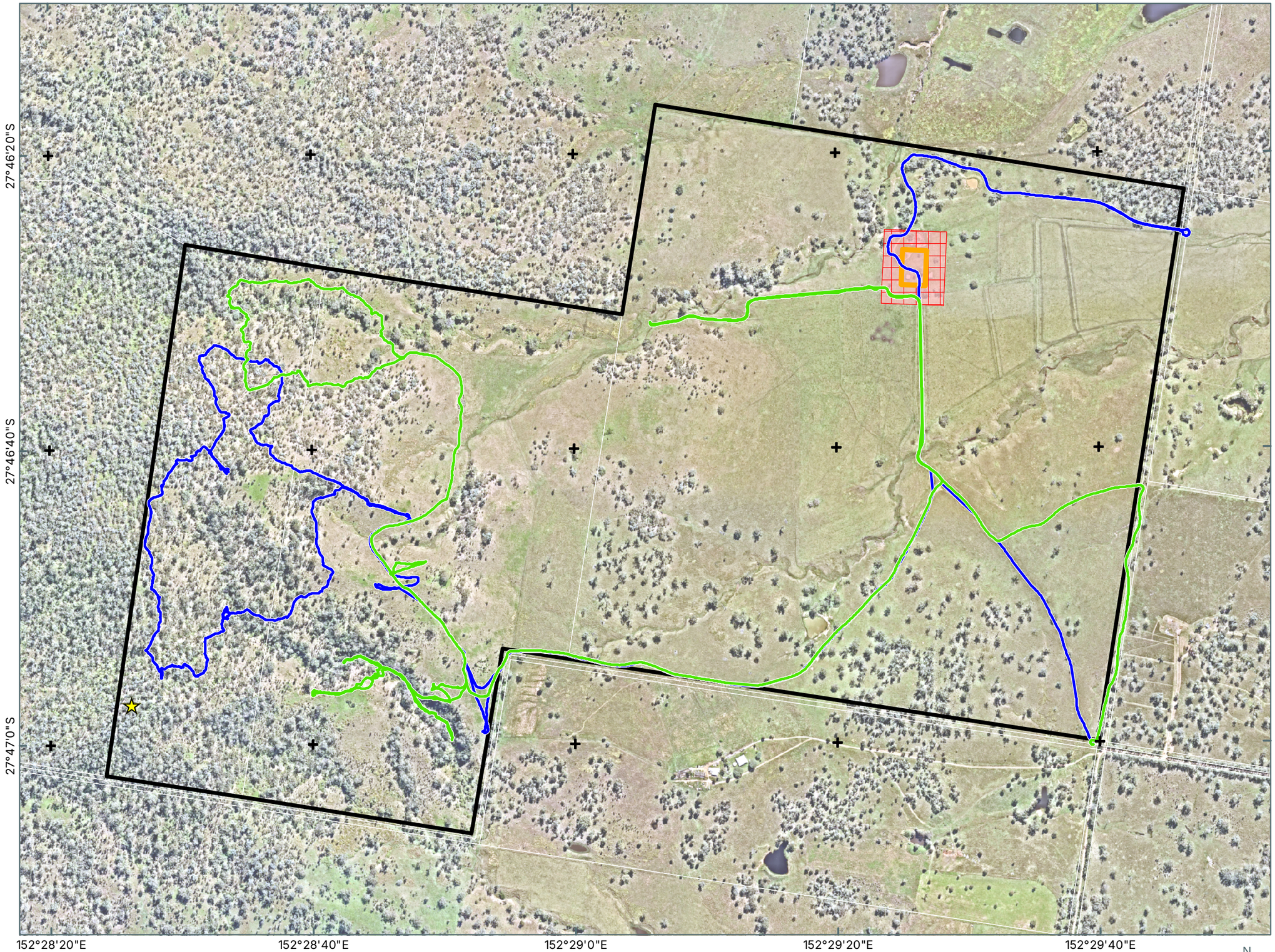
6.1.10 Spotlighting Surveys

In order to detect presence of potential MNES, within the offset area, in particular the koala and grey-headed flying-fox, nocturnal spotlighting was completed within the offset area. A combination of high-powered spotlights and head torches were used to detect nocturnal mammals, birds and reptiles within the offset area in accordance with the relevant Commonwealth and State survey guidelines. Spotlighting meander surveys were completed on foot by two ecologists and involved slowly walking through eucalypt woodland at an average pace of 10 minutes per 100 m. Observers took care to ensure areas already surveyed were not revisited during the same survey transect. It was also ensured that surveys were not completed during inclement weather such as strong winds or rain to limit the potential for reduced detectability. Two (2) spotlighting meander surveys were completed on 1 and 20 October 2025 targeting presence of koala and grey-headed flying-fox. Refer to **Plan 18** for the location of spotlighting meanders.

6.1.11 Barbed wire fence mapping

Barbed wire is identified as a threat to grey-headed flying-foxes and fauna generally which may result in entanglement and lead to mortality. The extent of barbed wire fencing within the offset area was mapped.

18. THREATENED SPECIES SURVEYS



Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders Havill.Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community
© State of Queensland (Department of Resources) 2026.
Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/
* Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Qld DCDB
- Offset Area [227.6 ha]
- Non-Offset Land Use Area [2 ha]
- Building Location Envelope - 0.4 ha
- Asset Protection Zone / Bushfire Management Zone - 1.6 ha
- Spotlighting Meander 1
- Spotlighting Meander 2
- ☆ *Coleus habrophyllus* patch

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

0 50 100 150 200 m
Transverse Mercator
GDA 2020 | Zone 56
1:8,000 @ A3

Address / RPD: MOUNT WALKER WEST

12/01/2026

9612 E 18 MWW TS Surveys A

6.2. Results and Discussion

6.2.1 Koala – Modified Habitat Quality Assessment Tool

Site Condition (30%)

The site condition scoring for the offset area is summarised in **Table 41**. Refer to **Appendix E** for detailed baseline koala MHQA scoring and **Appendix F** for the raw transect data.

Table 41: Site condition scores for offset area assessment units

	AU1	AU2	AU3	AU4
Regional Ecosystem	12.3.3	12.8.17	12.8.17	12.8.17
Rem/NR/Reg	NR	NR	Reg	Rem
Recruitment of woody perennial species in EDL	3	0	5	3
Native plant species richness - trees	0	2.5	2.5	5
Native plant species richness - shrubs	0	0	2.5	5
Native plant species richness - grasses	0	0	2.5	2.5
Native plant species richness - forbs	0	0	2.5	2.5
Average tree canopy height*	0	3	3	5
Average tree canopy cover*	0	0	5	3.5
Shrub canopy cover	0	0	3	5
Native grass cover	5	5	5	3
Organic litter	0	0	5	5
Large trees	5	0	10	10
Coarse woody debris	0	2	2	5
Non-native plant cover	3	5	5	5
Quality and availability of food and foraging habitat	1	1	10	10
Quality and availability of shelter	1	1	10	10
Total (Out of 100)	**18**	**19.5**	**73**	**79.5**
Score out of 3	**0.54**	**0.59**	**2.19**	**2.39**

Quality and availability of foraging and shelter habitat

The quality and availability of Koala foraging habitat across the offset area is considered low for AU1 and AU2, achieving 15.56% and 18.83%, respectively, therefore scoring **1 out of 10**. AU3 and AU4 scored 72.78% and 82.78%, respectively, therefore scoring **10 out 10**. Refer to **Table 42**.

These scores are derived from the balance site condition attributes whereby koala sheltering habitat values are considered in terms of attributes including recruitment, native tree species richness, canopy cover, shrub cover, presence of large trees and average tree canopy height as these are attributes which are considered to influence the provision of shelter. Within the offset area, sheltering resources are scattered across the landscape.

Table 42: Quality and availability of foraging and shelter habitat scoring results

Attribute	Weighting	Score				Weighted score			
		AU1	AU2	AU3	AU4	AU1	AU2	AU3	AU4
(1) Recruitment of woody perennial species in ecologically dominant layer in EDL	16.67	3	0	5	3	10.00	0.00	16.67	10.00
(2) Native plant species richness – trees	16.67	0	2.5	2.5	5	0.00	8.33	8.33	16.67
(6) Tree canopy height	16.67	0	3	3	5	0.00	10.00	10.00	16.67
(7) Tree canopy cover	16.67	0	0	5	3.5	0.00	0.00	16.67	11.67
(8) Shrub canopy cover	16.67	0	0	3	5	0.00	0.00	10.00	16.67
(11) Large Trees	16.67	5	0	10	10	5.56	0.00	11.11	11.11
	Total weighted score (/100)					**15.56**	**18.83**	**72.78**	**82.78**

Site Context (30%)

The site context characteristics for koala are shown on **Plan 13** with scores summarised in **Table 43** and justifications provided below.

- *Size of patch* – The size of patch attribute was calculated using GIS and determined the offset area to be part of a patch size of larger than 500 ha. This achieved a score of **10 out of 10** (>200 ha Koala Habitat as per the *Queensland BioCondition Assessment* methodology).
- *Connectedness* – Connectedness was calculated using GIS, with the percentage of offset area boundary length supporting a Koala critical habitat connection off and on-site calculated at 49 %, and consequently this attribute scored a **2 out of 5** as per the *Queensland BioCondition Assessment* methodology.
- *Context* – Existing critical koala habitat within a 1 km buffer of the site was calculated at 46 %, and therefore the context attribute achieved a score of **4 out of 5** as per the *Queensland BioCondition Assessment* methodology.
- *Ecological Corridors* – A score of **0 out of 6** as the site is located outside a corridor.
- *Role of site location to species overall population in the State* – This attribute achieved a score of **5 out of 5** noting the site's importance for koala.
- *Threats to the species* – A score of **7 out of 15** was attributed recognising a moderate level of threats, supported by the existing threats such as habitat clearing within agricultural land use areas and the presence of wild and domestic dogs on the property.
- *Species mobility capacity* – The koala is considered a relatively immobile species, requiring land for movement, and covering relatively small distances on-ground compared to other highly mobile fauna. A score of **4 out of 10** was assigned to AU1 and AU2 noting the presence of only scattered trees to support mobility. A score of **10 out of 10** was attributed to AU3 and AU4 noting the presence of consistent tree coverage and isolated occurrence of lantana.

Table 43: Koala site context scores for offset area

	AU1	AU2	AU3	AU4
Size of patch	10	10	10	10
Connectedness	2	2	2	2
Context	4	4	4	4
Ecological corridors	0	0	0	0
Role of the site location to species overall population in the state	5	5	5	5
Threats to species	7	7	7	7
Species mobility capacity	4	4	10	10
Total (out of 56)	**32**	**32**	**38**	**38**
Score out of 3	**1.71**	**1.71**	**2.04**	**2.04**

Species Stocking Rate (40%)

Evidence of koala was recorded within the offset area through the detection of scats during SAT surveys as part of the baseline field surveys. Five (5) SATs were completed corresponding with the associated transect number being MHQA transects 1, 6, 7, 8, and 10. SATs were completed where there were sufficient trees to complete an assessment. All SATs returned an activity class of 'low' under the East Coast (med-high) population category. A summary of the SAT survey results completed at each MHQA transect are provided in **Table 44** with raw data provided at **Appendix F**.

Table 44: Baseline SAT survey results

SAT ID (MHQA transect)	Number of trees with scats (/30)	Evidence of koala activity (%)	Koala use (East Coast med-high)
SAT at T1	0	0%	Low
SAT at T2	2	6.67%	Low
SAT at T3	0	0%	Low
SAT at T7	1	3.33%	Low
SAT at T8	0	0%	Low

The SAT surveys demonstrate that koalas utilise the landscape with a preference for retained stands of regrowth vegetation. The results support the understanding that the variation in density and abundance of food and foraging resources across the landscape influences the presence of koalas and patterns of utilisation within the offset area. It is considered that the offset area has the capacity to support ecological gain for the koala and promote consistent foraging and breeding behaviours across the landscape through management activities particularly revegetation practices.

The species stocking rate provides an estimation of the landscape's capacity to support koala and their range of life cycle requirements including dispersal, foraging and breeding as well as population-level dynamics. Species stocking rate for Koala was scored variably between assessment units where necessary to reflect the variance in vegetation structure and density and evidence of utilisation within the offset area. AU1 and AU2 which are entirely paddock were scored **20 out of 70** reflecting the primary function as enabling dispersal between foraging/breeding areas. AU3 and AU4 scored **40 out of 70** reflective of the presence of higher quality foraging areas and higher levels of utilisation (refer **Table 45**). Further details on the justification for the scoring of each attribute is provided below:

- Presence – Koala evidence in the form of scats was observed within the offset area therefore 'presence detected on or adjacent to site' was assigned a score of **10 out of 10** for all assessment units.
- Species usage of the site (habitat type and evidenced usage) – This attribute was scored a **15 out of 15** for AU3 and AU4 indicating foraging/breeding habitat reflective of confirmed presence within retained stands of vegetation and consistent vegetation structure. Due to the general lack of vegetation structure and low density of trees within AU1 and AU2 were scored as **5 out of 15** reflecting their primary function as dispersal habitat.
- Approximate density – This attribute was scored as **10 out of 30** for AU3 and AU4 to reflective 'low density' as interpreted through SAT results. AU1 and AU2 scored **0 out of 30** due to the sparsity of trees and absence of koala evidence. It is considered that the variability in the landscape of the offset area, koalas utilised the more heavily treed and connected habitat areas. It is anticipated that the capacity of these non-remnant assessment units to support the koala will improve with weed management and active regeneration.
- Role/importance of species population on site – Using the precautionary principle, the offset area is considered a key source for population for dispersal under 'role/importance of species population on-site' therefore was scored a **5 out of 15** for all assessment units.

Table 45: Baseline koala species stocking rate scores

Species Stocking Rate Table				
	AU1	**AU2**	**AU3**	**AU4**
Presence detected on or adjacent to site (neighbouring property with connecting habitat) (/10)	10	10	10	10
Species usage of the site (habitat type and evidenced usage) (/15)	5	5	15	5
Approximate density (per ha) (/30)	0	0	10	10
Role/importance of species population on site* (/15)	5	5	5	5
Total Species Stocking Rate Score (/70)	**20**	**20**	**40**	**40**
Species Stocking Rate Score – out of 4	**1.14**	**1.14**	**2.29**	**2.29**
***SSR Supplementary Table – Total supplementary score 0 = 0, 5-15 = 5, 20-35 = 10, 40-45 = 15**				
	AU1	**AU2**	**AU3**	**AU4**
Key source population for breeding (/5)	0	0	0	0
Key source population for dispersal (/5)	5	5	5	5
Necessary for maintaining genetic diversity (/15)	0	0	0	0
Near the limit of the species range (/15)	0	0	0	0

6.2.2 Grey-headed Flying-fox Foraging Habitat Assessment Tool

Utilising the FHA scoring methodology, the following scores have been assigned for the baseline condition of the offset area for GHFF. Refer **Appendix E** for detailed scoring tables and **Appendix F** for raw data.

Site Condition (40 %)

The Site Condition for AU1 and AU2 contains low quality vegetation for the GHFF with a score of **0.53 out of 4** and **1.23 out of 4**, respectively. AU3 and AU4 scored moderately at **2.12 out of 4** and **2.40 out of 4**, respectively.

Site Context (30 %)

The baseline site context characteristics for GHFF are shown on **Plan 14** with scoring justifications provided below.

- *Size of patch* –The size of patch attribute was calculated using GIS and determined the impact area to be part of a patch size of larger than 500 ha. This achieved a score of **10 out of 10**.
- *Connectedness* – Connectedness was calculated by counting the number of active GHFF camps within a 20 km radius. There is 1 active camp within a 20 km radius of the offset area, and so the site scored a **3 out of 10**.
- *Context* – Existing habitat within a 20 km buffer of the site was calculated at 36.3%, and therefore the context attribute achieved a score of **6 out of 10**.
- *Ecological Corridors* –A score of **0 out of 10** as the site is not located within a regionally significant ecological corridor.
- *Role of site location to species overall population in the State* – There are no GHFF camps with a population level of 3+ within 20 km of the site so this attribute was assigned a score of **0 out of 10.**
- *Threats to the species* –Key known threats to the GHFF include barbed-wire fencing and powerlines. Barbed-wire fencing is present around the perimeter and throughout the offset area, however, as a precaution, a low level of threats was attributed, scoring **10 out 10**.

Species Stocking Rate (30 %)

The final component of the FHA technique is SSR. Species stocking rates are estimates of the GHFF carrying capacity of the site at the time of undertaking the survey. Stem density of GHFF foraging trees within AU1 and AU2 is highly limited, achieving an average of 6.67 and 7.50 stems per hectare, respectively, achieving scores of **2 out 10**. AU3 and AU4 contain on average 275 and 287.50 stems per hectare, respectively, scoring **4 out of 10**.

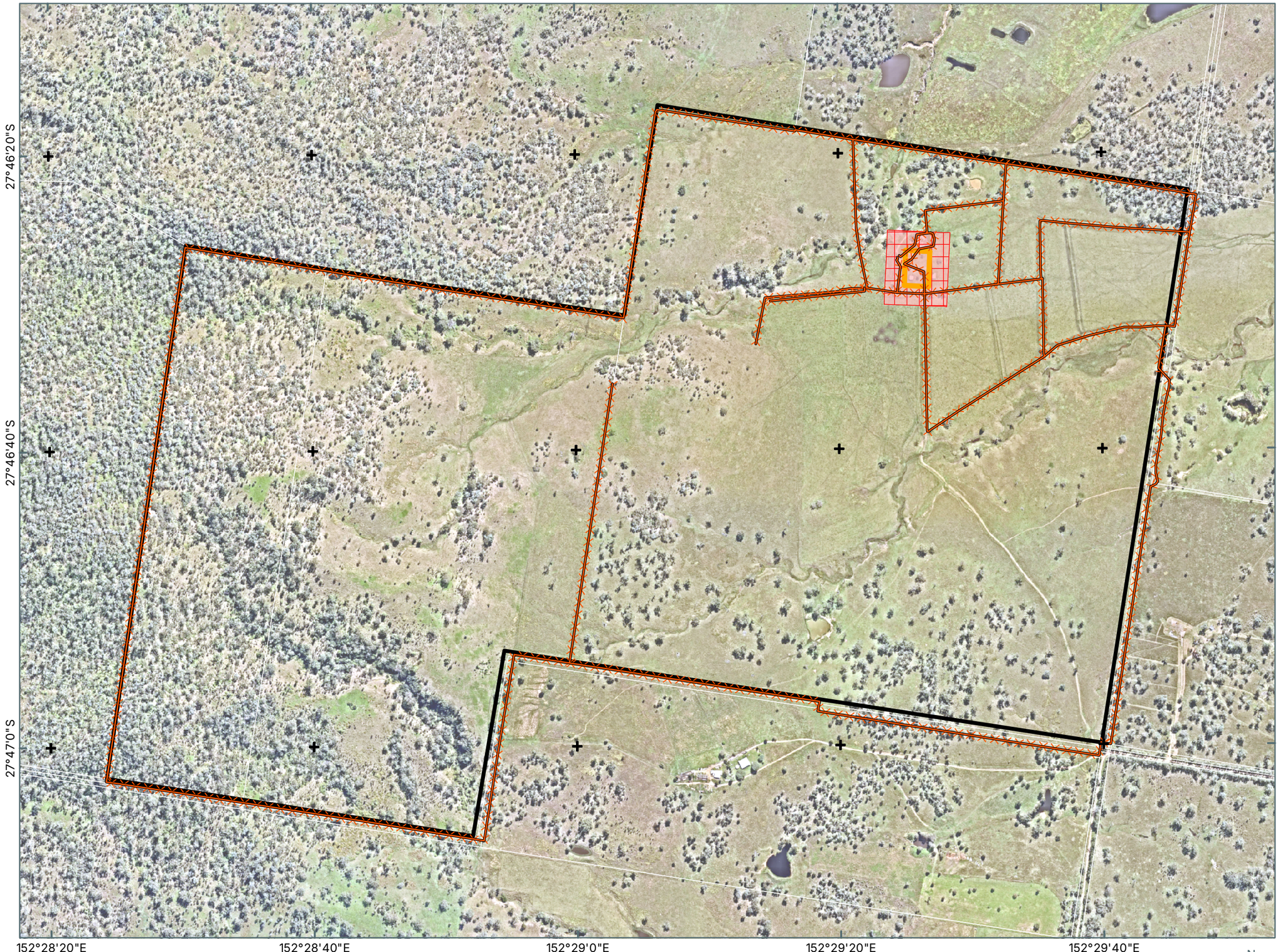
Summary of GHFF baseline scores

The overall baseline habitat quality scores for GHFF are presented in **Table 46**, with detailed scoring table provided at **Appendix E**.

Table 46: GHFF FHA assessment score summary

	AU1	AU2	AU3	AU4
Site Condition (/4)	0.53	1.23	2.12	2.40
Site context (/3)	1.20	1.20	1.20	1.20
Species stocking rate (/3)	0.60	0.60	1.20	1.20
MHQA score (rounded score)	**2.33 (2)**	**3.03 (3)**	**4.52 (5)**	**4.80 (5)**

19. GHFF THREATS - BARBED WIRE FENCING



Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders Havill.Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community
© State of Queensland (Department of Resources) 2026.
Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/

* Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Qld DCDB
- Offset Area [227.6 ha]
- Non-Offset Land Use Area [2 ha]
- Building Location Envelope - 0.4 ha
- Asset Protection Zone / Bushfire Management Zone - 1.6 ha
- Existing Barbed Wire Fencing

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

0 50 100 150 200 m
Transverse Mercator
GDA 2020 | Zone 56
N
1:8,000 @ A3

Address / RPD: MOUNT WALKER WEST

12/01/2026

9612 E 19 MWW GHFF Threats A

6.2.3 Swift Parrot – Foraging Habitat Assessment

The results of the foraging habitat assessment are presented below.

Two (2) preferred foraging species for the swift parrot were recorded within the offset area being *Eucalyptus tereticornis* (forest red gum) and *E. melliodora* (yellow box). It is estimated a total of 227 non-juvenile preferred foraging trees are present within the offset area (refer **Table 47**). A total of 20,458 non-juvenile trees comprising eucalypts, *Acacia* sp., *Allocasuarina* sp. and *Casuarina* sp. are estimated within the offset area (refer **Table 48**).

Table 47: Swift parrot baseline stem density (preferred foraging species)

AU	AU Area (ha)	Plot #	Count of non-juvenile preferred foraging trees (100 X 20 m plot)	Mean number per AU (100 X 20 m plot)	Estimate per hectare	Estimate per AU
1	50.8	9	0	0	0	0
1		10	0			
1		11	0			
1		12	0			
2	104.7	4	0	0	0	0
2		5	0			
2		6	0			
3	62.0	1	0	0.67	3.3	207
3		7	2			
3		8	0			
4	8.1	2	0	0.5		
4		3	1		2.5	20
					Total site (225.6 ha)	**227**

Table 48: Baseline stem density (all trees)

AU	AU Area (ha)	Plot #	Count of all non-juvenile trees (100 X 20 m plot)	Mean number per AU (100 X 20 m plot)	Estimate per hectare	Estimate per AU
1	50.8	9	3	1.5	7.5	381
1		10	0			
1		11	2			
1		12	1			
2	104.7	4	0	1.33	6.67	698
2		5	0			
2		6	4			
3	62.0	1	19	55	275	17050
3		7	60			
3		8	86			
4	8.1	2	60	57.5	287.5	2328
4		3	55			
					Total site (225.6 ha)	**20458**

Key foraging species to be reinstated within the offset area include *E. tereticornis* (forest red gum) and *E. melliodora* (yellow box).

The results of the planting capacity and density analysis are provided in **Table 49**. Out of the total planting capacity of 165,448 trees, a total of 57,007 are proposed to consist of preferred foraging trees for the swift parrot, resulting in a net total of 45,833 preferred foraging trees to protected and reinstated as a result of the offset, inclusive of an 80% survival rate of planted preferred foraging trees. This value was inputted as 'future value of the offset' for the OAG.

A Rehabilitation Management Plan is provided with this analysis to guide on-site planting works (refer **Appendix C**). The analysis and planting percentages of preferred foraging species is consistent with the RMP to ensure offset actions are completed as proposed in this analysis.

Table 49: Swift parrot planting capacity analysis

AU	Planting Area (ha)	Mapped Status	On-ground Status	Planting Rate	Total Tree Plantings	Foraging Species Proportion planted			Foraging Species Count – Planted	80% survival rate	Future value with offset
						E. tereticornis	E. melliodora	Combined			
AU1	50.8	Cat X	Paddock	1/10 m^2	50800	0.40	0	0.40	20320	16256	16256
AU2	104.5	Cat X	Paddock	1/10 m^2	104500	0.12	0.2	0.32	33440	26752	26752
AU3.1	37.5	Cat C	Dense Regrowth	1/100 m^2	3750	0.12	0.2	0.32	1200	960	2708
AU3.2	23.1	Cat C	Sparse Regrowth	1/50 m^2	4620	0.12	0.2	0.32	1478	1183	-
AU3.3	1.4	Cat C	Infill planting	1/10 m^2	1400	0.12	0.2	0.32	448	358	-
AU4.1	7.8	Cat B	Remnant	1/1000 m^2	78	0.12	0.2	0.32	25	20	117
AU4.2	0.3	Cat B	Infill planting	1/10 m^2	300	0.12	0.2	0.32	96	77	-
Total					**165448**				**57007**	**45606**	**45883**

6.2.4 Regent Honeyeater – Foraging Habitat Assessment

The results of the foraging habitat assessment are presented below.

One (1) preferred foraging species for the regent honeyeater was recorded within the offset area being *E. melliodora* (yellow box). It is estimated a total of 103 non-juvenile preferred foraging trees are present within the offset area (refer **Table 50**). A total of 20,458 non-juvenile trees comprising eucalypts, *Acacia* sp., *Allocasuarina* sp. and *Casuarina* sp. are estimated within the offset area (refer **Table 48**).

Table 50: Regent honeyeater baseline stem density (preferred foraging species)

AU	AU Area (ha)	Plot #	Count of non-juvenile preferred foraging trees (100 X 20 m plot)	Mean number per AU (100 X 20 m plot)	Estimate per hectare	Estimate per AU
1	50.8	9	0	0	0	0
1		10	0			
1		11	0			
1		12	0			
2	104.7	4	0	0	0	0
2		5	0			
2		6	0			
3	62.0	1	0	0.33	1.67	103
3		7	1			
3		8	0			
4	8.1	2	0	0		
4		3	0		2.5	0
					Total site (225.6 ha)	**103**

Key foraging species to be reinstated within the offset area includes *E. melliodora* (yellow box).

The results of the planting capacity and density analysis are provided in **Table 51**. Out of the total planting capacity of 165,448 trees, a total of 57,007 are proposed to consist of preferred foraging trees for the swift parrot, resulting in a net total of 45,833 preferred foraging trees to protected and reinstated as a result of the offset, inclusive of an 80% survival rate of planted preferred foraging trees. This value was inputted as 'future value of the offset' for the OAG.

A Rehabilitation Management Plan is provided with this analysis to guide on-site planting works (refer **Appendix C**). The analysis and planting percentages of preferred foraging species is consistent with the RMP to ensure offset actions are completed as proposed in this analysis.

Table 51: Regent honeyeater planting capacity analysis

AU	Planting Area (ha)	Mapped Status	On-ground Status	Planting Rate	Total Tree Plantings	Foraging Species Proportion planted E. melliodora	Foraging Species Count – Planted	80% survival rate	Future value with offset
AU1	50.8	Cat X	Paddock	1/10 m^2	50800	0	0	0	0
AU2	104.5	Cat X	Paddock	1/10 m^2	104500	0.2	20900	16720	16720
AU3.1	37.5	Cat C	Dense Regrowth	1/100 m^2	3750	0.2	750	600	1667
AU3.2	23.1	Cat C	Sparse Regrowth	1/50 m^2	4620	0.2	924	739	-
AU3.3	1.4	Cat C	Infill planting	1/10 m^2	1400	0.2	280	224	-
AU4.1	7.8	Cat B	Remnant	1/1000 m^2	78	0.2	16	12	60
AU4.2	0.3	Cat B	Infill planting	1/10 m^2	300	0.2	60	48	-
Total					**165448**		**22930**	**18344**	**18447**

6.2.5 Non-native Vertebrate Pest Abundance Surveys

The results of the baited camera trap survey (recorded species and number of occurrences over days of camera deployment) were utilised to provide relative abundance of non-native vertebrate pest species over the offset area, reducing bias and increasing repeatability.

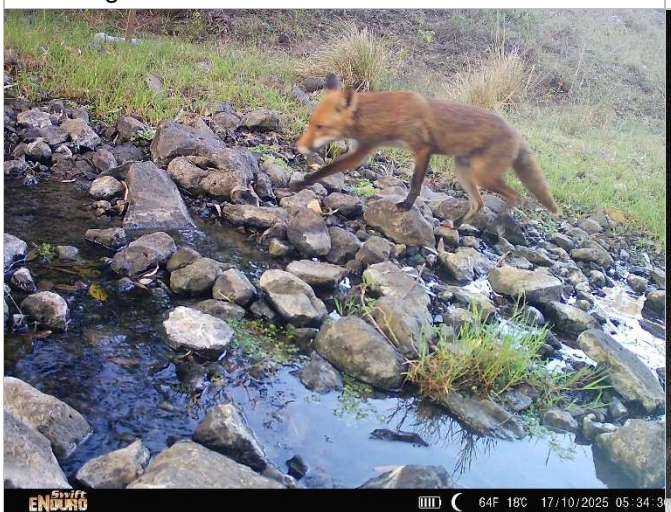
Several feral animals were observed over the 280-day combined survey timeframe including wild dogs, European red foxes and feral pigs. The results of predator and herbivore RAI are provided in **Table 53** and **Table 53**. The RAI for predator species is **3.92** and for herbivore species is **18.57**, consisting of feral pigs.

Refer to **Photo set 16** for a sample of pest animals captured within the offset area during camera monitoring.

In addition, the following native animals were observed: *Phascogale tapoatafa* (brush-tailed phascogale), *Trichosurus vulpecula* (common brushtail possum), *Macropus giganteus* (eastern grey kangaroo) and *Notamacropus parryi* (pretty-faced wallaby).

Wild dog

Wild dog



European red fox

Feral pig and piglets

Photo set 16: Non-native vertebrate pest species detected within offset area during baseline camera monitoring.

Table 52: Baseline non-native predator survey detections and RAI

Camera	Survey Duration (nights)	Species	Detection	RAI
1	28	Nil	Nil	**3.92**
2	28	*Canis lupis familiaris* (Wild dog)	1	
3	28	*Vulpes vulpes* (European red fox)	3	
4	28	*Vulpes vulpes* (European red fox)	2	
5	28	Nil	Nil	
6	28	*Vulpes vulpes* (European red fox)	2	
7	28	*Vulpes vulpes* (European red fox) *Canis lupis familiaris* (Wild dog)	1 1	
8	28	Nil	Nil	
9	28	Nil	Nil	
10	28	*Canis lupis familiaris* (Wild dog)	1	
Total	**280**	**2**	**11**	

Table 53: Baseline non-native herbivore survey detections and RAI

Camera	Survey Duration (nights)	Species	Detection	RAI
1	28	Nil	Nil	**18.57**
2	28	*Sus scrofa* (wild pig)	10	
3	28	*Sus scrofa* (wild pig)	15	
4	28	Nil	0	
5	28	Nil	Nil	
6	28	Nil	Nil	
7	28	*Sus scrofa* (Wild pig)	27	
8	28	Nil	Nil	
9	28	Nil	Nil	
10	28	Nil	Nil	
Total	**280**	**1**	**52**	

6.2.6 Weeds of National Significance Mapping

The offset area was mapped into four (4) Weed Management Zones (WMZs) detailed in **Table 54** and displayed on **Plan 17**. The transect IDs are also provided in the table. Raw weed cover data including baseline north, south, east and west photos taken from the 50 m centre-point location are provided at **Appendix G**.

Table 54: Weed Management Zones and transects

Weed Management Zone	Size (ha)	Percentage of offset area	Transect ID
1 – Open pasture – exotic grasses and herbaceous weeds (Low <10%)	156.3	69.2%	5, 7, 11, 12, 13
2 – Eucalypt woodland with minimal weeds (Low <10%)	21.0	9.3%	6, 8, 9, 10
3 – Eucalypt woodland – scattered lantana (10-20%)	42.5	18.8%	1, 2, 3, 4
4 – Eucalypt woodland – moderate-high lantana (>60%)	5.8	2.7%	14, 15

A total of 20 weed species were recorded across line-transect sites including three (3) listed WONS being *Lantana camara* (lantana) and *Opuntia tomentosa* (velvety tree pear) and *Senecio madagascariensis* (fireweed) and eight (8) species listed as Category 3 – restricted under the Queensland *Biosecurity Act 2014* (refer **Table 55**).

The recorded cover of WONS, other weeds, native species and bare ground recorded at each line-transect site is provided in **Table 56**. Native grass as recorded in the surveys was dominated by *Digitaria didactyla* (Queensland couch) and *Heteropogon contortus* (black speargrass). The dominant WONS species is lantana and the dominant other weed not defined as a WONS is *Melinis repens* (red natal grass) and *Gomphocarpus physocarpus* (balloon cotton bush). Localised infestations of Celtis sinensis are present within drainage gully lines. Refer to **Photo set 17**.

The total estimated area of WONS cover within the offset area is **46.90 ha** (refer **Table 57**) and **17.80 ha** for other weed species (refer **Table 58**).

Weed mapping and targeted line-transect surveys will be repeated at established locations as part of prescribed milestone survey events to demonstrate changes in cover of weeds with treatment. As stated in the methodology, additional transects may be completed where weed composition and location changes.

Table 55: Recorded weed species within offset area during baseline surveys

Scientific Name	Common Name	Listing	WMZ 1	WMZ 2	WMZ 3	WMZ 4
Achyranthes aspera	Devil's Horsewhip			✓		
Asclepias curassavica	Red-headed Cotton Bush			✓	✓	
Axonopus compressus	Broadleaf Carpet Grass		✓	✓		
Bidens pilosa	Cobbler's Pegs		✓			
Celtis sinensis	Chinese Elm	Category 3	✓		✓	
Chloris virgata	Feathertop Rhodes Grass		✓			

Scientific Name	Common Name	Listing	WMZ 1	WMZ 2	WMZ 3	WMZ 4
Cirsium vulgare	Spear Thistle		✓		✓	
Emilia sonchifolia	Emilia		✓			
Gomphocarpus physocarpus	Balloon Cotton Bush	Category 3	✓	✓		✓
Gomphrena celosioides	Gomphrena Weed		✓			
Hypochaeris glabra	Smooth Cat's Ear		✓			✓
Lantana camara	Lantana	Category 3, WONS	✓	✓	✓	✓
Lantana montevidensis	Creeping Lantana	Category 3				✓
Melinis repens	Red Natal Grass		✓	✓	✓	✓
Onopordum acanthium	Scotch Thistle	Category 3	✓			✓
Opuntia tomentosa	Velvety Tree Pear	Category 3, WONS			✓	✓
Senecio madagascariensis	Fireweed	Category 3, WONS	✓	✓		
Sporobolus pyramidalis	Giant Rat's Tail Grass	Category 3				✓
Stachytarpheta jamaicensis	Jamaican Blue Porterweed		✓	✓		✓
Verbena bonariensis	Purpletop Verbena					✓

Table 56: Weed cover (Line-transect methodology)

WMZ	Transect	WONS cover (m)	Other weeds cover (m)	Native cover (m)	Bare ground (m)
WMZ 1	05	68.90	10.10	21.00	0.00
WMZ 1	07	01.00	00.00	98.90	0.00
WMZ 1	11	08.35	23.40	68.25	0.00
WMZ 1	12	04.35	06.90	88.75	0.00
WMZ 1	13	10.53	04.50	84.97	0.00
WMZ 2	06	01.90	00.40	96.00	1.70
WMZ 2	08	04.50	00.00	95.50	0.00
WMZ 2	09	09.20	00.50	90.30	0.00
WMZ 2	10	09.20	02.10	88.70	0.00
WMZ 3	01	68.90	10.10	21.00	0.00
WMZ 3	02	07.00	13.40	79.60	0.00
WMZ 3	03	24.00	04.20	65.30	6.50
WMZ 3	04	22.60	00.00	77.40	0.00

WMZ	Transect	WONS cover (m)	Other weeds cover (m)	Native cover (m)	Bare ground (m)
WMZ 4	14	74.00	09.40	11.90	4.70
WMZ 4	15	48.00	12.90	34.40	4.70

Table 57: Estimated cover of WONS

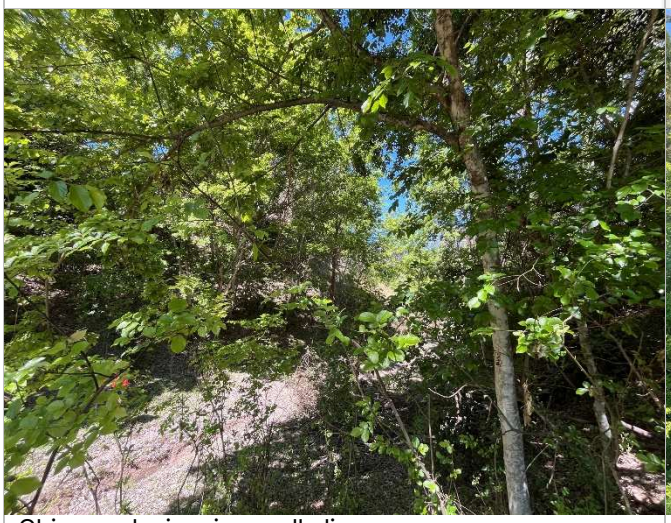
Weed Management Zone	Area (ha)	Percentage WONS cover (based on transect results)	Estimated area of WONS cover (ha)
WMZ 1	156.30	18.60%	29.10
WMZ 2	21.00	6.20%	1.30
WMZ 3	42.50	30.60%	13.00
WMZ 4	5.80	61.00%	3.50
Total for offset area	**225.6**	-	**46.90**

Table 58: Estimated cover of other weeds

Weed cover category	Area (ha)	Percentage other weeds cover (based on transect results)	Estimated area of other weed cover (ha)
WMZ 1	156.30	8.98%	14.04
WMZ 2	21.00	0.75%	0.16
WMZ 3	42.50	6.93%	2.95
WMZ 4	5.80	11.15%	0.65
Total	**225.6**	-	**17.80**

Fireweed in open paddock

Lantana in remnant vegetation



Chinese elm in minor gully line

Chinese elm in south-western major gully

Photo set 17: WONS and other weed species detected within offset area.

7. Management Framework

This section outlines the management framework to be implemented for the life of the offset (20 years) including management measures to be implemented by the engaged Land Manager and appointed contractors, annual monitoring requirements, and interim milestone monitoring of environmental outcomes for relevant management actions to be completed by a suitably qualified person at Years 5, 10, 15 and 20 of the offset. These management actions are designed to minimise the risks associated with key threatening processes to the target MNES and enhance the quality of the habitat within the offset area. The proposed monitoring actions are summarised in a monitoring and reporting schedule in **Section 7.8 – 7.10**.

There are six (6) management actions identified as relevant and necessary for the offset area to achieve outcomes which will benefit the impacted MNES and/or their potential foraging habitat. The management actions focus on the recreation of habitat for the impacted protected matters, while also reducing threats. Although there may be overlap between some of the management actions, all management actions are considered to contribute to the improvement of MNES habitat at the offset area and over the broader site.

Actions to be completed in accordance with this OAMP include:

- **Management Action 1:** Legally securing offset area.
- **Management Action 2:** Non-native vertebrate pest management
- **Management Action 3:** Weeds of National Significance Control (prevention and management)
- **Management Action 4:** Bushfire Management
- **Management Action 5:** Habitat Creation and Regeneration
- **Management Action 6:** Fencing and Trespass Management

The following detailed information is included in the following sections:

- Management action justification;
- Management action location;
- Management action tasks and completion criteria;
- Management action risk reduction measures;
- Management action timing and preliminary completion criteria;
- Management action responsibility;
- Management action monitoring; and
- Management action risks and adaptive management.

The management actions outlined in the following subsections are considered effective for the listed status of each MNES in addition to the size and scale of the offset and the focus on priority management actions, which are efficient, timely and transparent (*i.e.,* able to be monitored and are auditable). Additionally, a number of these measures correspond to Priority Management Actions outlined in the following documents:

- Approved Conservation Advice for *Phascolarctos cinereus* (combined populations of Queensland, New South Wales and the Australian Capital Territory) (Koala Northern Designable Unit) (DAWE, 2022a).
- National Recovery Plan for the Koala *Phascolarctos cinereus* (DAWE, 2022b).
- National Recovery Plan for the Grey-headed Flying-Fox (*Pteropus policephalus*) (DAWE, 2021).
- National Recovery Plan for the Swift Parrot *Lathamus discolor* (DCCEEW, 2024).
- National Recovery Plan for the Regent Honeyeater (*Anthochaera phrygia*) (DoE, 2016).

While measures have been developed to achieve the required offset environmental outcomes as a priority, they will deliver an overall improvement in the condition and quality of the environment which will benefit a wide range of native species present within the offset area.

7.1. Environmental Management Zones

For the purpose of the management framework, Environmental Management Zones (EMZs) have been included to better target management actions necessary for the differing values present within each AU. The EMZs detail the different actions required to achieve the environmental outcomes. The offset area has been delineated into 7 EMZs and corresponds to an AU.

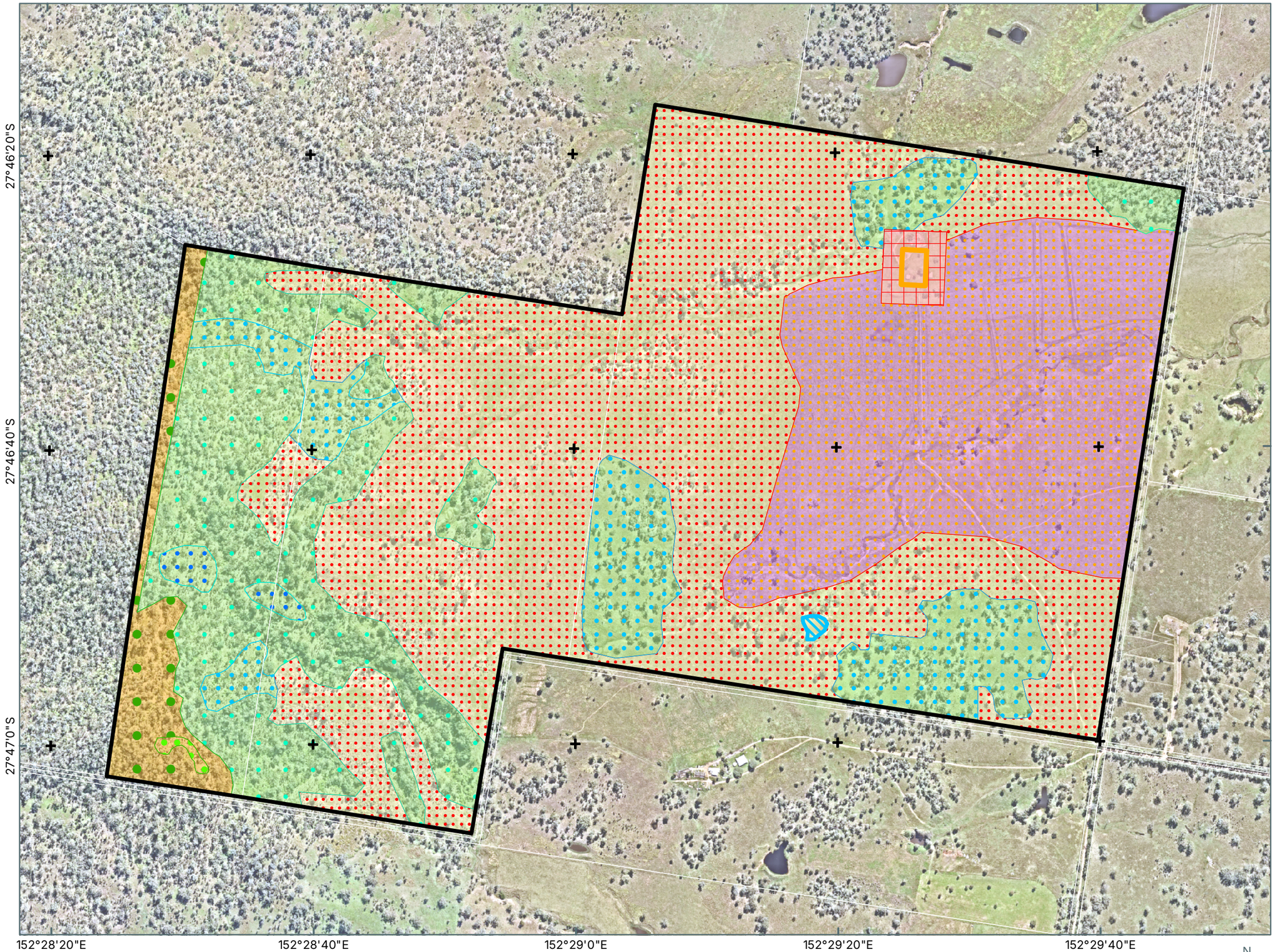
- EMZs 1, 2, 3.3 and 4.2 will be managed predominantly through reconstruction techniques involving broadscale planting.
- EMZs 3.1, 3.2 and 4.1 will primarily use assisted natural regeneration techniques with sparse infill planting to support regeneration.

Details of these EMZs are presented in **Table 59** and shown on **Plan 20**.

Table 59: Environmental Management Zones

EMZ	Area (ha)	AU	Vegetation Form	Planting Density	Regional Ecosystems
1	50.8	1	Paddock	1 per 10 m^2	RE12.3.3
2	104.7	2	Paddock	1 per 10 m^2	RE12.8.17/12.8.16
3.1	37.5	3	Dense Regrowth	1 per 100 m^2	RE12.8.17/12.8.16
3.2	23.1	3	Sparse Regrowth	1 per 50 m^2	RE12.8.17/12.8.16
3.3	1.4	3	Paddock	1 per 10 m^2	RE12.8.17/12.8.16
4.1	7.8	4	Remnant	1 per 1000 m^2	RE12.8.17/12.8.16
4.2	0.3	4	Paddock	1 per 10 m^2	RE12.8.17/12.8.16

20. ENVIRONMENTAL MANAGEMENT ZONES



Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders HavillUnless a development approval states otherwise, this is not an approved plan.

Layer Sources
Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community
© State of Queensland (Department of Resources) 2026.
Updated data available at
http://qldspatialinformation.qld.gov.au/catalogue/
* Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Qld DCDB
- Offset Area [227.6 ha]
- Waterbodies [0.2 ha]
- Non-Offset Land Use Area [2 ha]
- Building Location Envelope - 0.4 ha
- Asset Protection Zone / Bushfire Management Zone - 1.6 ha

Assessment Units

- *Assessment Unit 1:* Non-remnant RE 12.3.3 [50.8 ha]
- *Assessment Unit 2:* Non-remnant RE 12.8.17 [104.7 ha]
- *Assessment Unit 3:* Regrowth RE 12.8.17 [62 ha]
- *Assessment Unit 4:* Remnant RE 12.8.17 [8.1 ha]

Environmental Management Zones

- **Environmental Management Zone 1:** Non-remnant Paddock RE12.3.3 (Reconstruction) [50.8 ha]
- **Environmental Management Zone 2:** Non-remnant Paddock RE12.8.17 (Reconstruction) [104.7 ha]
- **Environmental Management Zone 3.1:** Dense Regrowth RE12.8.17 (Assisted Natural Regeneration with Infill Planting) [37.5 ha]
- **Environmental Management Zone 3.2:** Sparse Regrowth RE12.8.17 (Assisted Natural Regeneration with Infill Planting) [23.1 ha]
- **Environmental Management Zone 3.3:** Infill Planting RE12.8.17 (Assisted Natural Regeneration with Infill Planting) [1.4 ha]
- **Environmental Management Zone 4.1:** Remnant Vegetation RE12.8.17 (Assisted Natural Regeneration with Infill Planting) [7.8 ha]
- **Environmental Management Zone 4.2:** Infill Planting RE12.8.17 (Assisted Natural Regeneration with Infill Planting) [0.3 ha]

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

0 50 100 150 200 m
Transverse Mercator
GDA 2020 | Zone 56
1:8,000 @ A3

Address / RPD: MOUNT WALKER WEST

12/01/2026

9612 E 20 MWW Offset EMZs A

7.2. Management Action 1 – Legally Secure Offset Area

The offset area must be protected and managed against known and potential threats for the target MNES in perpetuity to attain a conservation gain. As such, the offset area will be legally secured within 12 months of the approval and prior to any clearing at the impact site. Securement will occur via VDEC administered under the VMA. Notification of declaration will be supplied to DCCEEW. The offset area will be permanently secured via a legal mechanism that is approved by the Land Holder and the Department. Draft terms of the permanent legal mechanism to be submitted for approval within 18 months of commencement of the action. Within 12 months of approval of the draft terms the offset site must be permanently secured.

The declared area will be recognised as making significant contribution to the conservation of biodiversity. The appointed Land Manager will continue to manage the offset for the life of the offset and will report on activities annually to the proponent. The act of legal securement is listed in the Conservation Advices as a Priority Management Action, under "Habitat Loss, Disturbance and Modification."

7.3. Management Action 2 – Non-native Vertebrate Pest Management

7.3.1 Justification

A core role of management action 1 will be for the ongoing control and reduction in identified primary pest species know to be a direct threat to listed MNES, namely wild dogs with a secondary focus on European red foxes, and feral cat over the offset area for the offset period. Other pest species, which have indirect impacts on the ecosystems that support the MNES species, should be managed as seen fit in order to reduce their impact to rehabilitation efforts. This includes non-native vertebrate pest species being the feral pig, European rabbit, European brown hare, feral rusa deer and red deer, which are known to damage native vegetation, spread weed seeds and foul water. Refer to **Figure 13** for non-native feral animals requiring prioritisation.

Fauna surveys were conducted within the broader offset property to determine the presence of pest species, with a particular focus on wild dogs due to their known threat to koala. Motion sensor cameras were deployed across the entire proposed offset area in order to provide baseline data. Refer to **Table 60** for a list of key threatening non-native vertebrate pest species known to impact MNES direct and indirectly through damage to habitat.

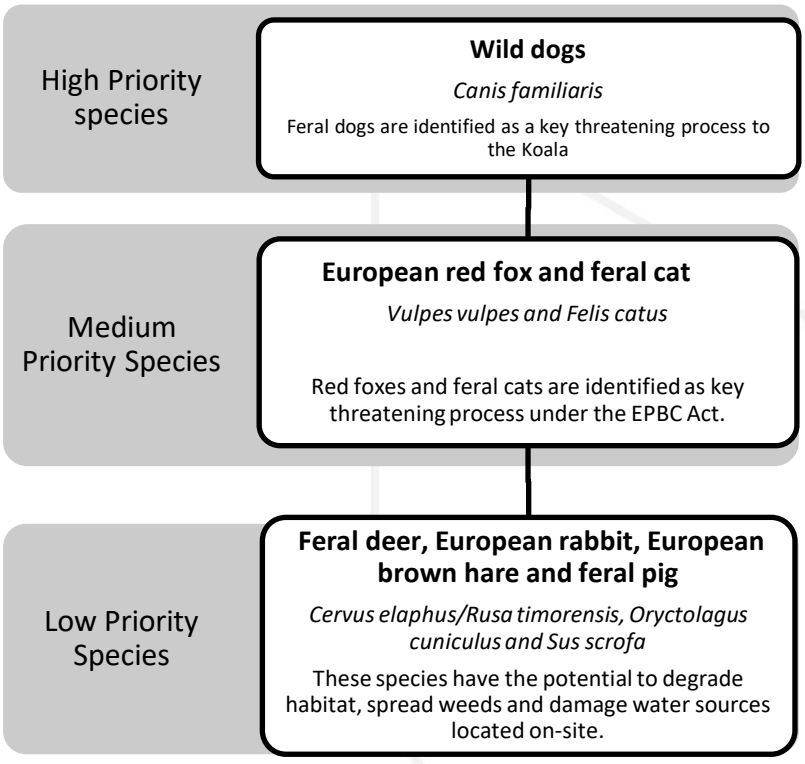


Figure 13: Threat Management Prioritisation

Table 60: Offset area invasive fauna species matters identified as threats to MNES

Species	*Biosecurity Act 2014* – Restricted Category	ICC Declared Pest Animals or Weeds
Canis familiaris dingo, Canis familiaris dingo X Canis familiaris, Canis familiaris (wild dog)	3,4,6	Yes
Felis catus (feral cat)	3,4,5,6	Yes
Sus scrofa (feral pig)	3,4,6	Yes
Vulpes vulpes (European red fox)	3,4,5,6	Yes
Cervus timorensis (feral rusa deer)	3,4,6	No
Cervus elaphus (feral red deer)	3,4,6	Yes
Oryctilagus cuniculus (European rabbit)	3,4,6	Yes
Lepus europaeus (European brown hare)	3,4,6	Yes

Wild Dogs

The Department of Agriculture and Fisheries (DAF) lists feral dogs as abundant and widespread throughout the Scenic Rim region. Wild dogs (Canis familiaris dingo, Canis familiaris dingo X Canis familiaris, Canis familiaris) are listed as declared pest animals by Ipswich City Council.

Predation rates by wild dogs are difficult to quantify because attacks often occur in locations infrequently visited by people and the carcasses of the killed animals are buried, eaten, or may go undetected (Beyer et al. 2018). Wild dog attack is routinely cited as one of the main causes of mortality of koalas (Rhodes et al. 2011; Gonzalez-Astudillo et al. 2017; Beyer et al. 2018).

Removal of the wild dog threat produced significant gains in the survival of koalas in a study where the causes of mortality of 291 Koalas were tracked over four years (Beyer et al. 2018). Wild Dogs were confirmed as the cause of death for 117 (40.2% of total) deaths during the study. In addition, wild dogs were attributed to but not confirmed for another 38 (13.1% of the total) deaths. Population growth rates of koala in the study increased from 0.659 in the first year to 1.20 in the fourth year of the project through a combination of reduction in predation and disease treatment. Modelling indicated that the population would increase in size by 21% within a decade with continued management (Beyer et al. 2018).

ICC currently runs baiting, shooting and trapping programs throughout the region. Most wild dog baiting uses meat baits infused with sodium fluoroacetate, commonly called 1080; an environmentally responsible option for invasive species control due to its minimal impact on native animals (NWDAP, 2020). Dogs and foxes are highly susceptible to 1080, and the small amount required to target these species poses a minimal threat to non-target species.

European Red Fox

European red fox (*Vulpes vulpes*) is listed as a major threat to the survival of several of the listed species Conservation Advice. DAF lists foxes as being widespread across Australia due to being highly adaptable and opportunistic feeders. ICC also lists this species as being abundant throughout the region, with trapping programs widely conducted. The Australian Government's 2022-2023 Threatened Species Action Plan includes targets to manage foxes in important habitats for threatened species. The Queensland Government sites several control methods for this species, including shooting, trapping, fencing, baiting, and livestock guardian dogs, combined with land management (Business Queensland, 2021). Evidence of European red fox was recorded within the offset area as part of baseline camera monitoring.

Feral Cats

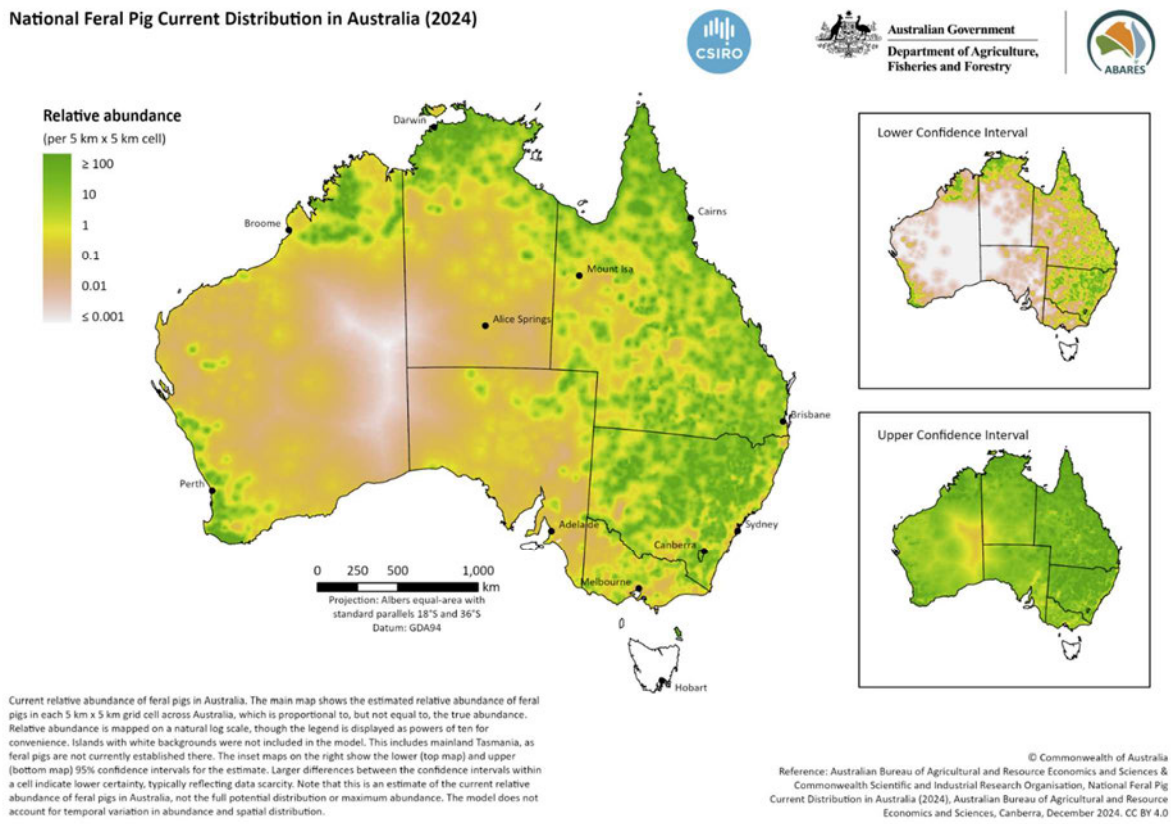
The DCCEEW state that feral cats (*Felis catus*) pose a significant threat to many nationally listed threatened species. This species is known to predate on native species, spread diseases and reduce viable habitat for species most at risk. It is recorded that they are a threat to more than 120 nationally listed threatened species, including greater glider and swift parrot, and have been implicated in 28 mammal extinctions (DCCEEW, 2023). For this reason, predation by feral cats has been listed as a Key Threatening Process (KTP) under the *Environment Protection and Biodiversity Conservation Act 1999*.

The Australian Government's 2022-2023 Threatened Species Action Plan highlights that in order to tackle the impacts of feral cats' engagement and collaboration from the Australian Government with private and agricultural sectors is necessary. Therefore, the proposal to implement feral cat and fox management for this project, into a large area of potential threatened species habitat corresponds with both local and federal government objectives concerning the species. Feral cat control tools currently available include shooting, trapping, fencing, baiting and grooming traps. DCCEEW indicate that the most effective form of feral cat control over large areas is poison baiting.

Feral Pig

Feral pigs (*Sus scrofa*) are opportunistic omnivores and will consume a wide range of animals including small mammals and birds. Feral Pigs are also widely known to cause significant environmental destruction to soil and vegetation via digging, spreading weeds and consuming vegetation. Therefore, the presence of feral pigs can cause the destruction of current habitat value and water resources and indirectly impacting essential habitat areas for the listed MNES.

Feral pigs were confirmed in relatively high abundance within the offset area through baseline camera monitoring and as a result, present a threat to the proposed habitat restoration. In addition, CSIRO's *National Feral Pig Current Distribution in Australia (2024)* modelling indicates relative abundance of Feral Pig within the ICC/SRRC region to be ≥100 per a 5km x 5km area (refer **Insert 4**).



Insert 4:National Feral Pig Current Distribution in Australia (2024)

Feral Deer

Feral deer such as red deer (*Cervus elaphus*) and rusa deer (*Rusa timorensis*) pose significant threats to ecological restoration through their browsing of seedlings and under-storey plants, ring-barking and bark-stripping of young trees, trampling of regenerating vegetation and disturbance of soil through wallowing or hard-hoofed movement. These behaviours reduce vegetation recruitment, alter species composition and degrade habitat structure; moreover, the soil disturbance they cause can create bare patches that facilitate invasive weeds, undermining restoration efforts. Ecological restoration therefore faces a heightened risk of failure if deer populations are unmanaged, particularly in planting or natural regeneration areas where plant establishment is critical.

While specific site-based case studies for red deer or rusa deer within the region are limited in public documentation, national research and regional control programs in SEQ indicate that rusa deer can maintain home-ranges of a few hundred hectares in peri-urban and bushland fringe settings (making them locally manageable) and hence pose a realistic threat to restoration success within the offset area.

7.3.2 Proposed Action and Management Measures

Management measures will be implemented by the Offset Provider for the life of the offset (20 years) for the control of the pest species. Proposed invasive species control methods to be implemented include:

- Development and implementation of a property Pest Management Plan (PMP) specifying techniques (trapping, baiting, shooting) and ongoing monitoring methods (including datasheets) will be utilised, completed within Year 1 of the offset
- Adjacent land holders will be consulted for the potential of collaboration in a localised landscape-wide pest management effort.
- Cooperative participation in non-native predator management planning and implementation with local land managers (government departments, local governments and utility providers) will occur to ensure effective management in the locality of the offset area, being ICC.
- Signage installation informing that feral animal control being undertaken within the offset area.

Control methods that may be implemented at the discretion of the suitably qualified pest contractor for pest species are listed in **Table 58** and **Table 62**. These have been adapted from the *National Wild Dog Action Plan: Promoting and supporting community-driven action for landscape scale wild dog management* (WoolProducers Australia 2014). Any control methods will be used in consultation with local residents and authorities. This may use the follow techniques:

The control and prevention of invasive animal incursions will be undertaken in accordance with the relevant legislation (such as the *Commonwealth Biosecurity (Consequential Amendments and Transitional Provisions) Act 2015* and the *Queensland Biosecurity Act 2014*) and include the control of non-native predators by legal methods by suitably qualified pest management contractor(s). Any required hazardous materials must be handled and stored in accordance with the material's safety data sheets and the *Approved Code of Practice for the Storage and Handling of Dangerous Goods*. Non-native predator control will be undertaken in a humane manner.

Scientific Name	Common Name	Baiting	Fencing	Shooting	Trapping
Canis familiaris	Wild Dog	Y	Y	Y	Y
Felis catus	Feral Cat	Y	Y	Y	Y
Vulpes vulpes	Red Fox	Y	Y	Y	Y
Sus scrofa	Feral Pig	Y	Y	Y	Y
Bos taurus	Domestic Cow	N	Y	N	N

** Y indicates appropriate management action; N indicates inappropriate management action*

Table 61: Recommended control methods for identified pest species

Table 62: Predator species control methods - adapted from WoolProducers Australia 2014

Method	Efficacy	Cost effectiveness	Target specificity	Humaneness acceptability	Comment
Ground baiting with 1080	Effective for Wild Dogs, Feral Pigs, European Hare and European Red Fox	Cost-effective	High	Conditionally acceptable	Currently the most cost-effective technique available. Poison baits are made from raw animal meat or offal or manufactured baits are used. Average and minimum weights vary between states. Sodium fluoroacetate (1080) is the main toxin used for control of Wild Dogs – reference to relevant State directions for use will be required.
Shooting to euthanise trapped feral pest species	Effective	Cost-effective	High	Acceptable	Effective technique although will require to be completed in accordance with existing State laws and guidelines.
Ground shooting	Can be effective to target individual Dogs / European Red Fox / Deer / Feral Pig – largely opportunistic	Moderately expensive and time consuming	Moderate to high	Conditionally acceptable, dependent on skillset of shooter. Welfare issues arise if animal is not shot humanely	Limited effectiveness for broadscale population reduction, however, can achieve sustained control within a local area.
Exclusion fencing	Effective in suitable areas, particularly where revegetation is occurring to protect from Feral Pig, Deer and European Hare.	Expensive	Can be effective in specific situations	Acceptable	Requires substantial resource input both initially, during installation, and in an ongoing capacity due to high maintenance requirements. Electric fencing can be an effective barrier when used appropriately and in conjunction with supplementary management techniques. Often adequate defence against reinvasion of controlled areas. Due to high levels of maintenance and upkeep required, fencing can be difficult to effectively maintain.
Aversion techniques	Not known	Not known	Not certain – possible short-term until target species become familiar with technique	Acceptable	Suggested aversion methods include flashing lights, sounding alarms, objects flapping in the wind and chemicals.

7.3.3 Management Action Responsibility

The proponent is responsible for establishing, funding, and resourcing the pest management activities. To ensure effective implementation, the following are required:

1. All contractors for all pest control measures will be suitably qualified.
2. Pest control contractors will be responsible for the upkeep of appropriate training for all pest control staff.
3. Pest control contractors will be responsible for the data collection and upkeep of all pest control and monitoring data and provide the data to the proponent when available and required for reporting annually and in 5-yearly summaries of previous outcomes.
4. Lethal controls will consist of best practice management measures as outlined.

7.3.4 Completion Criteria

Timing	Completion Criteria
Year 1	Develop Pest Management Plan with a focus on wild dog and feral pig management.
Year 2 – 20	Implement the Pest Management Program to ensure: • Suppression of feral animal species (predators and herbivores) and their impacts within the offset area particularly wild dogs and feral pigs which were identified with a baseline RAI of 3.92 and 18.57, respectively. • Minimise MNES injury and mortality to the greatest extent possible within the offset area for the life of the offset. • Minimise potential damage to rehabilitation plantings and areas to receive plantings through management of feral pigs and other non-native herbivore species – timing to be in conjunction with rehabilitation.
Years 5, 10, 15	Complete review of PMP based on available data and endorsed guidelines and including a review of management techniques and adaptive management strategies where appropriate.

Koala Mortality Rate and Caveats

With relevance to the completion criteria, assessment of koala injury or death attributable to feral animals needs to be assessed. Koala mortality is typically recorded through passive means including incidental observation of deceased koalas determined from physical observation of the kill site and the deceased individual (Hanger et al. 2017). In some studies of koala mortality researchers are interested in discerning between predator species and domestic and wild animals in peri-urban environments and in these studies utilise genetic analysis of the deceased individual to confirm the identity of the predator (Gentle et al. 2019, Hanger et al. 2017). However, it is considered that for the purposes of implementing this OAMP, which is primarily concerned with documenting the extent to which predators are generally responsible for koala mortality, the cause of mortality (*i.e.,* predation or other) can be understood through physical observation of the deceased koala at the kill site. Due to the context of the site, it is most likely that the cause of koala mortality would be due to predators rather than urban mortality drivers such as vehicle strike.

Incidental observation is used as the primary means for detection of koala mortality and will be integrated into the broader baseline survey effort of the offset site including during non-fauna targeted assessments such as surveys for vegetation Site Condition and weed mapping.

7.3.5 Management Action Monitoring

The effectiveness of pest management actions will be measured and monitored through a structured process:

1. Annual scheduled pest surveys and control (Years 2–20) reported.

2. Progressive reporting will consist of annual reports and also 5-yearly summaries of previous pest management outcomes.
3. Annual Compliance Reports – Each survey's findings and pest management outcomes etc. will be included in the annual and 5-yearly reporting to be adopted into Annual Compliance Reports.

A suitably qualified ecologist will complete monitoring for non-native vertebrate pests before the end of Years 5, 10, 15 and 20 of the offset with the aim of demonstrating:

- Relative abundance of non-native vertebrate pests on-site with reference to baseline data;
- Feral animal scat / track or imprint evidence at targeted survey locations;
- Site population census on infrared drone and baited remote sensor camera surveys;
- Occurrence of injury or mortality on MNES attributed to vertebrate pest species.

The following monitoring methodology will be implemented by a suitably qualified person in accordance with the baseline survey methodology detailed in **Section 6.1.8**.

- Desktop Assessment
    - Review previous survey mapping and camera locations, field datasheets, photos and notes.
- Field Survey
    - Grid-based motion detection camera deployment for minimum of 28 nights within the offset area at Years 5, 10, 15 and 20, preferably in the same season as baseline surveys (spring). Motion detection camera locations are to be recorded with hand-held GPS. GPS coordinates and photos to be recorded. New camera monitoring locations will be established during Year 1 of the offset within the offset area to enable the collection of offset area-specific data to be repeated for the life of the offset.
    - Field datasheet will detail the time of year of the monitoring event, record observed scats or tracks, photo location and notes of any evidence of positive and/or negative changes in non-native predator occurrence.
    - A GPS will be used to locate the presence of non-native predator species, with a focus on species identified during baseline field surveys via notable tracks or scats.
    - Transfer GPS data to spatial data programs to generate non-native predator occurrences and collate all data in excel spreadsheets and save all digital photos to file for ongoing monitoring and reporting purposes.
    - Where non-native predator presence is detected, targeted trapping and baiting programs will be triggered.

7.3.6 Management Action Reporting

- Milestone pest monitoring survey results will be reported by the suitably qualified person in the 5, 10, 15 and 20 Year Milestone Reports. This will provide detail on survey methodologies and detected predator abundance with reference to the baseline survey data.
- Implementation of the PMP and results of pest management program including detail on detected species, control efforts, and total trapped/baited individuals during the given management period and identified trends of the population of non-native predators within the offset area, will be detailed annually by the Land Manager in Offset Area Annual Reports.
- OAARs and/or Milestone Reports will be included in the relevant Annual Compliance Report.

7.3.7 Management Action Adaptive Management

Without intervention and active management, the risk of feral animal impacts on MNES and their habitat are assessed as 'high'. This is based on regional and local government data on feral animals combined with evidence of livestock predation recorded on-site and an abundance of research in the surrounding area indicating the prevalence of feral dogs, European fox and feral cats. The pest management strategies incorporate intensive implementation methods

and three major data collection survey events for confirming base case and successful reduction of pest management impacts.

The pest management program will use a combination of pest management monitoring data collected from pest management contractors and monitoring data collected through annual or 5-yearly surveys to inform site management. Major survey and review periods for review of the OAMP are set at Years 5, 10 and 15 to ensure the program achieves long-term reduction and does not respond to specific stochastic events such a contextual fluctuation in pest populations such as wild dogs.

Triggers for adaptive management include:

1. Following positive records from pest monitoring, implemented control efforts do not yield expected pest animal kills.
2. Feral animals are recorded during scheduled monitoring post-control efforts.
3. Opportunistic observations of feral animal activity, including sightings of animals, their tracks or scats during general offset site management works.
4. Confirmed or potential damage to rehabilitation plantings or areas prepared to receive plantings such as that caused by non-native herbivores (pigs, deer).

Adaptive management measures include:

1. Spatially and temporally expanding monitoring efforts (*i.e.,* more sites, more often in more locations) to ensure greater site coverage.
2. Increasing frequency of monitoring and control events relevant to target species beyond existing events outlined earlier.
3. Sporadic controls triggered by ad hoc pest animal sightings or evidence of potential impact, including pest species additional to those detected and identified as target species for pest management upon completion of baseline pest surveys.
4. Working more closely with adjoining land holders on landscape scale controls.
5. Applying multiple control measures in unison to improve control efficacy.

If monitoring data indicate that the PMP is not meeting its timing, responsibility, monitoring and control targets, the program will be adjusted using the following strategies:

1. Spatially and temporally expanding monitoring efforts (*i.e.,* more sites, more often in more locations) to ensure greater site coverage.
2. Increasing frequency of monitoring and control events beyond those outlined above.
3. Sporadic controls triggered by ad hoc pest animal sightings, including pest species additional to those detected and identified as target species for pest management upon completion of baseline pest surveys.
4. Working more closely with adjoining land holders on landscape scale controls.
5. Applying multiple control measures in unison to improve control efficacy.
6. Review responsibility where lapsed and advise alternative roles and / or personnel.

This adaptive management approach ensures regulatory compliance, continuous improvement, long-term effectiveness, and alignment with broader conservation and threat abatement goals.

7.4. Management Action 3 – Management of Weeds of National Significance

7.4.1 Justification

Weed control is fundamental to improving biodiversity and the ecological condition of habitat within the offset area. Historical land uses across the offset have resulted in the introduction, spread, and persistence of a variety of environmental weeds. Whilst there have been a variety of environmental weeds recorded across the offset area, the key species to be controlled in the offset area is *Lantana camara* (lantana), which is a listed WONS and key threat to koala habitat and movement. The estimated cover of Lantana varies from minimal (<10%) to in some area >60%. Furthermore, without suppression, lantana has the potential to rapidly spread and colonise, particularly where neighbouring infestations are present. Continued management is therefore necessary to prevent infestations from returning after initial treatment.

The listing and prioritisation of WONS is a joint initiative of the States, Territories and Australian Government and their long-term control is of national interest. *L. camara* and its impact on koala movement is listed as a key threatening process, as it limits koalas movement, resulting in prolonged time spent on the ground and therefore increasing susceptibility to predators (Paull et al. 2019, Enoch, 2019). The Queensland Koala Strategy 2020-2025 lists koala habitat restoration, including removal of weeds, as a key priority, and these recommendations were developed at the advice of the Koala expert panel (Queensland Government, 2019).

As well as limiting movement for koalas and other fauna, *L. camara* also changes the structure and health of the ecosystem, which can lead to a decline in the health and quality of koala food and habitat. *L. camara* is a transformer weed, altering wildfire behaviour, potentially resulting in destruction of native trees on a larger scale (Berry et al. 2011; DAF, 2016). *L. camara* also supresses eucalypt recruitment, both through its allelopathic properties and its capacity to shade out other species. Without management intervention this leads to an overall decline in habitat health (Threatened Species Scientific Committee, 2010). If eucalypt species cannot recruit the succession of vegetation is interrupted, threatening the future health of the ecosystem.

In addition, *Opuntia tomentosa* (velvety tree pear) and *Senecio madagascariensis* (fireweed) are also confirmed to occur. Fireweed is prominent in some areas of open pasture within the offset area and is conspicuous throughout much of southern Queensland. This species is also listed as a WONS due to its invasiveness, capacity to rapidly spread, and environmental impacts. Although not listed as a direct threat or key threatening process to MNES, fireweed is known to outcompete native species and reduce ground cover, ultimately resulting in erosion and stripping of topsoil. As such, fireweed should be controlled to limit competition with natural regeneration of MNES foraging trees and improve overall soil health. Field surveys identified significant infestations of fireweed throughout the offset area, particularly within the paddock space, as is typical of pastural land. *Opuntia tomentosa* is limited to scattered plants, representing a more manageable species to target.

It is not possible to remove *L. camara* or *S. madagascariensis* on a single occasion, as persistent seed banks of the species remain viable for long periods of time. Germination can occur rapidly after parent plants have been removed due to increases in light and resource availability (*i.e.,* availability of soil nutrients, moisture content and space). Therefore, repeat visits to the offset area following the initial treatment for follow-up weed control, is critical to prevent seed set and dispersal.

7.4.2 Proposed Action and Management Measures

- Implement the Rehabilitation Management Plan (refer **Appendix C**).
- In accordance with the RMP, manage weeds of national significance (WONS), ICC declared weeds and other weeds such which may have an impact on habitat regeneration is to occur in the offset area, with a particular focus on suppression of the spread of *Lantana camara*.
- Prevent the further spread or establishing of new *Lantana camara* outbreaks within the offset area by excluding cattle and controlling pest species from the offset management zone.
- Vehicles, machinery and equipment is to be cleaned prior to entering the offset area to remove seeds and sediment to prevent the introduction of new weed species into the offset area.

Weed removal will prioritise WONS, specifically *L. camara*, with supplementary weed management completed on a priority system. Fireweed and velvety tree pear will be controlled as secondary priority species due to their categorisation as a WONS and impacts to soil health. Refer to **Table 63** and **Table 64** for specific lantana and fireweed management techniques.

Table 63: Lantana management strategies

Type of infestation	Physical	Mechanical	Chemical	Fire	Biological
Small (few plants, small area)	Hand grubbing only suitable for seedlings. Wear gloves for protection from thorns.	Not suitable.	Spot spray plants less than 2 m in height between summer and autumn with a registered herbicide.	Not suitable.	There are four useful biological control agents. They are already distributed throughout their potential range.
Medium (medium density, medium total area)		Bulldoze, plough, stick-rake or slash infestations. Soil disturbance will lead to mass seed germination, so follow up with further controls. Do not use mechanical control in areas susceptible to erosion. A permit may be required.	Spraying is uneconomical for medium or large infestations. Helicopter spraying is used when there is no access for mechanical control, eg very steep slopes.	Under permit, burn in summer with good fuel load of grass and/or mechanically cleared lantana. Also use as follow-up. Do not burn in rainforests.	
Large (many plants, many ha)					

Note: table extracted from CRC for Australian Weed Management, 2003, Weed Management Guide, Lantana – *Lantana camara*, Commonwealth Department of the Environment and Heritage.

Table 64: Fireweed Management Strategies

	Herbicide Application	Cutting / Slashing	Hand Removal	Soil Cultivation	Surveillance	Property Biosecurity
Advantages	Can enable targeted control of fireweed Quick to apply to multiple plants Range of herbicides to suit different situations	Can control fireweed if done frequently Can stimulate vigorous pasture grass regrowth, depending on species and timing Applicable to domestic and amenity situations (e.g. mown lawns)	Low cost Suitable for early intervention where there are small infestations Minimal environmental impact Good for 'mopping-up' after other controls	Non-chemical means of controlling fireweed seedlings Suitable for gardens May be used in pasture establishment	Early detection and intervention reduce impacts and costs	Prevents weed entry and spread Avoids future costs and impacts Low ongoing cost
Disadvantages	Long withholding periods for some herbicides Risk of off-target effects on desirable plants Risk of spray drift and environmental contamination	Cut fireweed can regrow, requiring further treatment Risk of spreading seed Cut fireweed remains toxic and stock cannot avoid eating it in clippings	Need to locate all individual plants before seed set Time-consuming and labour intensive Generally not practical for large infestations and properties	Promotes fireweed germination, requiring further control Risk of soil erosion and damage to soil structure Risk of fireweed regrowth in moist soils Cost of machinery	Searching is time consuming and ongoing (every 2–4 weeks)	Setup costs for washdown areas Ongoing time commitment to manage spread pathways Ongoing effort needed to obtain everyone's compliance
Timing	Most effective boom sprayed on seedlings in autumn–winter Spot spraying at other times of year	Winter–spring for cool season pasture grasses, mid-spring for warm season grasses Avoid seeding fireweed Avoid cutting in late spring to reduce risk of over-summering of fireweed Multiple passes needed	Year-round	Autumn–winter for fireweed seedlings	Autumn–spring May be occasional plants in summer in wetter areas	Year-round

	Herbicide Application	Cutting / Slashing	Hand Removal	Soil Cultivation	Surveillance	Property Biosecurity
Integration with other control measures	Biosecurity Competitive pasture Soil cultivation Hand removal	Biosecurity Competitive pasture Sheep/goat grazing Herbicides	Biosecurity Surveillance Competitive pasture Herbicides	Biosecurity Surveillance Competitive pasture Herbicides	All other fireweed control measures	All on-property activities All other fireweed control measures
Cautions	Various legal requirements apply when using herbicides Follow safety directions Follow directions on managing drift and residue risks	Machinery hygiene required to minimise risk of spreading weed seeds Cannot use pastures containing fireweed for hay or silage Cannot graze until cut fireweed is decomposed	Wear gloves Take precautions to avoid strain injuries	Frequent cultivations can damage soils and expose them to erosion	Difficult to detect fireweed until it is flowering, by which time it may have set seed	Difficult to limit natural pathways of spread – particularly wind

Note: table extracted from Department of Agriculture, Fisheries and Forestry, Weeds of National Significance Fireweed National best practice management manual for fireweed (*Senecio madagascariensis*), Australian Government (Virtue and Sheehan, 2022). Several potential prevention and control measures were excluded from this table due to not being applicable to large properties or for offset property purposes (i.e. Mulching, Sheep/Goat Grazing, Competitive Pasture)

7.4.3 Management Action Responsibility

The Land Manager will be responsible for establishing, resourcing and funding all weed management actions detailed in the OAMP and RMP including management and monitoring actions.

7.4.4 Completion Criteria

Timing	Completion Criteria
Year 1	Implement the RMP and ensure WONS are treated within 12-months of the commencement of the offset
Year 10	Reduce WONS to <5% by the end of Year 10
Year 10 – 20	Maintain WONS cover at <5% for the life of the offset

7.4.5 Management Action Monitoring

A number of monitoring actions relating to the presence of WONS and weeds generally are proposed as part of the implementation of the OAMP and RMP.

Completion of baseline WONS surveys providing an actual mapped extent of infestations and occurrences in hectares to be used as the benchmark for measuring improvement.

A rehabilitation monitoring program including photo monitoring is detailed in the RMP which proposes a monitoring frequency of bi-annually in Years 1-5 and five-yearly at Years 10, 15 and 20. An initial baseline setup is also proposed prior to the commencement of any weed treatment works occurring. Refer to **Appendix C** for further details regarding the weed monitoring methodology. This is proposed as additional to the MHQA surveys.

A suitably qualified person will complete monitoring for WONS before the end of Years 5, 10, 15 and 20 of the offset to track against the interim milestone and completion criteria in the environmental outcomes (refer **Appendix A**).

Surveys include the a repeat of baseline survey methodologies described in Section 6.1.2 (weed mapping and transect) and 6.1.9 (MHQA) which both provides measures of weed coverage. The following procedures will be implemented to ensure that the monitoring events align with the baseline survey methodology:

Desktop Assessment

- Reviewing previous survey mapping, field datasheets, photos and notes including WONS priority areas.
- Reviewing weed and bush regeneration records for the last year.

Field Survey

- MHQA and weed transects are carried out at baseline survey locations.
- Utilising the weed cover assessment methodology discussed in **Section 6.1.9**, inspect previously identified WONS infestations. Mapping of WONS infestation areas using GPS unit and quantify using weed cover transects and previous locations. Additional weed cover transects may be utilised if considered appropriate depending on the weed cover assessment.
- Record non-native flora species list.
- Provide photo monitoring at established locations to be set up in Year 1 of the offset with photo location and direction.
- Notes of any notable positive and/or negative changes in weed density and coverage.

7.4.6 Management Action Reporting

- The Land Manager is responsible for preparing and issuing Offset Area Annual Reports to the proponent within contracted timeframes for inclusion in the Approved Project Annual Compliance Report.
- Photo Monitoring Reports to be prepared at frequencies specified in the RMP by a suitably qualified person (refer **Appendix C**).
- Milestone weed and MHQA monitoring survey results will be reported by the suitably qualified person in the 5, 10, 15 and 20 Year Milestone Report. This will provide detail on survey methodologies and detected WONS and other weed presence with reference to the baseline survey data.
- Implementation of the weed management actions within the RMP will be detailed annually by the Land Manager in OAARs.
- Reporting, or a sample of, will be included in the relevant Annual Compliance Report.

7.4.7 Management Action Adaptive Management

The dominant WONS species present within the offset area is lantana with some occurrence fireweed and velvety tree pear. A range of other exotic grass and herbaceous species are present, indicative of the high level of disturbance. In the event weed management targets are not met within the prescribed timeframes of the OAMP and the RMP, adaptive management will be triggered which includes:

- Adopting different management techniques
- Increasing the use of successful techniques
- Increasing the intensity/frequency of management program
- Changing the timing or locality of proposed target treatment locations or events

7.5. Management Action 4 – Bushfire Management

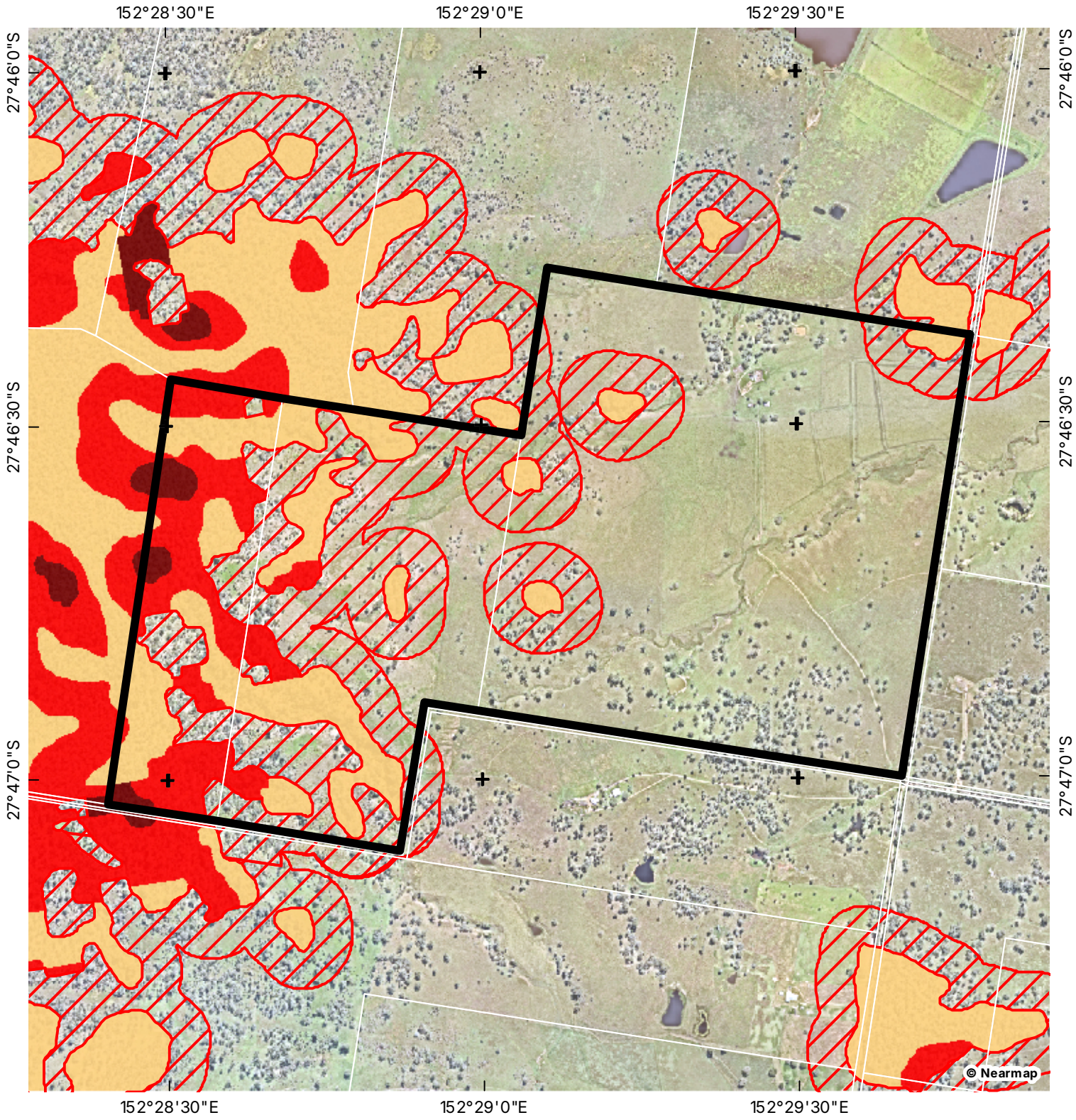
7.5.1 Justification

Fire management of the offset is critical to achieving the intended outcomes and conservation gains over the management period. Managing the vegetation to promote natural regeneration and reduce the impacts of uncontrolled wildfire within the offset area will ensure management objectives are achieved. Uncontrolled wildfire is considered a key threat to koala populations, with impacts inclusive of mortality, injury, and loss of or altered habitat resulting in a reduction in food source and potentially increased exposure to predators.

The offset area is mapped as containing medium to very high high-risk fuel loads for wildfire in both State Government (refer **Figure 14**).

Prescribed low-intensity burning as a bushfire management technique is widely employed and generally agreed upon as an effective means of reducing widespread and severe bushfire risk particularly when implemented in line with Indigenous cultural burning practices. The *National Recovery Plan for the Koala* (DAWE, 2022b) acknowledges the scope of impacts of prescribed burning on koala population dynamics is not well understood. While the risk of bushfire can be reduced through prescribed burning regimes, it is acknowledged in the National Recovery Plan that the effectiveness of this is determined by the scale and severity of the bushfire, as exemplified in the 2019-2020 summer bushfires affecting areas that were considered low risk to bushfire.

The management measures contained in this OAMP will be used to assess baseline fuel loads and indicate management techniques and planning, specific to the offset area in the context of the surrounding landscape. The overall objective is to prevent fire-induced koala mortality and impact to MNES habitat via targeted fuel hazard reduction and prescribed fire management. Managing the vegetation to promote natural regeneration and reduce the impacts of uncontrolled wildfire within the offset area will ensure management objectives are achieved.



LEGEND

- Qld DCDB
- Offset Site
- Very High Potential Bushfire Intensity
- High Potential Bushfire Intensity
- Medium Potential Bushfire Intensity
- Potential Impact Buffer

FIGURE 14

STATE PLANNING POLICY
BUSHFIRE HAZARD MAPPING

PROJECT
MOUNT WALKER WEST OFFSET SITE

COORDINATE SYSTEM
GDA 2020 MGA Z56

SCALE (A4)
1:14,000

0 100 200 300 400 500 m

N

CLIENT
CHERISH ENTERPRISES

Saunders Havill
BOWEN HILLS | SPRINGFIELD
1300 123 744
mail@saundershavill.com

DISCLAIMER These plans have been prepared for the exclusive use of the client. Saunders Havill cannot accept reponsibility for any use of or reliance upon the contents of these drawings by any third party.

LAYER SOURCE *© State of Queensland 2025*

FILE REFERENCE
9612 E MWW Figure 14 SPP BH A

DATE 28/11/2025

7.5.2 Proposed Action and Management Measures

A site-specific Bushfire Management Plan (BMP) will be developed in accordance with relevant Queensland guidelines and endorsed by an experienced bushfire practitioner to reduce potential threats from fires to Koala. The BMP will be completed for the offset area within 1 year from the date of the approval. The BMP will assess baseline fuel loads and aim for no koala mortalities to occur as a result of overall fuel hazard reduction action. The BMP will expand points on wider fire management concepts.

At present, the offset area contains internal tracks and access along existing fence lines that may act as fire breaks. This fire management system will be maintained as the offset property transitions from open pasture to MNES habitat restoration as specific offset activities are sequentially completed. Specific actions as directed by the local authorities must be implemented which may include burn plans, prescribed burning or other techniques undertaken in consultation with the Queensland Rural Fire Brigade to manage fuel loads.

7.5.3 Management Action Responsibility

The Land Manager is responsible for:

- Liaising and coordinating with Queensland rural fire service (QRFS) and ICC to develop BMP and implement bushfire management measures; and
- Maintaining existing bushfire breaks; and
- Installing additional plantings required to account for losses as a result of uncontrolled bushfire.

7.5.4 Completion Criteria

Timing	Completion Criteria
Year 1	• Develop BMP • Complete consultation with ICC and QRFS • Maintain existing firebreaks within offset area
Year 2 – 20	• Implement BMP • Monitor and maintain fuel loads within the offset area • Maintain firebreaks

7.5.5 Management Action Monitoring

Monitoring of the offset area will be undertaken by the Land Manager annually and as required to review access tracks, fire breaks, fuel loads and outcomes of controlled burns or other management techniques such as use of livestock. Fuel loads and bushfire breaks will be monitored annually by the Land Manager as required depending on seasonal variation in fuel loads.

7.5.6 Management Action Reporting

Implementation of the BMP will be reported annually by the Land Manager in the Offset Area Annual Report and will provide detail on maintenance and monitoring activities undertaken under the BMP such as maintenance of access tracks and fire breaks, records of seasonal fuel loads and outcomes of controlled burns or other management techniques such as use of livestock. Notes of any evidence of positive and/or negative changes will be recorded and documented. Annual monitoring and reporting is important to ensure any possible negative impacts are identified early and management processes are appropriately adapted to ensure conservation outcomes are achieved.

7.5.7 Management Action Adaptive Management

Management actions to reduce the risk of bushfire impacts within the offset area include:

- Maintaining existing bushfire breaks between adjacent landholders, in particular along the boundaries where the State Planning Policy bushfire hazard mapping indicates there is a 'high' or 'very high' risk of bushfire occurring (refer **Figure 14**).

- Cooperating with the local QRFS, ICC and adjoining landholders to minimise bushfire risk at a regional scale.
- Undertaking a feasibility assessment on insurance for plant stock replacement.

The overall assessment of bushfire risk is that their occurrence is unlikely within the life of the offset and consequences of such an event would be moderate. Without intervention and management, bushfire is evaluated as a low risk to this offset project. Refer to **Appendix H** for more details.

In the event a bushfire does occur within the offset area, adaptive management will involve:

- The provision of additional plantings where bushfire has occurred and damage or losses to plantings has resulted.
- Review of the adequacy of risk management measures to determine factors that may have resulted in the bushfire occurring and an assessment of any other management measures that could be implemented to reduce the risk further.

7.6. Management Action 5 – Habitat Creation and Regeneration

7.6.1 Justification

Habitat creation and regeneration is a key management action that will improve existing habitat values within the offset area and expand habitat values in areas that have been subject to weed infestation. Habitat creation and regeneration is recognised as Priority Management Actions under MNES National Recovery Plans.

MNES habitat restoration techniques will be completed across the entire offset area, with the primary goal of transitioning 155.4 ha of open grazing paddock to into vegetated ecosystems supporting habitat for MNES. The MNES habitat restoration will:

- Be in accordance with the pre-clear regional ecosystem(s), being RE12.3.3 and composite RE 12.8.17/12.8.16;
- Expand the available MNES habitat through planting of broad hectare cleared land that adjoins mapped Koala Habitat Area with NJKHTs;
- Expand the available GHFF foraging habitat through planting of broad hectare cleared land with foraging species;
- Expand the available foraging habitat for the regent honeyeater and swift parrot by planting preferred foraging species;
- Support natural regeneration in regrowth vegetation through weed and pest management and;
- Provide new connectivity with surrounding habitat for the protected matters which adjoins the bioregional conservation corridor.

Approximately 155 ha within EMZs 1, 2, 3.3 and 4.2 is proposed for MNES habitat reconstruction with the balance 70.1 ha of EMZs 3.1, 3.2 and 4.1 proposed for assisted natural regeneration. This will increase foraging habitat MNES within 20 years via planting suitable eucalypt trees and allowing regrowth to naturally regenerate via suppression and management of weeds. The rehabilitation program will be undertaken by suitably qualified personnel and will include measures to ensure the maintenance and survival of new breeding and foraging trees in the offset areas.

Restoration is a high cost and high labor-intensive task from preparation to commencement through to the first 5 years of establishment. Only planning and preparation works are proposed within Year 1 of the offset while beginning communication with a local nursery for stock will be conducted. However, all rehabilitation plantings are to be completed by the end of Year 3 pending suitable weather conditions for planting. This staged process of rehabilitation is recommended under the *SEQ Restoration Framework Manual* (Chenoweth EPLA, 2012) and SER Australasia *National Restoration Standards* (SERA, 2017). Under these guidelines it is suggested that larger sites be broken into a number of different management zones with progress occurring at different stages within each zone. Therefore, allowing for each zone to get the same amount of care and management practices. As these zones move to maintenance and the time required for each zone is reduced these can be consolidated.

Additionally, the Victorian Government Department of Sustainability and Environment *Native Vegetation Revegetation Planting Standards* (DSE, 2006) indicates that staged or successive plantings which result in more than one age class allows for better natural recruitment, higher vegetation complexity and easier adaptive management.

Benchmarks for rehabilitation efforts are derived from the definition of remnant vegetation under the *Vegetation Management Act 1999*. Vegetation can be mapped as remnant vegetation and associated essential habitat for Koalas if the canopy is 70% if the height, 50% of the cover and similar species composition of the appropriate pre-clearing RE (Queensland Government 2015). Therefore, the final benchmark at 20 years for rehabilitation is 70% of the reference benchmark cover (for canopy, shrub and ground-layer) and 50% of the reference benchmark height (for canopy and shrub layer) of the appropriate RE.

All revegetation and planting species are to be in accordance with the technical regional ecosystem for the dominant RE being RE12.3.3 and RE12.8.17 with elements of RE 12.8.16. The Queensland Herbarium descriptions are provided below:

- **RE12.3.3** is described as: *Eucalyptus tereticornis* woodland. *Eucalyptus crebra* and *E. moluccana* are sometimes present and may be relatively abundant in places, especially on edges of plains and higher level alluvium. Other species that may be present as scattered individuals or clumps include *Angophora subvelutina* or *A. floribunda, Corymbia clarksoniana, C. intermedia, C. tessellaris, Lophostemon suaveolens* and *E. melanophloia*. Occurs on Quaternary alluvial plains, terraces and fans where rainfall is usually less than 1000mm/y. Not a Wetland. (BVG1M: 16c).
- **RE 12.8.17** is described as: Mixed woodland with combinations of *Eucalyptus crebra, E. melanophloia, E. tereticornis, Corymbia tessellaris, C. intermedia*, and commonly containing *Angophora subvelutina* and *E. melliodora*, with a grassy ground layer. Usually occurs on mid and lower slopes of hills on Cainozoic igneous rocks, especially basalt. Not a Wetland. (BVG1M: 11a).
- **RE 12.8.16** is described as: *Eucalyptus crebra*, generally with *E. melliodora* and *E. tereticornis* subsp. *basaltica* grassy woodland. *Eucalyptus albens* may occur on the western edge of the bioregion. Usually occurs on dry mid and upper slopes and crests on Cainozoic igneous rocks, especially basalt. Not a Wetland. (BVG1M: 11a).

The Queensland Herbarium BioCondition benchmarks (v3.6) for regional ecosystem RE 12.8.17 indicate a benchmark for remnant canopy tree height as 19 m and 10 m for subcanopy, and the remnant tree canopy coverage is 48% with sub-canopy coverage as 20% and shrub canopy coverage as 5%. Therefore, once the AU1 and AU2 reach 70% of these prescribed heights and 50% of these prescribed canopy coverages it can be considered remnant.

The rehabilitation planting will be completed to reflect the mapped dominant pre-clear regional ecosystem on-site RE2.3.3 and 12.8.17 with elements of RE 12.8.16 via incorporating the following eucalypt species into revegetation:

- *Eucalyptus crebra* (Narrow-leaved Ironbark)
- *Eucalyptus melanophloia* (Silver-leaved Ironbark)
- *Eucalyptus melliodora* (Yellow Box)
- *Eucalyptus tereticornis* (Forest Red Gum)
- *Corymbia tessellaris* (Moreton Bay Ash)
- *Corymbia intermedia* (Pink Bloodwood)
- *Corymbia clarksoniana* (Clarkson's Bloodwood)
- *Angophora leiocarpa* (Smooth-barked Apple)
- *Angophora subvelutina* (Rough-barked Apple)

Of the above, *E. melliodora* and *E. tereticornis* are identified as foraging trees for the swift parrot and *E. melliodora* for the regent honeyeater.

Planting will occur in accordance with the prescribed methodology in the RMP with a higher number of trees to be planted within EMZs 1 and 2.

Within particularly disturbed areas of non-remnant vegetation, the objectives of this plan are long term and may take longer than 15 years after commencement of implementation, particularly as the Queensland Herbarium quotes that in general it takes 30 years for a disturbed site to regain remnant status. However, the goal of regeneration actions are often to re-establish an ecosystem to a point where it is self-sustaining and able resilient to disturbance (Chenoweth EPLA, 2012). The SEQERF indicates that in order to achieve the self-sustaining ecosystem at least 2-5 years of implementation and maintenance needs to occur. Thus, the offset project provides a sufficient maintenance and implementation period which sets the revegetation areas towards remnant status following the completion of maintenance. Interim benchmarks via MHQA transects are to be conducted at regular intervals which will inform the progress of the rehabilitation/revegetation efforts towards achieving this plan's outcomes. Given this, adaptive management approaches can also be employed to redirect restoration approaches, if interim benchmarks are not being met.

The aim to plant vegetation by the end of Year 3 is not anticipated to impact the conservation benefits or outcomes of the restoration efforts by Year 20. Several studies on the benefits of revegetation, including one from La Trobe

University in association with the Victorian State Governments Department of Energy, Environment and Climate Action (DEECA), have indicated that the benefits of revegetation are realized within the first 15 years of planting, particularly for bird and nectar foraging species (DEECA, 2020). This study in particular accredits the success of revegetation to a well-thought-out monitoring program and species selection, which is intended for the offset area.

7.6.2 Proposed Action Location

The offset area contains approximately 155 ha of non-remnant vegetation (EMZs 1, 2, 3.3 and 4.2) which is to undergo habitat reconstruction approximately 70 ha which will assisted natural regeneration techniques in accordance with the RMP (refer **Appendix C**).

7.6.3 Management Action Responsibility

The Land Manager is responsible for:

- Funding the appointment of trained and experienced bushland regenerators or revegetation contractors for the completion of all rehabilitation activities in accordance with the RMP (site preparation, planting, establishment and maintenance)
- Commissioning and funding tertiary trained ecologists for the survey, monitoring and reporting of interim and milestone revegetation outcomes.

7.6.4 Completion Criteria

Timing	Completion Criteria
Year 1	Complete Site Preparation work in accordance with RMP including: • Tilling / cultivating grazed grass areas for treatment of pasture grass seedbank in preparation for planting • Undertake soil testing for both the modified planting soil and for the planting locations • Commence seed collection and propagation in coordination with an external nursery
Year 3	Complete all offset area planting in accordance with planting palettes and densities proposed in the RMP provided weather conditions are suitable for broadscale planting
Years 1 – 20	Implement the RMP to ensure performance indicators are achieved particularly the mortality rate of plants (focusing on trees) is <20% during the contractor establishment phase (3 to 5 years)

7.6.5 Management Action Monitoring

A combination of informal and formal monitoring techniques are proposed as part of the offset program to allow for an effective monitoring regime that will promote adaptive management and high achieving offset outcomes. This includes methods prescribed under the RMP and habitat quality monitoring methods under the OAMP.

Monitoring methods to track rehabilitation progress against the RMP will comprise a mix of informal and formal monitoring methods to track progress against the proposed environmental outcomes for each MNES and objectives of the RMP. A range of performance indicators have been nominated. All monitoring will be undertaken by a suitably qualified Rehabilitation Contractor and/or Ecologist.

Informal or qualitative monitoring techniques will be employed as part of the offset monitoring. Informal monitoring methods are less time-consuming and technical and form an important tool for determining ecological restoration success. Informal monitoring will occur through site inspections at prescribed monitoring intervals and will include the following techniques to be completed bi-annually for Years 1-5 and five-yearly at Years 10, 15 and 20.

1) Photo monitoring, and

2) Visual assessment.

Photo monitoring locations (2-4 per EMZ) will be established in Year 1 prior to works commencing.

Formal monitoring of rehabilitation works involves collecting quantitative data at prescribed monitoring intervals using a combination of monitoring methods and techniques. Formal monitoring provides data that cannot be measured by informal observations and can be easily compared against quantitative attributes. This will include:

- MHQA and FHA transects at 5-yearly intervals (5, 10, 15 and 20 years) following the commencement of the offset. Transects will be repeated at baseline locations before the end of the relevant monitoring interval (e.g. before the end of Year 5 of the offset) and will be completed in accordance with the baseline survey methodologies described in **Section 6.1.2 to 6.1.6**.

Refer to **Appendix C** for further details regarding the proposed monitoring methodology within the RMP.

Habitat Quality Monitoring

Achievement of the Environmental Outcomes as outlined in **Section 5** and **Appendix A** will be demonstrated through the replicated surveys completed in accordance with the MHQA methodology (koala), GHFF FHA Tool and swift parrot and regent honeyeater Foraging Habitat Assessment methodologies.

The suitably qualified person as appointed by the proponent will complete MHQA surveys before the end of Years 5, 10, 15 and 20 of the offset to assess against the interim milestones and environmental outcomes (refer **Section 6** and **Appendix A**).

This will include:

- MHQA transects including stem density counts to be completed at baseline sampling locations and methodology described in **Section 5**. For regent honeyeater and swift parrot, stem density data collected at 100 X 20 m plots will be extrapolated per the baseline survey methodology to confirm the approximate number of non-juvenile preferred foraging species established within the offset area.
- Establishment of additional stem density monitoring plots (100 X 20 m area) within the offset area if deemed necessary to increase the resolution of extrapolated data for the GHFF FHA and swift parrot and regent honeyeater Foraging Habitat Assessment.
- Direct and indirect surveys to target Koala presence, including Spot Assessment Technique surveys, motion triggered camera trapping and spotlighting.

7.6.6 Management Action Reporting

Photo Monitoring Reports

The results of informal (photo monitoring and visual assessment) will be detailed in bi-annual/five-yearly monitoring reports. Following each photo monitoring event, a Photo Monitoring Report will be prepared which will include the following information:

- Photo set at each monitoring location.
- Commentary on mortality rate and presence of WONS/other weeds at a minimum with any additional relevant observations to inform adaptive management such as species-specific responses or herbivory.
- Adaptive management (if required).

These reports will include commentary of overall success rate (namely of tree species), any degrading factors at the site that may or are currently affecting survival success and any recommended adaptive management measures.

Milestone Reports

The results of the five-yearly MHQA surveys will be detailed in a Milestone Report and will be prepared by a suitably qualified Ecologist.

Offset Area Annual Reports

Rehabilitation progress will be reported by the suitably qualified regeneration contractor or Land Manager in the Offset Area Annual Report.

The suitably qualified regeneration contractor will complete annual monitoring tasks until establishment of plantings is achieved (typically between three to five years).

7.6.7 Management Action Adaptive Management

The potential for large scale revegetation to fail can occur from controllable factors (poor soil preparation, planting stock or maintenance regime) or external events (extreme frost, pest invasion, drought, flood or major wind). Potential losses from these factors will be mitigated in several ways:

1) Contractual obligations of appointed bushland regenerators or revegetation contractors will ensure retention of funds and minimum success rates. The contractor will be responsible for replacement and re-establishing failed stock or areas.
2) Contractor and Land Manager will investigate insurance for major external events.
3) Implementation of a detailed RMP which prescribes industry standard and widely used regeneration methods to promote successful rehabilitation outcomes.
4) Species to be planted are consistent with the pre-clear and ground-truthed regional ecosystem communities which considers underlying landform and soil specifications required for the species.
5) Intensive monitoring program using qualitative and quantitative monitoring methods prescribed under the RMP to allow for early identification of potential issues (e.g. higher than anticipated mortality rate) and enabling effective adaptive management.
6) Identification of corrective action triggers for adaptive management framework have been detailed (refer below and also **Appendix C – RMP**).

Adaptive Management Framework – Corrective action triggers

Multiple corrective action triggers for adaptive management are proposed. This includes:

- Native plant mortality >20% during the initial contractor establishment phase (3-5 years) of the plantings
- WONS cover >5% after Year 10
- Number of non-juvenile stems of swift parrot foraging species (*E. melliodora* and *E. tereticornis*) not increasing as proposed
- Number of non-juvenile stems of regent honeyeater foraging species (*E. melliodora*) not increasing as proposed

A survival rate of 80% of tree species is proposed to be achieved for the offset area with a focus on species identified as preferred or supporting foraging species for the Critically Endangered regent honeyeater and swift parrot. The 80% survival rate is to be achieved throughout the 3-5 year contractor establishment phase, after which the plantings are considered self-sustaining. It is anticipated the overall density of plantings will normalise to typical eucalypt forest density during the successional phase of the offset (5-20 years post planting).

Where survival rates are observed to be less than 80% as per qualitative and quantitative monitoring methods during the contractor establishment phase, this may indicate the presence of a degrading factor not previously identified or considered at the site and may require adaptive management measures to be considered and implemented. Degrading factors are to be identified as part of regular monitoring and will form the basis for actioning adaptive management.

Adaptive management measures may include a combination of the following:

- Identify and address the degrading factor (e.g. soil issue, pests, species failure).
- Remedial plantings in areas of dieback to bolster survival rates to above 80% during the contractor establishment phase, focusing on preferred foraging species for the swift parrot and regent honeyeater where required.
- Introduce a different species *i.e.,* if one plant species consistently dies on a site, consider using in its place a species that is performing well.

- Adjust planting methods such as using advanced tube stock or direct seeding, modifying site preparation techniques.
- Modify weed management techniques or frequency where WONS exceed 5% after year 10.

7.7. Management Action 6 – Fencing, BLE and Trespass Management

A range of management measures are proposed to restrict access to the offset area and protect the offset area from incompatible land uses including those that have potential to arise from the presence of a BLE and associated rural-residential land use.

7.7.1 Proposed Action and Management Measures

General Trespass Management Framework

For general trespass and livestock exclusion management the offset area is to be suitably fenced and marked with signage to discourage trespass, indicate biosecurity restrictions, and keep out cattle. Gates leading to the offset area will have signage installed which clearly states that the area is an approved offset for conservation purposes.

In addition, cattle will be removed and prevented from accessing the offset area as specified in this OAMP through the use of perimeter fencing. **Plan 21** shows existing barbed-wire fencing proposed to be retrofitted and the location of existing fauna friendly fencing. Fauna friendly fencing are based on the following specifications:

- Top strand plain wire or covered with poly pipe (Bat Conservation & Rescue Qld Inc. (2022)); and
- Bottom strand either plain wire, or barbed wire set at a minimum 300 mm above ground.

In summary, management actions to reduce the risk of access and trespass management impacts on the offset area include:

- Installing and maintaining fauna friendly perimeter fencing; and
- Installing signage at vehicle access points and gates which clearly states that the area is an approved offset for conservation purposes.

BLE Land Use and Access Management Framework

The non-offset area land use area comprises a BLE and designated asset protection zone (APZ) / bushfire management zone (BMZ) totalling 2.0 ha. The BLE and APZ / BMZ will be limited to use as a rural residential property for rural living, not for commercial purposes.

This includes provision for a dwelling and ancillary structures consistent with a large rural residential property such as a granny flat, carport, shed, septic tank, water tank and gazebo. All uses within the BLE and APZ / BMZ are not to be in contravention with this OAMP and will be subject to a legally binding mechanism to control and limit activities.

A management framework is provided within this OAMP which provides specific management measures to limit or prevent the potential for incompatible or degrading activities within the offset area arising from the location of the BLE and associated vehicle access track. Long-term protection of offset values will be further secured through a covenant imposing enduring restrictions on planting, access and weed introduction pathways.

Requirements detailed under this framework will be further refined through the terms of the covenant to provide a mechanism for enduring legal protection. Where the terms of the covenant are inconsistent with this OAMP, a revision to the OAMP may be required.

Management measures are described in **Table 65**, below. Refer to accompanying **Plan 22**. The responsible parties include the BLE Landholder and Land Manager, defined in **Section 1.3**.

Table 65: BLE Use Management Measures

Potential Threat	Management Measure	Function	Responsibility
		The proposed BLE will be buffered by the APZ / BMZ to protect any infrastructure within the BLE from bushfire hazard. The APZ / BMZ will be maintained as a primarily turfed area with any vegetation to be sparse and comprised of low flammable species. The BMZ will be integrated into the BMP for the offset area to ensure a cohesive approach.	Implementation of the BMP will be by the Land Manager.
Offset area vegetation clearing for asset protection and safety purposes	Creation of an asset protection zone / bushfire management zone around BLE	The width of the APZ / BMZ is 40 m calculated in accordance with the Queensland Government's bushfire clearing exemption buffers for a firebreak included in the Accepted development vegetation clearing code: Clearing for Infrastructure (November 2023): *"On coastal lots and non-coastal lots, clearing for a necessary firebreak to protect infrastructure, other than a fence, road or vehicular track, is exempt clearing work if the maximum width of the firebreak is 1.5 times the height of the tallest vegetation next to the infrastructure, or 20 metres, whichever is wider."*	Ongoing maintenance responsibility extending beyond the timeframe of the BMP will be by the BLE Landholder.
Unauthorised access to offset area	Clearly defined vehicle access track to BLE, locked gate access and external signage denoting private access only No new access tracks to be established in offset area for BLE access	A single vehicle access point with locked gate access and a dedicated vehicle access track from Tralee Road to the south-east is proposed to define and control access. No realignment or widening to the vehicle access track is permitted unless for offset area conservation purposes, and no secondary access tracks for BLE access are permitted to be created. Physical barriers such as intermittently placed coarse woody debris along sensitive edges of the track may be installed to discourage off-track vehicle movement.	Land Manager
Introduction of weeds	Landholder is required to maintain APZ / BMZ Planting of non-endemic species is limited to BLE area	Biosecurity risks associated with the introduction of weeds resulting from private land use within the BLE will be managed through spatial separation of land uses. Planting of non-endemic species, non-invasive species will be limited to the BLE area and the APZ / BMZ buffer is required to be maintained as sparse native vegetation to limit potential for garden escapees. In addition is the general biosecurity obligation of landholders to manage WONS, Biosecurity Act weeds and locally significant weeds.	BLE Landholder

Potential Threat	Management Measure	Function	Responsibility
Domestic animals	Domestic dogs within BLE prohibited within offset area Installation of fauna friendly fencing around perimeter of APZ / BMZ	Domestic dogs that reside within the BLE are not permitted within the offset area. Fauna friendly fencing is proposed around the perimeter of the APZ / BMZ to deter domestic animals, namely domestic dogs, from entering the offset area from the BLE area and further deter casual access.	Land Manager responsible for installation and maintenance of fencing BLE Landholder to monitor and exclude any pets/domestic dogs from offset area

7.7.2 Management Action Responsibility

The Land Manager is responsible for funding and undertaking all actions relating to access and trespass management. The BLE Landholder is responsible for implementing the BLE framework and terms of the covenant once enacted, outside where it is noted to be the Land Manager's responsibility.

7.7.3 Completion Criteria

Timing	Completion Criteria
Year 1	• Inspection and rectification of all external fence boundaries • Removal of all unnecessary barbed wire fencing within offset area (**Plan 21**) • Installation of offset signage at a minimum of three (3) locations at Tralee Road and historical access tracks along the eastern boundary (**Plan 21**)
Year 1	• Notification of offset area purpose and outcomes to all adjoining landholders (where applicable)
Year 1 – 20	• Maintain offset area perimeter fencing and signage at vehicle access points to prevent unauthorised access to offset area • No new access tracks through offset unless to support offset outcomes • Any other future access points not currently identified on **Plan 21** are to be accompanied by signage • Upon operation and use of BLE, signage at Tralee Road vehicle access point must clearly denote private access only

7.7.4 Management Action Monitoring

The Land Manager will monitor all fence lines at least quarterly or as required to detect:

- Areas of disrepair requiring maintenance; and
- Evidence of trespass and unauthorised activities.

7.7.5 Management Action Reporting

The Land Manager is responsible for preparing and issuing Offset Area Annual Reports to the proponent for each offset period for inclusion in the Approved Project Annual Compliance Report.

7.7.6 Management Action Adaptive Management

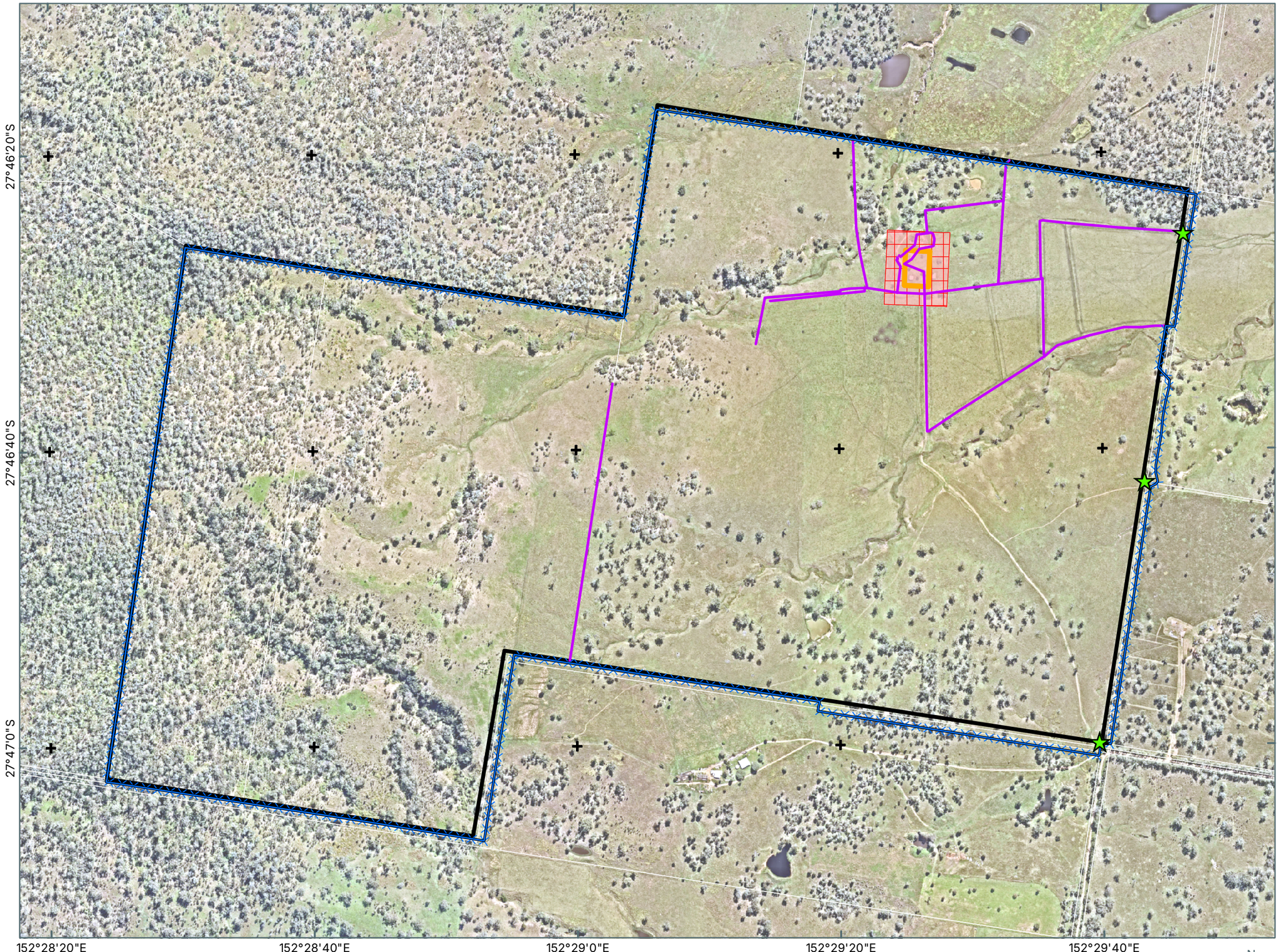
Triggers for adaptive management may include evidence of repeated unauthorised vehicle track use or evidence of multiple breaches.

Adaptive management for general trespass management and unauthorised offset area activities includes:

- More frequent fence line monitoring
- Use of photo monitoring at strategic locations or where breaches have occurred
- Review of offset area signage, locations and install additional signage where necessary
- Installation of soft physical barriers such as logs or rocks at track heads where there is evidence of unauthorised access

Enforcement options are available if necessary, however, it is considered a last resort where adaptive management measures are ineffective. Further, access restrictions will be detailed in the covenant terms providing a pathway for enforceable action where required.

21. INDICATIVE OFFSET AREA FENCING AND SIGNAGE



Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders Havill.Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community
© State of Queensland (Department of Resources) 2026.
Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/

* Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Qld DCDB
- Offset Area [227.6 ha]
- Non-Offset Land Use Area [2 ha]
- Building Location Envelope - 0.4 ha
- Asset Protection Zone / Bushfire Management Zone - 1.6 ha
- Existing barbed wire fencing to be removed
- Existing barbed wire fencing to be retrofitted to fauna-friendly fencing
- Indicative offset area sign

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

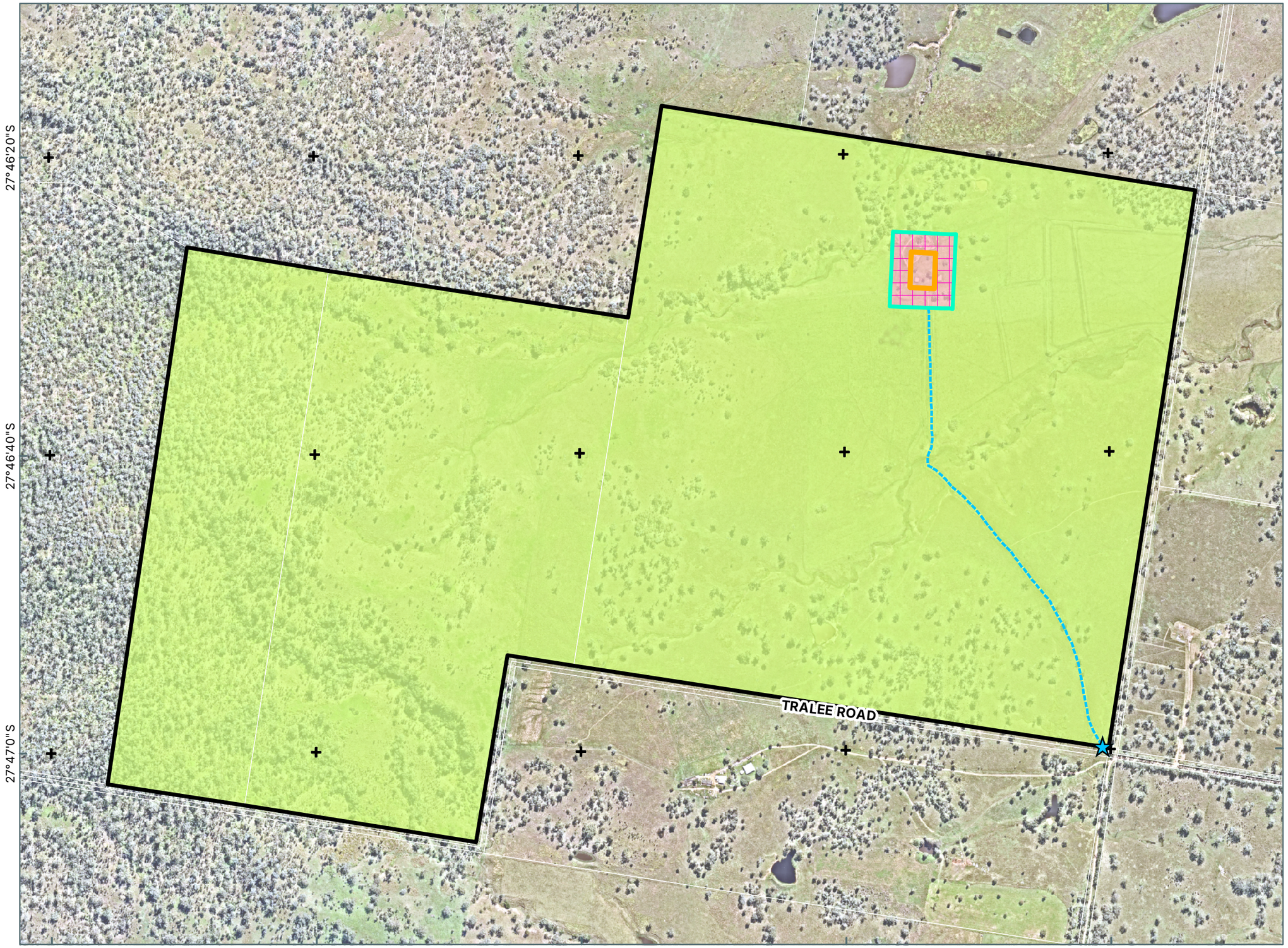
0 50 100 150 200 m
Transverse Mercator
GDA 2020 | Zone 56
1:8,000 @ A3

Address / RPD: MOUNT WALKER WEST

12/01/2026

9612 E 21 MWW Indicative Fencing A

22. PROPOSED BUILDING LOCATION ENVELOPE



Notes:
The information on this plan is not suitable for any purpose other than the expressed use of the Client. Property dimensions, areas, numbers of lots and contours and other physical features may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of Saunders Havill.Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community
© State of Queensland (Department of Resources) 2026.
Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/
* Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Qld DCDB
- Offset Area [227.6 ha]
- Offset Land Use Area [225.6 ha]
- Non-Offset Land Use Area [2 ha]
- Building Location Envelope - 0.4 ha
- Asset Protection Zone / Bushfire Management Zone - 1.6 ha
- BLE Private Access Track
- Fauna friendly fencing
- Offset area / private access only signage

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

CHERISH ENTERPRISES

MOUNT WALKER WEST

0 50 100 150 200 m
Transverse Mercator
GDA 2020 | Zone 56
1:8,000 @ A3

Address / RPD: MOUNT WALKER WEST

15/01/2026

9612 E 22 MWW Proposed BLE A

7.8. Monitoring and Reporting Framework

7.8.1 Report Types

A range of report types will be prepared as part of the overall offset monitoring. The report types, timing and responsible party for each of the reports are detailed in **Table 65** below.

Table 66: Summary of reports required and responsible parties

Report	Purpose	Frequency	Responsible party
Offset Area Annual Report Details implementation of management actions against the OAMP and RMP including rehabilitation progress review.	Designed to document all offset activities completed and/or commissioned by the Offset Provider and demonstrated against the timeframes and completion criteria of the OAMP and includes a review and progress update of rehabilitation works (planting and weed management). Required as part of the commercial agreement between the Proponent, to be provided (1) month after each year of the offset.	Annually following the legal securement of the offset area	Land Manager
Milestone Survey Report Details the results of MHQA, GHFF FHA and swift parrot and regent honeyeater foraging habitat assessment.	Designed to demonstrate increase in value of offset area for Matters of National Environmental Significance (koala, grey-headed flying-fox, swift parrot and regent honeyeater) as proposed under the OAMP. This will include an assessment of whether each environmental outcome has been or is likely to be achieved and advise of any circumstance/s which they consider is/are affecting the achievement of each outcome. The findings of each assessment will be documented and published within 3 months of the end of the relevant year of the offset in which the assessment is undertaken.	Five-yearly at Years 5, 10, 15 and 20	Suitably qualified Ecologist as appointed by the Proponent
Photo Monitoring Report Qualitative monitoring report showing photos of the offset area, commentary on rehabilitation progress and recommended adaptive management measures.	Designed to provide regular assessment of the offset area and feedback to engaged rehabilitation contractors to guide on-ground works.	Bi-annually from Years 1 to 5 Five-yearly at Years 10, 15 and 20	Suitably qualified Rehabilitation Contractor or Ecologist as appointed by the Proponent/Land Manager
Annual Compliance Report Required to be prepared as part of the approved project decision notice.	Designed to document activities and demonstrate compliance against the EPBC Act approval conditions for the project. Other subsidiary reporting may be included as evidence of compliance with approval conditions.	Annually, timing specified in approval conditions	Suitably qualified person as appointed by the Proponent

7.8.2 Data Management

The Proponent, Offset Provider and engaged suitably qualified person appointed by the Proponent and/or Land Manager will be responsible for the management of data, including interpretation, reporting and presentation. The Proponent will be responsible for the ownership, distribution and availability of data to the Department.

7.8.3 Monitoring and Reporting Schedule

A monitoring and reporting schedule has been provided in **Table 66** summarising reporting timeframes for management actions and responsible parties.

Table 67: Management Action Monitoring and Reporting Schedule – Summary

Management action	Monitoring action(s)	Reporting action	Frequency	Responsible person(s) for activity/reporting
1 – Legally secure offset area	The offset area is legally secured via the Voluntary Declaration (VDEC) process administered under the *Queensland Vegetation Management Action 1999* prior to clearing commencing within the impact site.	• The Department is notified on two occasions that the offset area has been legally secure via VDEC and then covenant. • Evidence in the form of the offset attribute including shapefiles and declaration package from the Queensland Department of Resources will be provided with the notification. • Details will be included in the relevant Annual Compliance Report (ACR).	Within 5 business days of legal securement via covenant.	Suitably qualified person as appointed by the Proponent.
	The offset area is permanently secured via a legal mechanism that is approved by the Land Holder and the Department. Draft terms of the permanent legal mechanism to be submitted for approval within 18 months of commencement of the action. Within 12 months of approval of the draft terms the offset site must be permanently secured.		Within 5 business days of legal securement via and covenant.	Suitably qualified person as appointed by the Proponent.
2 – Non-native vertebrate pest management	Evidence of pest presence within the offset area and pest management implementation will be extracted from the OAAR and used in assessments of the relative success of the management of threats and progress towards the environmental outcomes and milestone criteria.	An OAAR will be completed annually within one (1) month of the end of each offset year detailing pest management implementation.	Annually	Land Manager and Suitably qualified pest management contractor as appointed by the Land Manager.
	Monitoring will occur before the end of Years 5, 10, 15 and 20 of the offset and will include a repeat of baseline survey methodologies (*i.e.,* motion triggered detection camera deployment) and sightings (direct and indirect) with evidence of non-native predators GPS recorded.	Milestone Reports will be prepared three (3) months after the completion of milestone surveys at Years 5, 10, 15, and 20 of the offset and included in the ACR.	Five-yearly at Years 5, 10, 15 and 20 of the offset.	Suitably qualified person as appointed by the Proponent.
3 – WONS management	Management actions relating to WONS management will be documented by the Land Manager as part of annual reporting requirements.	An OAAR will be completed within one (1) month of the end of each offset year detailing WONS management implementation and progress against the performance targets. OAARs will be included in the ACR.	Annually	Land Manager and Suitably qualified pest management contractor as appointed by the Land Manager.

Management action	Monitoring action(s)	Reporting action	Frequency	Responsible person(s) for activity/reporting
	Photo monitoring will be completed to document planting progress prior to broadscale weed works. 2-4 photo monitoring locations will be established per EMZ prior to the commencement of works and will encompass areas of assisted natural regeneration and reconstruction to document on-ground progress. Photo monitoring methodology will occur in accordance with RMP (refer **Appendix C**).	Photo Monitoring Report to be completed within one (1) month of completion of monitoring.	Bi-annually during the first five (5) years of the offset and then at five-yearly intervals (*i.e.,* Years 10, 15 and 20).	Land Manager and suitably qualified weed management contractor as appointed by the Land Manager.
	Weed cover surveys and mapping, and MHQA surveys will be conducted before the end of Milestone Report years in accordance with baseline survey methodologies to track progress against interim milestone targets and completion criteria and identify any issues for rectification. Monitoring will be undertaken during the same time of year at every monitoring event, to ensure that the timing is consistent and aligns with the baseline assessment.	Milestone Reports will be prepared three (3) months after the completion of milestone surveys at Years 5, 10, 15, and 20 of the offset and included in the ACR.	Five-yearly at Years 5, 10, 15 and 20 of the offset.	Suitably qualified person as appointed by the Proponent.
4 – Bushfire Management	Annual monitoring requirements to review access tracks, fire breaks, seasonal fuel loads and outcomes of controlled burns or other management in accordance with the associated Bushfire Management Plan.	An OAAR will be completed within one (1) month of the end of each offset year which documents bushfire management actions undertaken under the direction of the local authority or recommended in consultation with the Queensland Rural Fire Brigade. OAARs will be included in the relevant ACR.	Annually	Land Manager and suitably qualified bushfire management contractor as appointed by the Land Manager.
5 – Habitat creation and regeneration	Reconstruction areas subject to infill planting will be annually monitored by the Land Manager during and after the completion of planting works until establishment is reached. The monitoring timing is dependent on the planting cycle of the engaged	An OAAR will be completed within one (1) month of the end of each year to document rehabilitation progress including commentary on:	Annually	Land Manager and suitably qualified bushfire management contractor as

Management action	Monitoring action(s)	Reporting action	Frequency	Responsible person(s) for activity/reporting
	bush regeneration contractor. Monitoring will occur regularly after initial planting in accordance with watering schedules.	• Planting/seedling events, • Watering schedule, • Implemented corrective actions, • Success/failure rates within initial maintenance period/watering period until establishment, • Certificate of practical completion of planting works, and • Certificate/sign off that establishment has been reached.		appointed by the Land Manager.
	Photo monitoring will be completed to document planting progress prior to, during planting and establishment phases. 2-4 photo monitoring locations will be established per EMZ prior to the commencement of works and will encompass areas of assisted natural regeneration and reconstruction to document on-ground progress. Photo monitoring methodology will occur in accordance with RMP (refer **Appendix C**).	Photo Monitoring Report to be completed within one (1) month of completion of monitoring.	Bi-annually during the first five (5) years of the offset and then at five-yearly intervals (*i.e.*, Years 10, 15 and 20).	Suitably qualified person as appointed by the Proponent.
	MHQA and FHA surveys will be conducted before the end of Years 5, 10, 15, and 20 of the offset in accordance with baseline survey methodologies described in **Sections 6.1.2 to 6.1.6** to track progress against interim milestone targets and completion criteria and identify any issues for rectification.	Milestone Reports prepared three (3) months after the completion of milestone surveys at Years 5, 10, 15, and 20 of the offset and will be included in the ACR.	Five-yearly at Years 5, 10, 15 and 20 of the offset.	Suitably qualified person as appointed by the Proponent.

Management action	Monitoring action(s)	Reporting action	Frequency	Responsible person(s) for activity/reporting
6 – Fencing and Trespass Management	Installation, retrofitting and maintenance of fencing will be reported in the Year 1 OAAR.	An OAAR will be completed within one (1) month of the end of year 1.	First year of offset	Land Manager and suitably qualified bushfire management contractor as appointed by the Land Manager.
	Ongoing status of fencing and signage and any issues requiring rectification will be identified through regular site inspections to be determined by the Land Manager.	Reported in OAARs and subsequently in the ACR for the project period.	Annually	Land Manager and suitably qualified bushfire management contractor as appointed by the Land Manager.

8. Adaptive Management Framework

An adaptive implementation program will be used to ensure uncertainty is reduced over time, and that completion criteria are attained and maintained for the life of the offset. Adaptive management is an iterative process designed to promote learning from the outcomes of management action implementation and using that knowledge gained from monitoring to identify issues and implement corrective actions. Continuously monitoring and adjusting strategies will allow the Offset Provider and engaged contractors and consultants to respond effectively to changing conditions and uncertainties to ensure the proposed Environmental Outcomes are achieved.

As more information becomes available following ongoing performance monitoring, the management and monitoring regime will be reviewed and revised to maximise the likelihood of attaining and maintaining the outcomes to be achieved by implementing the OAMP. A review of OAMP completed every five (5) years with consideration to the areas identified above and will be directed by the Land Holder and an appointed suitably qualified person by the proponent.

Any updates to the OAMP which do not result in a material change to the environmental outcomes, performance and completion criteria will be made by the Land Holder and/or The Proponent without the requirement of approval from DCCEEW (however a copy of OAMP changes will be sent to DCCEEW for record keeping). If material amendments likely to alter the environmental outcomes, or performance and completion criteria are proposed to the OAMP, the amendments and justification for the contingency measures will be provided to DCCEEW in writing.

Adaptive management will be used to incorporate changes in any of the following areas:

1. Assimilation of new data or information - such as, updates to conservation advice or new threat abatement plans relevant to the koala, GHFF, swift parrot and regent honeyeater.
2. Project coordination and scheduling – to manage unforeseen disruptions to schedule such as inclement weather on contractor works for management actions and environmental consultant monitoring events.
3. Annual review of risks – to refresh the mitigation measures should new threats be identified or stochastic events such as floods, drought, cyclones, or unplanned fires.
4. Annual review of management measure effectiveness – to increase the frequency or change the method of management actions where monitoring performance criteria are not met.
5. Contingency for unplanned incidents – such as stochastic events including floods, cyclones, or unplanned fires.

8.2. Uncertainty

The plan identifies and manages uncertainty. To this end the plan specifies:

a) key data/information used to formulate the plan;

b) the limitations and/or uncertainty associated with the use of that data/information;

c) the risks that limitation and/or uncertainty represents for plan failure; and

d) how limitations and/or uncertainty, and associated risks, are mitigated during plan implementation. For example, where a margin of safety is applied to management measures until uncertainty is reduced to an acceptable level or performance targets/completion criteria are attained/maintained.

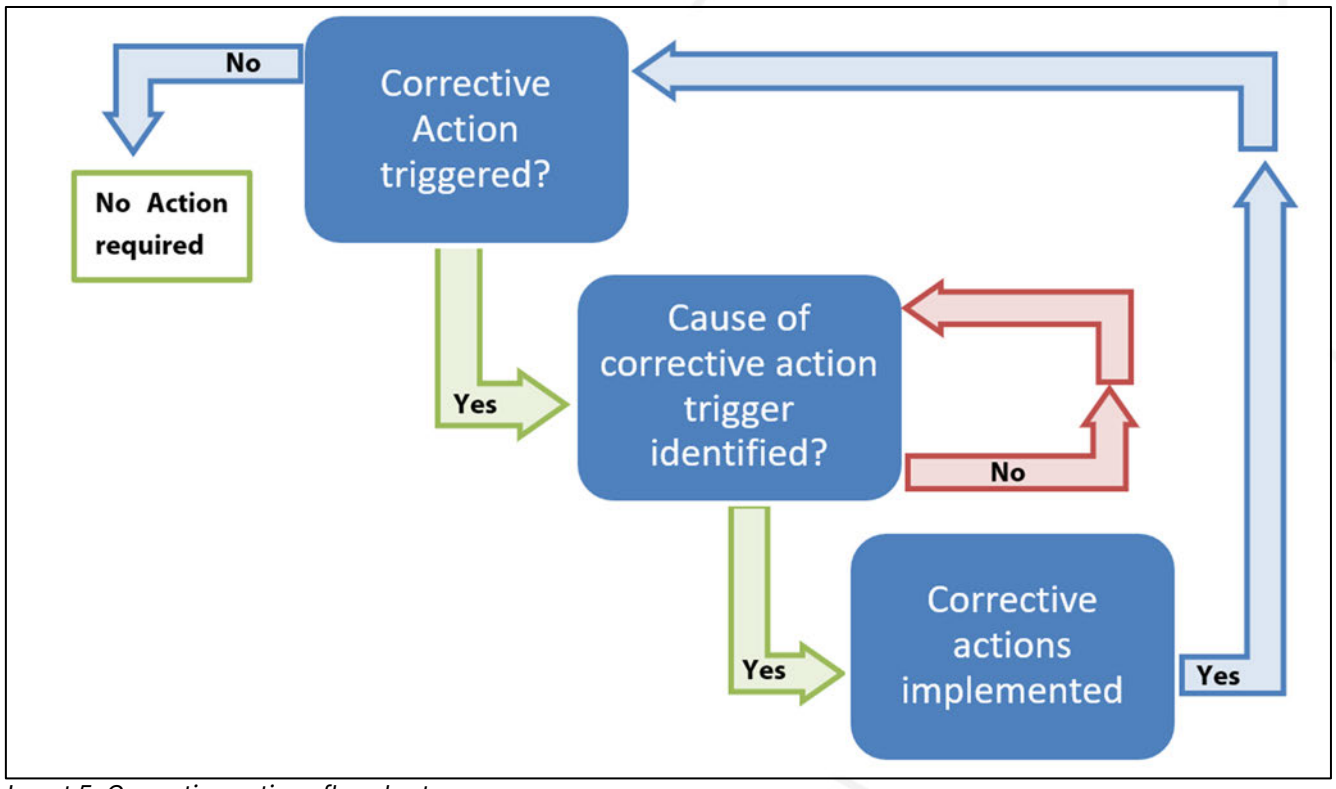
To identify and manage uncertainty, the OAMP used regulatory and policy context to formulate the plan, listed below.

- National Recovery Plan for the Koala *Phascolarctos cinereus* (combined populations of Queensland, New South Wales and the Australian Capital Territory) (DAWE, 2022b).
- The National Recovery Plan for the Grey-headed Flying-fox *Pteropus poliocephalus* (DAWE, 2021).
- National Recovery Plan for the Swift Parrot *Lathamus discolor* (DCCEEW, 2024).
- National Recovery Plan for the Regent Honeyeater (*Anthochaera phrygia*) (DoE, 2016).
- *EPBC Act Survey guidelines for Australia's threatened bats* (Department of the Environment, Water, Heritage and the Arts, 2010).
- EPBC Act environmental offsets policy (Department of Sustainability, Environment, Water, Population and Communities, 2012).
- EPBC Act Environmental Management Plan Guidelines (DoEE, 2014).
- Policy Statement: Advanced environmental offsets under the *Environment Protection and Biodiversity Conservation Act 1999*.
- *Vegetation Management Act 1999* (legally securing the offset through a Voluntary Declaration under Section 19F).
- *Queensland Environmental Offsets Act 2014*.
- *Queensland Environmental Offsets Regulation 2014*.

8.3. Corrective Action Triggers

Table 68 identifies corrective action triggers and actions however it is equally relevant to identify the cause of corrective action triggers in the adaptive management process. Identifying the cause of triggers allows suitable management actions to occur while also minimising the risk of repeat events. **Insert 5** illustrates the process of corrective action trigger process.

To ensure suitable corrective actions are implemented, it is necessary for the cause of the corrective action trigger to be identified. Only when the cause is identified can suitable management take place.



Insert 5: Corrective actions flowchart

Table 68: Triggers and Corrective Actions (including timeframes)

Triggers	Monitoring method	Corrective Actions	Timeframes for Corrective Actions
Trees and plantings showing signs of ill health or decline	• Photo monitoring and visual assessment • Quadrat surveys	• Identify and address the degrading factor (e.g. soil issue, pests, species failure). • Remove ill or dead plantings, undertake any remediation works and re-establishment planting. • Remedial plantings in areas of dieback to bolster survival rates to above 80%. • Introduce a different species *i.e.,* if one plant species consistently dies on a site, consider using in its place a species that is performing well. • Adjust planting methods such as using advanced tube stock or direct seeding, modifying site preparation techniques.	• Proponent to engage the suitably qualified professional within one month of detection to implement corrective actions. • Implement recommended mitigation measures within six months of detection. • Remove ill or dead plantings and undertake remediation works within six months of detection.
WONS not reduced to 5% cover by end of Year 10 and not maintained below 5% for life of offset	• Photo monitoring and visual assessment • Weed transect surveys (five-yearly) • MHQA surveys (five-yearly)	• Immediately treat all WONS, particularly *Lantana camara*, with delicate methods to avoid impacts to restoration works (mechanically or chemically dependent on circumstances). • Undertake an investigation of the potential source point of seeding. • Additional treatment and removal works are to be followed up during the next potential growth period to avoid any regeneration and potential seeding events. • Modify weed management techniques or frequency.	• Within three months of detection, noting that treatment during non-growth periods may be ineffective and are best targeted during growth periods for greater effectiveness. • Within three months of detection. • Within six months of initial detection.

Triggers	Monitoring method	Corrective Actions	Timeframes for Corrective Actions
Plant failure (>20% of stock) during the establishment period (2 – 5 years)	• Photo monitoring and visual assessment • Quadrat surveys	*Identification of issue* • Identify and address the degrading factor (e.g. soil issue, pests, species failure). *Follow-up procedure* • Remove ill or dead plantings, undertake any remediation works and re-establishment planting. • Remedial plantings in areas of dieback to bolster survival rates to above 80%. • Undertake soil testing to determine what rate of soil ameliorants or fertilizers may be required to improve the chemical balance of the soils for improved plant growth. • Introduce a different species *i.e.,* if one plant species consistently dies on a site, consider using in its place a species that is performing well. • Adjust planting methods such as using advanced tube stock or direct seeding, modifying site preparation techniques. • Should the planting fail again, the contractor is to engage a suitably qualified professional to identify the likely cause of plant failure.	*Identification of issue* • Rapid identification of issue within one month of detection. *Follow-up procedure* • Within three months or the next appropriate planting period (whichever comes first) of detection. • Apply in alignment with the recommendations made by the suitably qualified rehabilitation contractor and RMP.
Coarse woody debris is failing to become present naturally	• MHQA surveys	• The selective removal of limbs, shrubs, or trees (particularly from the shrub layer were forming dense thickets)	• At the 5, 10, 15 and 20 year MHQA monitoring events.

Triggers	Monitoring method	Corrective Actions	Timeframes for Corrective Actions
		• Importation of felled native timber from known impact areas where it would ordinarily be mulched and sent to land fill	
Growth rates not as expected	• Photo monitoring and visual assessment • MHQA surveys	• Engage a suitably qualified professional to review the plantings and advise on reason for growth rate and methods to increase growth rates through other interventions. • Undertake soil testing to determine what rate of soil ameliorants or fertilizers may be required to improve the chemical balance of the soils for improved plant growth.	• Within three months of detection
Stochastic or nuisance events	• Regular site inspections by Land Manager	• While such events (e.g. Fire, flood, drought, vandalism etc) are rare and can be managed by the contractor, where events take place, rectification works are required, to be guided by the relevant plan. • An event may be considered an incident where reporting to the DCCEEW is required.	• Rectification works are to be implemented within one month of the event. • Incidents to be reported to the DCCEEW according to timeframes specified within approval.
Ongoing presence of pest fauna (e.g. wild dogs) leading to destruction of regenerating habitat or MNES mortality attributed to feral animals	• Pest management • Photo monitoring and visual assessment • MHQA surveys	• Where recurrent pest animal species are detected through prescribed camera monitoring events, engage pest management contractor to increase frequency and management techniques to target particular pest species. • If pest presence continues despite targeted management, review PMP to determine if management measures	• Within three months of continued presence identification.

Triggers	Monitoring method	Corrective Actions	Timeframes for Corrective Actions
		should be revised to include more site specific measures including targeted baiting and/or trapping.	
Monitoring and reporting illustrates that **Environmental Outcomes** and **Completion Criteria** are not being achieved or are unlikely to be achieved by the end of the 20 year management timeframe and other corrective actions are not showing success	• Photo monitoring and visual assessment • MHQA surveys	• Review corrective actions implemented to date and determine if these can be repeated or modified to achieve outcomes. • Consider extending offset timeframe to meet completion criteria. • Commence a review of the OAMP and subsidiary plans where applicable (RMP, PMP, BMP). • Revise plans where appropriate and submit to the Minister for approval where required.	• Within six months of detection.

9. Risk Management

The plan assesses the risk of failure to achieve the plan's performance targets and/or completion criteria. To this end the plan:

a) states the plan's performance targets and/or completion criteria;

b) identifies events or circumstances that prejudice attainment/maintenance of performance targets and/or completion criteria. The events or circumstances must address scientific/ecological uncertainty, stochastic events and legal/land use planning factors that may represent risks;

c) includes a qualitative assessment of the likelihood and consequence of those events or circumstances, and the residual risk of failure to achieve those criteria due to identified events or circumstances (assuming management measures will be implemented);

d) characterises risk as low, medium, high or severe, and derived from likelihood (highly likely, likely, possible, unlikely, rare) and consequence (minor, moderate, high, major and critical); and

e) outlines how consequence, likelihood and risk level for each risk have been determined.

Risks are outlined in the subsections below and a risk assessment has been provided at **Appendix H**.

9.1. Climate Change

In addition to the risk of failure, corrective actions and triggers of the key management actions detailed in **Table 68**, the risk Climate Change imposes on the offset area has been included in this section and includes the following:

9.1.1 Wildfire

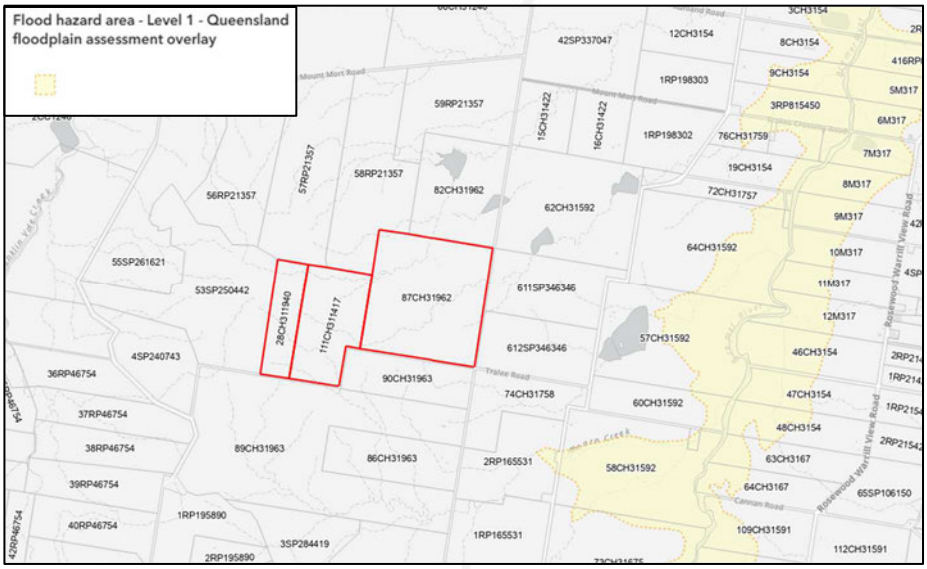
The offset land retains little vegetation, however, its proximity to surrounding vegetation increases the risk of wildfire on the site, and as such, it is reflected as medium to high-risk fuel loads for wildfire in State Government Mapping (refer **Figure 14**). The offset area includes a system of boundary line firebreaks and access tracks for the protection of stock and farming infrastructure. This fire management system will be evolved and maintained as parts of the site transfer from open pasture to revegetation as specific offset works are sequentially completed.

Wildfire Management Actions:

- Maintain the existing bushfire breaks between adjacent land holders and access tracks through and around areas of mature and regrowth vegetation.
- Establish new tracks and fire breaks as necessary as part of the increased vegetation cover created through revegetation and rehabilitation.
- Establish a site-specific Bushfire Management Plan which caters for excessive dry periods and/or high-risk build-up of wildfire fuel loads. If necessary, undertake mosaic understory low intensity back burning exercises to reduce fuel load risks.
- Work with local Qld Rural Fire Brigade, ICC representatives and adjoining landholders to minimise wildfire risks at the regional scale.
- Consider insurance for plant stock replacements.

9.1.2 Flooding

The closest major creek system to the offset area is the Bremer River located approximately 2.3 km east of the offset area. No Local or State flood mapping occurs within the offset area with areas adjoining the Bremer River within identified flood prone areas (refer **Insert 6**). As the entirety of the offset is outside of potential flood prone areas, the potential flood risk is considered low.



Insert 6: State Planning Policy Flood Hazard Mapping

Flooding Management Actions

- Include stabilisation matting, tree stakes, etc. for plantings within higher risk zones of erosion from rising flood waters or fast movement channel or embankment flows, such as within gully lines.

9.1.3 Drought

The nearest Bureau of Meteorology rainfall Station (Franklyn Vale Alert 040912) is located approximately 2.5 km north-west of the offset area and records varying annual rainfall trends in the last 10 years. 2019 recorded a below average rainfall at 326.2 mm which corresponds to a severe drought which occurred at the time, however, since then has ranged from 696.8 mm in 2023 to 1589.2 mm in the year preceding (2022). The average annual rainfall for the station, and offset area, is 847.9 mm. Annual rainfall has frequently exceeded the average over the past 5 years.

These data suggest the region can be severely impacted by drought, and also the converse with high levels of rainfall, largely driven by broadscale climatic trends.

Climate Change Adaptation Strategies for the koala prepared by Christine Adams-Hosking concluded that the highest probability of koala presence occurred at a mean annual rainfall of 700 mm (Adams-Hosking et al. 2011). Therefore, despite unprecedented drought conditions, the offset area has maintained an average annual rainfall amount >800 mm in the past 5 years similar to the optimal range to support koala presences. Preparation and management will still be key in maintaining resilience and habitat value long-term as extreme weather conditions become more frequent.

Drought Management Actions:

- Ensure offset design includes replanting and connection to higher moisture content soils associated with alluvial and riparian areas of the broader site.
- Maintain existing drainage features in offset rehabilitation works and as water sources for native animals.

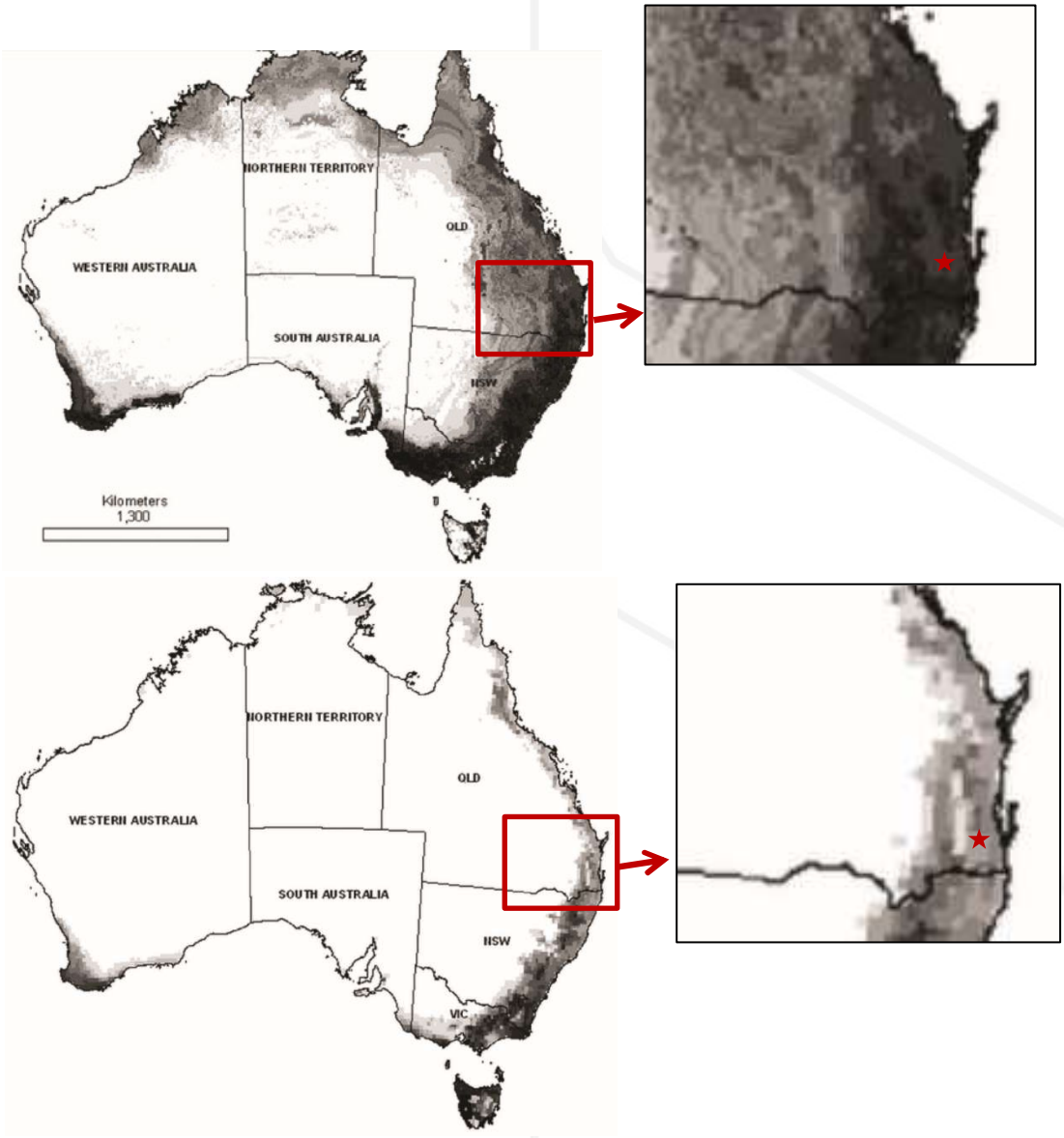
9.1.4 Shifting Habitat Range

Several contemporary case studies and research papers have investigated the impact of combined climate change weather characteristics on the current and future distribution of suitable koala habitat. Koalas are particularly affected by changing and/or extreme climate conditions as they have a low tolerance for environmental change and are already threatened by a variety of anthropogenic factors such as increased disease, vehicle strike, and habitat destruction and fragmentation. The high mobility of grey-headed flying-fox allows a higher level of adaptability, but both species and their habitat have been recently affected at a national level by the 2019-2020 bushfires. As such, large-scale extreme weather events as well as continuous shifts in weather patterns may alter the distribution of these species.

The Climate Change Adaptation Strategies for the koala by James Cook University (JCU) applied climate change distribution models for the Koala and five of its essential food trees to a conservation prioritisation framework ('Zonation') to determine which Queensland local government areas (LGAs) were the highest priority for koala conservation and adaptation. The study included current (2011) and predicted (2070) koala habitat distribution which showed a substantial eastward migration. The study further concludes that:

"*The highest probability of Koala presence occurred at a mean maximum summer temperature of approximately 27°C and a mean annual rainfall of approximately 700 mm*" (Adams-Hosking et al. 2011). Modelling climate-change-induced shifts in the distribution of the koala. Wildlife Research, 38, 122–130)

As previously stated, average annual rainfall near the offset area is 847.9 mm. Additionally, the land is also located within the current and 2070 koala habitat distribution maps based on the A1F1 climate change scenario (Adams-Hosking et al. 2011). Therefore, the offset area is within an ideal location to protect koala habitat in the face of shifting habitat range associated with climate change. Refer to **Insert 7** for estimated location of the offset area based on predicted changes in habitat distributions in 2070.



Insert 7: Modelled Habitat Distribution – Adams-Hosking et al. 2011. Top: 2011 distribution. Bottom: predicted 2070 distribution. Darker shading indicates a higher probability of Koala occurrence. Offset area indicated by red star.

9.2. Limitations

Although an adaptive management plan will be implemented across the offset area for life of the offset (20 years), potential limitations to achieving these include:

- Associated risks and uncertainty in predicting the occurrence and extent of natural disasters or extreme weather events, including drought and flooding.
- Uncertainty of the rate at which vegetation will re-establish.
- The ability of native fauna (*i.e.,* koala, GHFF, swift parrot and regent honeyeater) to recognise and utilise the site.
- Uncertainty of future predator occurrence and the effectiveness of the pest management measures.
- Coordinated approaches between local governments and the Land Holder to ensure effective implementation of management plans.

The implementation of adaptive management measures will ensure that identified limitations are avoided and/or the subsequent impacts are mitigated where possible. The implementation of the various described management actions along with continuous abundance monitoring will promote suitable habitat on site and encourage species utilisation.

Further, regular review of this OAMP inclusive of the management actions and monitoring methodologies detailed within it will assist in identifying areas for improvement, as well as identify successful methodologies. Whether management plans or on-site works have had success or required amendments will be assessed annually during the completion of the ACR.

To ensure correct assessment of the progress towards environmental outcomes and completion criteria, baseline surveys have been developed to be repeatable and comparable against the completion criteria. Surveys are to be repeated in the same manner and location throughout the management period to ensure a consistent approach and accurate representation of the conservation values within the offset area.

10. References

Adams-Hosking, C., Grantham, H. S., Rhodes, J.R., McAlpine, C. and Patrick T. Moss (2011). Modelling climate-change-induced shifts in the distribution of the koala. Wildlife Research, 38, 122–130.

Auld, B. (2009). Guidelines for monitoring weed control and recovery of native vegetation. New South Wales, Department of Primary Industries.

Australian Weed Management (2003). Weed Management Guide, Lantana – Lantana camara. Commonwealth Department of the Environment and Heritage.

Australian Wool Innovation Ltd (2020). National Wild Dog Action Plan 2020 - 2030: Promoting and supporting community-driven action for landscape-scale wild dog management.

Beyer, H. L., de Villiers, D., Loader, J., Robbins, A., Stigner, M., Forbes, N., & Hanger, J. (2018). Management of multiple threats achieves meaningful koala conservation outcomes. *Journal of Applied Ecology*, 55(4), 1966– 1975.

Biodiversity Integration and Offsets, Ecosystem Outcomes, Department of Environment and Heritage Protection (2014). Guide to determining terrestrial habitat quality - A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy, Version 1.2 April 2017.

Bussey, J. and Ellis, B. (2016). The koalas of Ipswich: opportunities, threats and future viability. School of Agriculture & Food Sciences, The University of Queensland, for Lock the Gate Alliance.

Chenoweth EPLA and Bushland Restoration Services (2012). South East Queensland Ecological Restoration Framework: Manual. Prepared on behalf of SEQ Catchments and South East Queensland Local Governments, Brisbane.

DAWE (2022a). Conservation Advice for *Phascolarctos cinereus* (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory. Department of Agriculture, Water and the Environment, Canberra, February.

DAWE (2022b). National Recovery Plan for the Koala *Phascolarctos cinereus* (combined populations of Queensland, New South Wales and the Australian Capital Territory). Department of Agriculture, Water and the Environment, Canberra, March 2022.

DAWE (2021). National Recovery Plan for the Grey-headed Flying-fox *Pteropus poliocephalus*, Department of Agriculture, Water and the Environment, Canberra, March.

DCCEEW (2024). National Recovery Plan for the Swift Parrot (*Lathamus discolor*). Department of Climate Change, Energy, the Environment and Water, Canberra.

DEEDI (2010). Weed risk assessment: Fireweed *Senecio madagascariensis*. Queensland Government, Department of Employment, Economic Development and Innovation.

DoE (2016). National Recovery Plan for the Regent Honeyeater (*Anthochaera phrygia*). Department of the Environment, Commonwealth of Australia.

DoEE (2014). EPBC Act Environmental Management Plan Guidelines. Department of Environment and Energy, Commonwealth of Australia.

DoEE (2017). Policy Statement: Advanced environmental offsets under the *Environment Protection and Biodiversity Conservation Act 1999.* Department of Environment and Energy, Commonwealth of Australia.

DES (2020). South East Queensland Koala Conservation Strategy 2020–2025. Department of Environment and Science, Queensland Government.

DSE (2006). Native vegetation: revegetation planting standards – Guidelines for establishing native vegetation for net gain accounting. East Melbourne, Victoria. Department of Sustainability and Environment.

DSEWPC (2012). EPBC Act environmental offsets policy. Department of Sustainability, Environment, Water, Population and Communities, Commonwealth of Australia, Canberra.

DEWHA (2008). Threat abatement plan for predation by the European red fox. Department of the Environment, Water, Heritage and the Arts, Canberra.

Eby, P. and Law, B. (2008) Ranking the feeding habitats of Grey-headed flying foxes for conservation management. a report for The Department of Environment and Climate Change (NSW) & The Department of Environment, Water, Heritage and the Arts October 2008.

Eby, P., Sims, R. and Bracks, J (2019) Flying fox Foraging Habitat Mapping NSW: a seamless map for assessing temporal and spatial patterns of habitat quality for flying foxes. Report to Local Government Association New South Wales.

Enoch, L. (2019). Statement on invasive weed species control at Springvale Station Nature Refuge, Cape York. In a public release noted by government media, Enoch discusses work to tackle weeds and rehabilitate the property.

Eyre T.J., Ferguson D.J., Smith, G.C., Mathieson, M.T., Venz, M.F., Hogan, LD, Hourigan CL, Kelly, AL & Rowland, J. 2022. Terrestrial Vertebrate Fauna Survey Assessment Guidelines for Queensland, Version 4.0. Brisbane: Department of Environment and Science, Queensland Government.

Eyre, T.J., Kelly, A.L., Neldner, V.J., Wilson, B.A., Ferguson, D.J., Laidlaw, M.J. and Franks, A.J. (2015). BioCondition: A Condition Assessment Framework for Terrestrial Biodiversity in Queensland. Assessment Manual. Version 2.2. Queensland Herbarium, Department of Science, Information Technology, Innovation and Arts, Brisbane.

Gentle, M., Allen, B. L., Oakey, J., Speed, J., Harriott, L., Loader, J., Robbins, A., de Villiers, D., and Hanger, J. (2019). Genetic sampling identifies canid predators of koalas (Phascolarctos cinereus) in peri-urban areas. Landscape and Urban Planning, 190, 103591.

Gonzalez-Astudillo, V., Allavena, R., Larkin, R., McKinnon, A., and Henning, J. (2017). Decline causes of Koalas in South East Queensland, Australia: a 17-year retrospective study of mortality and morbidity. Scientific Reports, 7, 42587.

Hanger, J., de Villiers, D., Forbes, N., Nottidge, B., Beyer, H., Loader, J., and Timms, P. (2017). Moreton Bay Rail Koala Management Program: Final technical report for Queensland Department of Transport and Main Roads.

Ipswich City Council. (2017). Koala Conservation and Habitat Management Plan.

Kjeldsen, S.R., Zenger, K.R., Leigh, K., Ellis, W., Tobey, J., Phalen, D., Melzer, A., FitzGibbon, S., and Raadsma, H. W. (2015). Genome-wide SNP loci reveal novel insights into koala (Phascolarctos cinereus) population variability across its range. Conservation Genetics Resources, 17(2), 337–353.

Mackey, B., Watson, J. and Worboys, G.L. (2010). Connectivity conservation and the Great Eastern Ranges corridor. ANU Enterprises Pty Ltd, Canberra.

McKeown, A. and Vanderduys, E. (2024). Grey-headed flying-fox population data. v2. CSIRO. Data Collection.

Moore, B.D. and Foley W.J. (2000). A review of feeding and diet selection in koalas (Phascolarctos cinereus). Australian Journal of Zoology 48, 317-333.

Neldner, V. J., et al. *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland*. Version 7.0, updated December 2023, Queensland Herbarium, Queensland Department of Environment, Science and Innovation, Brisbane, 2023.

Neldner, V. J., Wilson, B. A., Dillewaard, H. A., Ryan, T. S., Butler, D. W., McDonald, W. J. F., Addicott, E. P., & Appelman, C. N. (2019). *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland* (Version 5.0). Queensland Herbarium, Science and Technology Division, Department of Environment and Science, Brisbane.

Paull, D. (2019). Submission No. 231: Inquiry into Koala Populations and Habitat in New South Wales. Submitted 2 August 2019 to the Portfolio Committee No. 7 – Planning and Environment, Legislative Council, Parliament of NSW.

Phillips, S. and Callaghan, J. (2011). 'The Spot Assessment Technique: A tool for determining localised levels of habitat use by Koalas Phascolarctos cinereus'.

Phiddian, E. (2025). Koalas spend just 10 minutes a day risking their lives on the ground, tracking suggests. ABC News. Accessed: https://www.abc.net.au/news/science/2025-07-10/most-koala-deaths-happen-ground-habitat-destruction/105507980

Queensland Herbarium (2018). Technical Descriptions of Regional Ecosystems. Queensland Department of Environment, Science and Innovation, Brisbane.

Rhodes J.R., Chooi, F.N.; deVilliers, D.L., Preece, H.J., McAlpine, C.A. and Possingham, H.P. (2011). Using integrated population modelling to quantify the implications of multiple threatening processes for a rapidly declining population. Biological Conservation 144 (3): 1081-1088.

SERA (2017). National Standards for the Practice of Ecological Restoration in Australia. Second Edition. Standards Reference Group, Society for Ecological Restoration Australasia.

Threatened Species Scientific Committee (2010). Approved Conservation Advice for *Phascolarctos cinereus* (combined populations of Queensland, New South Wales and the Australian Capital Territory) (Koala Northern Designatable Unit) (Conservation Advice).

Vanderduys, E.P., Caley P., McKeown, A., Martin, J.M., Pavey, C., Westcott, D. (2024). Population trends in the vulnerable Grey-headed flying-fox, Pteropus poliocephalus; results from a long-term, range-wide study. PLoS ONE 19(3): e0298530.

Virtue, J.G. and Sheehan, M.R. (2022). Fireweed: National best practice management manual for fireweed (*Senecio madagascariensis*), Department of Agriculture, Fisheries and Forestry, Canberra. CC BYNC-ND 4.0

Wilson, P.R. and Taylor, P.M. (2012). Land Zones of Queensland. Queensland Herbarium, Queensland Department of Science, Information Technology, Innovation and the Arts, Brisbane. 79 pp.

WoolProducers Association (2014). National Wild Dog Action Plan: Promoting and supporting community-driven action for landscape scale wild dog management.

11. Appendices

Appendix A

MNES Environmental Outcomes

Appendix B

OAG Calculator Sheets

Appendix C

Rehabilitation Management Plan

Appendix D

CV – Suitably Qualified Ecologist

Appendix E

Baseline MHQA and GHFF FHA

Appendix F

Baseline Habitat Quality Transect Data

Appendix G

Baseline Weed Data

Appendix H

Risk Assessment

Appendix A

MNES Environmental Outcomes

Table 1: Koala Environmental Outcomes – Assessment Unit 1 / Environmental Management Zone 1 (Non-remnant Open Paddock RE12.3.3)

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Recruitment of woody perennial species	3	3	5	5	5	10 years	Recruitment of EDL dominant species will increase to >75% as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes. Establish photo monitoring points where remedial tree planting occurs at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Recruitment is currently 33% of the benchmark. If improvement to greater than 75% has not been achieved at year 10 then remedial actions to improve recruitment will be applied. These include refining weed and fire control methods and increasing remedial plantings.
Native plant species richness – Trees	0	2.5	2.5	2.5	5	20 years	All of the expected tree species to be present as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree species richness is currently at 7% of the benchmark. Recruitment of tree species is to be greater than 90% at year 20 as specified above. If the sub-canopy layer species richness has not improved to greater than 25% at year 5 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings of advanced stock.
Native plant species richness - Shrubs	0	2.5	2.5	2.5	5	20 years	All of the expected shrub species to be present as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub species richness is currently at 7% of the benchmark. If the shrub species richness has not improved to greater than 25% at year 5 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings.
Native plant species richness - Grasses	0	2.5	2.5	2.5	5	20 years	All of the expected grass species to be present as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Grass species richness is currently at 22% of the benchmark. If the grass species richness has not improved to greater than 25% at year 5 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings.
Native plant species richness - Forbs	0	0	2.5	2.5	2.5	10 years	Native forb species richness between 25% and 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Forb species richness is currently at 5% of the benchmark. If the forb species richness has not improved to greater than 25% at year 10 then remedial actions to improve the prospect of achieving between 25% and 90% in 20 years will be applied. These include remedial plantings.
Tree canopy height	0	0	3	3	5	20 years	A median tree height greater than 70% of the benchmark will be achieved as a result of 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Median tree canopy height is currently at 24% (EDL) and 0% (sub-canopy) of the benchmark (average 12%). If tree height has not transitioned to above 25% at year 10, then the prospect of extending the management period may be investigated. By Year 20 species plantings to be a minimum of 70% of the tree canopy height benchmark.
Tree canopy cover	0	0	2	2	5	20 years	Canopy cover to be between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree canopy cover is currently at 6% (EDL) and 0% (sub-canopy) of the benchmark (average 3%). Recruitment of tree species is to be greater than 50% at year 20. If canopy cover is not greater than 10% at year 10 then remedial actions to improve the prospect of achieving between 50% and 200% in 20 years may be applied. These include remedial plantings of advanced stock.
Shrub canopy cover	0	0	3	3	5	20 years	Canopy cover to be between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub canopy cover is currently at 0% of the benchmark. Shrub canopy cover is to achieve between 50 – 200 % of the baseline by year 20. If shrub canopy cover is not greater than 10% by year 10 remedial actions may be applied. Remedial actions may include additional plantings.

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Native perennial grass cover	5	5	5	5	5	Immediate	Native grass cover to be maintained at greater than 90% of the benchmark by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Native perennial grass cover is currently at 105% of the benchmark. Remedial actions to ensure cover is maintained above 90% in 20 years may be applied if monitoring results observe a significant decrease in cover. These include refining weed and fire control methods to ensure native grass cover is maintained.
Organic litter	0	0	0	3	5	20 years	Organic litter to be between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Organic litter is currently at 2% of the benchmark. If organic litter has not improved to greater than 10% at year 15 then remedial actions to improve the prospect of achieving litter between 50% and 200% in 20 years will be applied. These include refining weed and fire control methods to ensure organic litter is maintained.
Large trees	5	5	5	5	5	Immediate	The number of large trees will be maintained between 0% and 50% of the benchmark as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	It is anticipated that the number of large trees will be maintained between 0% and 50%. Remedial actions are not anticipated.
Coarse woody debris	0	0	0	2	2	15 years	Course woody debris greater than 50% and less than 200% of the benchmark will be achieved by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Coarse woody debris is currently 5% of the benchmark. If monitoring indicates that coarse woody debris is not improved to greater than 10% by year 15 then remedial actions will be applied. These include a review of actions that impact on coarse woody debris such as fire regimes and importing native tree debris if necessary.
Weed cover	3	5	10	10	10	10 Years	Weed coverage will reduce to less than 5% over the course of 10 years by specific management actions 2, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Weed cover is currently 42%. If improvement to less than 25% has not been achieved by year 5 then remedial actions to reduce weed cover and achieve <5% in 20 years will be applied. These include refining weed control methods.
Quality and availability of food and foraging habitat	1	1	5	5	10	20 Years	Quality and availability of food and foraging habitat will be improved to high by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of food and foraging habitat is currently low (16% of the benchmark). All site condition remedial actions also apply to this criterium achieving a high rating (*i.e.,* >66% of the benchmark).
Quality and availability of shelter	1	1	5	5	10	20 Years	Quality and availability of shelter will be improved to high by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of shelter is currently low (l16% of the benchmark). All site condition remedial actions also apply to this criterium achieving a high rating (*i.e.,* >66% of the benchmark).
Site Condition Score	**18**	22.5	53	58	**84.5**				
Overall Site Condition Score out of 3	**0.54**	0.68	1.59	1.74	**2.54**				
Size of patch	10	10	10	10	10	NA	NA	NA	NA
Connectedness	2	2	2	2	2	NA	NA	NA	NA
Context	4	4	4	4	4	NA	NA	NA	NA
Ecological Corridors	0	0	0	0	0	NA	NA	NA	NA
Role of site location to species overall population in the state	5	5	5	5	5	NA	NA	NA	NA

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Threats to the species	7	7	7	7	7	Immediate	Threats to species including barbed wire fencing and non-native predators will be suppressed through specific management actions 1, 2 & 3. No measurable improvement is anticipated.	Baseline attributes are established. This criterium is reliant upon the suppression and control of pest species. Pest monitoring will be evaluated as per the pest management program.	Non-native predators will be managed for life the offset through direction of pest management contractors and through interim milestone surveys. No measurable improvement is anticipated.
Species mobility capacity	4	10	10	10	10	5 Years	Species mobility capacity will be improved to minor restriction (<25%) by specific management actions 1 to 8.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species mobility is currently moderately restricted by the sparsity of foraging trees. All site condition remedial actions, as well as threat reductions also apply to this criterium achieving a high rating.
Site Context Score	**32**	38	38	38	**38**				
Overall Site Context Score (out of 3)	**1.71**	2.04	2.04	2.04	**2.04**				
Presence	10	10	10	10	10	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Usage (habitat type and evidenced usage)	5	5	5	5	15	20 Years	It is anticipated that under the management actions specified under management actions 1 to 8, Koala usage of the site as a measure of habitat type and evidence usage will increase. It is considered that with the reinstatement of key habitat values, the site will be considered breeding habitat by Year 20 as per the conservation advice.	Baseline SAT attributes are established. Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The sparsity of trees across the assessment unit indicates limited potential for usage within the assessment unit by Koala. Due to the presence of scattered trees, the assessment unit has been scored as dispersal habitat. If usage levels are not transitioning toward foraging level at year 10, then broader Koala population surveys will be undertaken to ascertain potential external causes and the management actions re-visited accordingly. If Koala usage (measured as both the increase in habitat values and Koala activity) has not improved to breeding level by year 20 then the management period may be extended and further remedial actions applied in consideration of other scoring improvements relative to potential external factors impacting on Koala usage.
Approximate Density	0	0	0	0	10	20 Years	It is anticipated that under the management actions specified in management actions 1 to 8 at least low level Koala activity (<22.52% scats recorded using the East Coast med-high population category) will be recorded.	Baseline SAT attributes are established. Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The sparsity of trees across the assessment unit indicate no usage of the assessment unit by Koala. If density levels are not transitioning toward low level at year 10, then broader Koala population surveys will be undertaken to ascertain potential external causes and the management actions re-visited accordingly. If Koala activity has not improved to low level by Year 20 then the management period may be extended and further remedial actions applied in consideration of other scoring improvements relative to potential external factors impacting on Koala activity.
Role of the population	5	5	5	5	5	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
SSR Score (out of 70)	**20**	20	20	20	**20**				
SSR Score out of 4	**1.14**	1.14	1.14	1.14	**2.29**				
Total Habitat Quality Scores	**3.53**	4.77	4.92	4.95	**6.86**				

Table 2: Koala Environmental Outcomes – Assessment Unit 2 / Environmental Management Zone 2 (Non-remnant Open Paddock RE12.8.17)

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Recruitment of woody perennial species	0	3	5	5	5	10 years	Recruitment of EDL dominant species will increase to >75% as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Establish photo monitoring points where remedial tree planting occurs at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Recruitment is currently 0% of the benchmark. If improvement to greater than 20% has not been achieved at year 5 then remedial actions to improve recruitment will be applied to achieve greater than 75% in 20 years. These include refining weed and fire control methods and increasing remedial plantings.
Native plant species richness – Trees	2.5	2.5	2.5	2.5	5	20 years	Native tree species richness greater than 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree species richness is currently at 29% of the benchmark. Recruitment of tree species is to be greater than 75% at year 20. If the sub-canopy layer species richness is not heading towards being greater than 75% at year 15 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings of advanced stock.
Native plant species richness - Shrubs	0	2.5	2.5	2.5	5	20 years	Greater than 90% of the benchmark of native shrub species richness to be achieved by as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub species richness is currently at 5% of the benchmark. If the shrub species richness has not improved to greater than 25% at year 5 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings.
Native plant species richness - Grasses	0	2.5	2.5	2.5	5	20 years	Native grass species richness greater than 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Grass species richness is currently at 21% of the benchmark. If the grass species richness has not improved to greater than 25% at year 5 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings.
Native plant species richness - Forbs	0	0	2.5	2.5	2.5	10 years	Forb species richness to achieve 25% to 90% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Forb species richness is currently at 8% of the benchmark. If the forb species richness has not improved to greater than 25% at year 10 then remedial actions to improve the prospect of achieving between 25% and 90% in 20 years will be applied. These include remedial plantings.
Tree canopy height	3	3	3	3	5	20 years	Tree canopy height greater than 70% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Median tree canopy height is currently at 47% (EDL) and 42.5% (sub-canopy) of the benchmark. If tree height has not transitioned to above 70% at year 15, then the prospect of extending the management period may be investigated. By year 20 species plantings to be a minimum of 70% of the tree canopy height benchmark.
Tree canopy cover	0	0	2	2	5	20 years	Tree canopy cover between 50% and 200% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree canopy cover is currently at 0% (EDL) and 6% (sub-canopy) of the benchmark. Recruitment of tree species is to be greater than 50% at year 20 as specified above. If canopy cover has not reached 10% at year 10 then remedial actions to improve the prospect of achieving between 50% and 200% in 20 years may be applied. These include remedial plantings of advanced stock.
Shrub canopy cover	0	0	3	3	5	20 years	Shrub canopy cover to be between 50% and 200% of the benchmark will be achieved as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub canopy cover is currently at 0% of the benchmark. At year 10 if shrub canopy cover is not greater than 10% of the benchmark then remedial actions to ensure shrub canopy achieves between 50% and 200% in 20 years may be applied. Remedial actions may include additional plantings.

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Native perennial grass cover	5	5	5	5	5	Immediate	Native perennial grass cover between 50 and 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Native perennial grass cover is currently at 188% of the benchmark. If the native perennial grass cover declines then remedial actions may be applied to ensure at least 50% cover of native perennial grass is achieved by year 20. These include refining weed and fire control methods to ensure native grass cover is maintained.
Organic litter	0	0	0	3	5	20 years	Organic litter between 50% and 200% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Organic litter is currently at 2% of the benchmark. If organic litter has not improved to greater than 10% at year 15 then remedial actions to improve the prospect of maintain litter between 50% and 200% in 20 years will be applied. These include refining weed and fire control methods to ensure organic litter is maintained.
Large trees	0	0	0	0	0	Immediate	The number of large trees will be maintained between 0% and 50% of the benchmark as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	It is anticipated that the number of large trees will be maintained between 0% and 50%. Remedial actions are not anticipated.
Coarse woody debris	2	2	2	2	2	Immediate	Course woody debris greater than 10% and less than 50% of the benchmark will be achieved by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Coarse woody debris is currently 14% of the benchmark. If monitoring indicates that coarse woody debris has declined then remedial actions may be applied. These include a review of actions that impact on coarse woody debris such as fire regimes and importing native tree debris if necessary.
Weed cover	5	5	10	10	10	10 Years	Weed coverage will reduce to less than 5% over the course of 10 years by specific management actions 2, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Weed cover is currently 22%. If improvement to below 5% has not been achieved by year 10 then remedial actions to reduce weed cover will be applied. These include refining weed control methods.
Quality and availability of food and foraging habitat	1	1	5	5	10	20 Years	Quality and availability of food and foraging habitat will be improved to high by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of food and foraging habitat is currently low (18% of the benchmark). All site condition remedial actions also apply to this criterium achieving a high rating (*i.e.,* >66% of the benchmark).
Quality and availability of shelter	1	1	5	5	10	20 Years	Quality and availability of shelter will be improved to high by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of shelter is currently low (18% of the benchmark). All site condition remedial actions also apply to this criterium achieving a high rating (*i.e.,* >66% of the benchmark).
Site Condition Score	**19.5**	25	50	53	**79.5**				
Overall Site Condition Score out of 3	**0.59**	0.75	1.50	1.59	**2.39**				
Size of patch	10	10	10	10	10	NA	NA	NA	NA
Connectedness	2	2	2	2	2	NA	NA	NA	NA
Context	4	4	4	4	4	NA	NA	NA	NA
Ecological Corridors	4	4	4	4	4	NA	NA	NA	NA
Role of site location to species overall population in the state	5	5	5	5	5	NA	NA	NA	NA

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Threats to the species	7	7	7	7	7	Immediate	Threats to species including barbed wire fencing and non-native predators will be suppressed through specific management actions 1, 2 & 3. No measurable improvement is anticipated.	Baseline attributes are established. This criterium is reliant upon the suppression and control of pest species. Pest monitoring will be evaluated as per the pest management program.	Non-native predators will be managed for life the offset through direction of pest management contractors and through interim milestone surveys. No measurable improvement is anticipated.
Species mobility capacity	4	10	10	10	10	10 Years	Species mobility capacity will be improved to minor restriction (<25%) by specific management actions 1 to 8.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species mobility is currently moderately restricted by the absence of habitat. All site condition remedial actions, as well as threat reductions also apply to this criterium achieving a high rating.
Site Context Score	**32**	32	38	38	**38**				
Overall Site Context Score (out of 3)	**1.71**	1.71	2.04	2.04	**2.04**				
Presence	10	10	10	10	10	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Usage (habitat type and evidenced usage)	5	5	5	5	15	20 Years	It is anticipated that under the management actions specified under management actions 1 to 8, Koala usage of the site as a measure of habitat type and evidence usage will increase. It is considered that with the reinstatement of key habitat values, the site will be considered breeding habitat by Year 20 as per the conservation advice.	Baseline SAT attributes are established. Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The sparsity of trees across the assessment unit indicates limited potential for usage within the assessment unit by Koala. Due to the presence of scattered trees, the assessment unit has been scored as dispersal habitat. If usage levels are not transitioning toward foraging level at year 10, then broader Koala population surveys will be undertaken to ascertain potential external causes and the management actions re-visited accordingly. If Koala usage (measured as both the increase in habitat values and Koala activity) has not improved to breeding level by year 20 then the management period may be extended and further remedial actions applied in consideration of other scoring improvements relative to potential external factors impacting on Koala usage.
Approximate Density	0	0	0	0	10	20 years	It is anticipated that under the management actions specified in management actions 1 to 8 at least low level Koala activity (<22.52% scats recorded using the East Coast med-high population category) will be recorded.	Baseline SAT attributes are established. Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The absence of trees across the assessment unit indicate no usage of the assessment unit by Koala. If density levels are not transitioning toward low level at year 10, then broader Koala population surveys will be undertaken to ascertain potential external causes and the management actions re-visited accordingly. If Koala activity has not improved to low level by Year 20 then the management period may be extended and further remedial actions applied in consideration of other scoring improvements relative to potential external factors impacting on Koala activity.
Role of the population	5	5	5	5	5	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
SSR Score (out of 70)	**20**	20	20	20	**40**				
SSR Score out of 4	**1.14**	1.14	1.14	1.14	**2.29**				
Total Habitat Quality Scores	**3.44**	3.61	4.68	4.77	**6.71**				

Table 3: Koala Environmental Outcomes – Assessment Unit 3 / Environmental Management Zone 3 (Regrowth RE12.8.17)

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Recruitment of woody perennial species	5	5	5	5	5	Immediate	Recruitment of EDL dominant species will increase to >75% as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Establish photo monitoring points where remedial tree planting occurs at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Recruitment is currently at 89% of the benchmark. If recruitment declines, then remedial actions to improve recruitment may be applied. These include refining weed and fire control methods and increasing remedial plantings.
Native plant species richness – Trees	2.5	2.5	2.5	2.5	5	20 years	Native tree species richness greater than 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Native tree species richness is currently at 76% of the benchmark. Recruitment of tree species is to be greater than 90% at year 20. If species richness has not improved to greater than 90% at year 15 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings of advanced stock.
Native plant species richness - Shrubs	2.5	2.5	2.5	2.5	5	20 years	Native shrub species richness greater than 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub species richness is currently at 87% of the benchmark. If the shrub species richness has not improved to greater than 90% at year 15 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings.
Native plant species richness - Grasses	2.5	2.5	2.5	5	5	15 years	Native grass species richness greater than 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Grass species richness is currently at 36% of the benchmark. If the grass species richness has not improved to greater than 75% at year 10 then remedial actions to improve the prospect of achieving 90% in 20 years will be applied. These include remedial plantings.
Native plant species richness - Forbs	2.5	2.5	2.5	2.5	2.5	Immediate	Forb species richness to achieve between 25% and 90% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Forb species richness is currently at 36% of the benchmark. If the forb species richness declines, then remedial actions to improve the prospect of achieving and maintaining between 25% and 90% in 20 years may be applied. These include remedial plantings.
Tree canopy height	3	3	3	5	5	15 years	Tree canopy height greater than 70% of the benchmark will be maintained as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Median tree canopy height is currently 67% (EDL) and 40% (sub-canopy), average 53%. It is anticipated that the tree canopy height will achieve greater than 70% by year 15. If median tree canopy height is not greater than 70% by year 10 then remedial actions may be applied to ensure this is achieved by year 15.
Tree canopy cover	5	5	5	5	5	Immediate	Canopy cover to be between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree canopy cover is currently at 91% (EDL) and 60% (sub-canopy) of the benchmark, average 75%. It is anticipated that tree canopy cover will be maintained at between 50% and 200% by 20 years. Remedial actions are not anticipated.
Shrub canopy cover	3	3	5	5	5	10 years	Shrub canopy cover to be between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub canopy cover is currently at 47% of the benchmark. If monitoring indicates that shrub canopy cover is not transitioning to between 50 and 200% by year 10 then remedial actions will be applied. These include a review of actions that impact on shrub canopy cover.
Native perennial grass cover	5	5	5	5	5	Immediate	Native grass cover to be maintained at least 90% of the benchmark by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Native perennial grass cover is currently at 136% of the benchmark. It is anticipated that native perennial grass cover will maintain greater than 90% of the benchmark by year 20. Remedial actions are not anticipated.

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Organic litter	5	5	5	5	5	Immediate	Between 50 and 200% of the benchmark for organic litter will be maintained as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Organic litter is currently 159% of the benchmark. It is anticipated that the organic litter cover will be maintained between 50 and 200% of the benchmark by year 20. Remedial actions are not anticipated.
Large trees	10	10	10	10	10	Immediate	Between 50 and 100% of the benchmark for large trees will be maintained as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	It is anticipated that the large tree count will be maintained between 50 and 100% of the benchmark. Remedial actions are not anticipated.
Coarse woody debris	2	2	2	5	5	15 years	Course woody debris greater than 50% and less than 200% of the benchmark will be achieved by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Coarse woody debris is currently 25% of the benchmark due to current and historical land uses. If monitoring indicates that coarse woody debris is not transitioning to between 50 and 200% by year 15 then remedial actions will be applied. These include a review of actions that impact on coarse woody debris such as fire regimes and importing native tree debris if necessary.
Weed cover	5	5	10	10	10	10 Years	Weed coverage will reduce to less than 5% over the course of 10 years by specific management actions 2, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Weed cover is currently 9% of the benchmark. If improvement to 5% has not been achieved at year 10 then remedial actions to reduce weed cover will be applied. These include refining weed control methods.
Quality and availability of food and foraging habitat	10	10	10	10	10	Immediate	Quality and availability of food and foraging habitat will be improved to high by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of food and foraging habitat is currently high (73% of the benchmark). All site condition remedial actions also apply to this criterium achieving a high rating (*i.e.,* >66% of the benchmark).
Quality and availability of shelter	10	10	10	10	10	Immediate	Quality and availability of shelter will be improved to high by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of shelter is currently high (73% of the benchmark). All site condition remedial actions also apply to this criterium achieving a high rating (*i.e.,* >66% of the benchmark).
Site Condition Score	**73**	73	80	87.5	**92.5**				
Overall Site Condition Score out of 3	**2.19**	2.19	2.40	2.63	**2.78**				
Size of patch	10	10	10	10	10	NA	NA	NA	NA
Connectedness	2	2	2	2	2	NA	NA	NA	NA
Context	4	4	4	4	4	NA	NA	NA	NA
Ecological Corridors	0	0	0	0	0	NA	NA	NA	NA
Role of site location to species overall population in the state	5	5	5	5	5	NA	NA	NA	NA
Threats to the species	7	7	7	7	7	Immediate	Threats to species including barbed wire fencing and non-native predators will be suppressed through specific management actions 1, 2 & 3. No measurable improvement is anticipated.	Baseline attributes are established. This criterium is reliant upon the suppression and control of pest species. Pest monitoring will be evaluated as per the pest management program.	Non-native predators will be managed for life the offset through direction of pest management contractors and through interim milestone surveys. No measurable improvement is anticipated.
Species mobility capacity	10	10	10	10	10	Immediate	Species mobility capacity will achieve minor restriction (<25%) by specific management actions 1 to 8.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species mobility is currently moderately restricted by Lantana infestations within the waterway gully. All site condition remedial actions, as well as threat reductions also apply to this criterium achieving a high rating.

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Site Context Score	**38**	38	38	38	**38**				
Overall Site Context Score (out of 3)	**2.04**	2.04	2.04	2.04	**2.04**				
Presence	10	10	10	10	10	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Usage (habitat type and evidenced usage)	15	15	15	15	15	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Approximate Density	10	10	10	10	10	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Role of the population	5	5	5	5	5	Immediate	NA - Not anticipated to change	NA - Not anticipated to change	NA - Not anticipated to change
SSR Score (out of 70	**40**	40	40	40	**40**				
SSR Score out of 4	**2.29**	2.29	2.29	2.29	**2.29**				
Total Habitat Quality Scores	**6.51**	6.51	6.72	6.95	**7.10**				

Table 4: Koala Environmental Outcomes – Assessment Unit 4 / Environmental Management Zone 4 (Remnant RE12.8.17)

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Recruitment of woody perennial species	3	3	5	5	5	10 years	Recruitment of EDL dominant species will be maintained as >75% as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Establish photo monitoring points where remedial tree planting occurs at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Recruitment is currently 75% of the benchmark. If improvement to greater than 75% has not been achieved at year 5 then remedial actions to improve recruitment will be applied to achieve greater than 75% by year 10. These include refining weed and fire control methods and increasing remedial plantings.
Native plant species richness – Trees	5	5	5	5	5	Immediate	Native tree species richness greater than 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree species richness is currently at 114% of the benchmark. Recruitment of tree species is expected to be maintained at greater than 90%. Remedial actions are not anticipated.
Native plant species richness - Shrubs	5	5	5	5	5	Immediate	Native shrub species richness greater than 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub species richness is currently at 100% of the benchmark. Shrub species richness is expected to be maintained at greater than 90%. Remedial actions are not anticipated.
Native plant species richness - Grasses	2.5	2.5	2.5	5	5	15 years	Native grass species richness greater than 90% of the benchmark will be achieved as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Grass species richness is currently at 33% of the benchmark. If the grass species richness has not improved to greater than 90% at year 10 then remedial actions to improve the prospect of achieving 90% in 15 years will be applied. These include remedial plantings.
Native plant species richness - Forbs	2.5	2.5	2.5	2.5	2.5	Immediate	Forb species richness to be maintained between 25% and 90% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Forb species richness is currently at 33% of the benchmark. It is anticipated that forb species richness will be maintained between 25% and 90% therefore remedial plantings are not anticipated.
Tree canopy height	5	5	5	5	5	Immediate	A median tree height greater than 70% of the benchmark will be achieved as a result of 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Median tree canopy height is currently at 95% (EDL) and 75% (sub-canopy) of the benchmark (average 85%). It is anticipated that median tree canopy height will be maintained above 70% therefore remedial actions are not anticipated.
Tree canopy cover	3.5	3.5	3.5	5	5	15 years	Canopy cover to achieve between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Tree canopy cover is currently at 45% (EDL) and 98% (sub-canopy) of the benchmark, average 71%. EDL canopy cover is to be greater than 50% at year 15. If canopy cover is not transitioning to 50% at year 10 then remedial actions to improve the prospect of achieving between 50% and 200% in 15 years may be applied. These include remedial plantings of advanced stock.
Shrub canopy cover	5	5	5	5	5	Immediate	Canopy cover to be between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Shrub canopy cover is currently at 105% of the benchmark. It is anticipated that shrub canopy will be maintained between 50% and 200% over the 20 year period.

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Native perennial grass cover	3	3	5	5	5	10 years	Native grass cover to be maintained at least 90% of the benchmark by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Native perennial grass cover is currently at 80% of the benchmark. If native perennial grass cover is not transitioning to greater than 90% at year 5 then remedial actions to improve the prospect of achieving this will be applied. This includes refining weed and fire control methods to ensure native perennial grass recruitment.
Organic litter	5	5	5	5	5	Immediate	Organic litter to achieve between 50% and 200% of the benchmark as a result of specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Organic litter is currently at 181% of the benchmark. It is anticipated that organic litter will be maintained between 50% and 200%. Remedial actions are not anticipated.
Large trees	10	10	10	10	10	Immediate	The number of large trees will be maintained between 50% and 100% of the benchmark as a result of management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	It is anticipated that the number of large trees will be maintained between 50% and 100%. Remedial actions are not anticipated.
Coarse woody debris	5	5	5	5	5	Immediate	Course woody debris greater than 50% and less than 200% of the benchmark will be achieved by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Coarse woody debris is currently 53% of the benchmark. If monitoring indicates that coarse woody debris is declining, then remedial actions may be applied to ensure 50 to 200% of the benchmark is maintained. These include a review of actions that impact on coarse woody debris such as fire regimes and importing native tree debris if necessary.
Weed cover	5	5	10	10	10	10 Years	Weed coverage will reduce to less than 5% over the course of 10 years by specific management actions 2, 6 & 7.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Weed cover is currently 24%. If improvement to 5% has not been achieved by year 10 then remedial actions to reduce weed cover will be applied. These include refining weed control methods.
Quality and availability of food and foraging habitat	10	10	10	10	10	Immediate	Quality and availability of food and foraging habitat will be improved to high by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of food and foraging habitat is currently high (82.78% of the benchmark). All site condition remedial actions also apply to this criterium achieving a high rating (*i.e.*, ≥66% of the benchmark).
Quality and availability of shelter	10	10	10	10	10	Immediate	Quality and availability of shelter will be improved to high by specific management actions 1, 2, 3, 5, 6 & 7.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Quality and availability of shelter is currently high (82.78% of the benchmark). All site condition remedial actions also apply to this criterium achieving a high rating (*i.e.*, ≥66% of the benchmark).
Site Condition Score	**79.5**	79.5	88.5	92.5	**92.5**				
Overall Site Condition Score out of 3	**2.39**	2.39	2.66	2.78	**2.78**				
Size of patch	10	10	10	10	10	NA	NA	NA	NA
Connectedness	2	2	2	2	2	NA	NA	NA	NA
Context	4	4	4	4	4	NA	NA	NA	NA
Ecological Corridors	0	0	0	0	0	NA	NA	NA	NA
Role of site location to species overall population in the state	5	5	5	5	5	NA	NA	NA	NA
Threats to the species	7	7	7	7	7	Immediate	Threats to species including barbed wire fencing and non-native predators will be suppressed through specific management actions 1, 2 & 3. No measurable improvement is anticipated.	Baseline attributes are established. This criterium is reliant upon the suppression and control of pest species. Pest monitoring will be evaluated as per the pest management program.	Non-native predators will be managed for life the offset through direction of pest management contractors and through interim milestone surveys. No measurable improvement is anticipated.

Attribute	Current Score	Year 5 Score	Year 10 score	Year 15 score	Year 20 score	Time Until Measured Benefit	Justifications / Management Actions	Monitoring	KPIs and Adaptive Management
Species mobility capacity	10	10	10	10	10	Immediate	Species mobility capacity will be improved to minor restriction (<25%) by specific management actions 1 to 8.	Baseline attributes are established. Establish strategic photo monitoring points at commencement of offset. Habitat quality transects and photo monitoring to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species mobility is currently moderately restricted by the absence of habitat and presence of weeds and pests. All site condition remedial actions, as well as threat reductions also apply to this criterium achieving a high rating.
Site Context Score	**38**	38	38	38	**38**				
Overall Site Context Score (out of 3)	**2.04**	2.04	2.04	2.04	**2.04**				
Presence	10	10	10	10	10	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Usage (habitat type and evidenced usage)	15	15	15	15	15	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Approximate Density	10	10	10	10	10	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
Role of the population	5	5	5	5	5	Immediate	NA - Not anticipated to change	Koala SAT surveys will be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA - Not anticipated to change
SSR Score (out of 70)	**40**	40	40	40	**40**				
SSR Score out of 4	**2.29**	2.29	2.29	2.29	**2.29**				
Total Habitat Quality Scores	**6.71**	6.71	6.98	7.10	**7.10**				

Table 5: Grey-headed Flying-fox Environmental Outcomes – Assessment Unit 1 / Environmental Management Zone 1 (Non-remnant Open Paddock RE12.3.3)

Assessment Unit - Regional Ecosystem	**AU 1 – Non-remnant Open Paddock RE12.3.3**												
Site Reference	**Transect 4**	**Transect 5**	**Transect 6**	**Max Score**	**Average**	**AU Score**	**Year 5 Score**	**Year 10 Score**	**Year 15 Score**	**Year 20 Score**	**Justification / Management Actions / Timing**	**Monitoring**	**KPIs and Adaptive Management**
	Raw Data	**Raw Data**	**Raw Data**										
Vegetation Condition	Cat X	Cat X	Cat X	**20**	5.00	**5**	**5**	**5**	**10**	**20**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 the assessment unit 'Vegetation Condition' will readily attain Regrowth status within 15 years, and Remnant status within 20 years as defined under the Vegetation Management Act.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The assessment unit is to reach regrowth status in 15 years and remnant status at 20 years as per VMA definitions, which require 70% of height and 50% of expected cover to be reached. If the vegetation is not progressing toward regrowth status at Year 10, then remedial actions will be applied. These include remedial plantings of advanced stock.
Species Richness	0	0	1	**20**	0.33	**0**	**0**	**5**	**20**	**20**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 within the assessment unit 'Species Richness' will improve to at least four foraging species by year 20 including but not limited to *Eucalyptus tereticornis*, *Corymbia intermedia*, *Eucalyptus crebra* and *Corymbia tessellaris*.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species richness within the assessment unit is to achieve at least six foraging species by Year 20. The Rehabilitation Management Plan specifies the planting of 8 foraging species. If the species diversity does not reflect this requirement at Year 10, then remedial actions will be applied. These include remedial plantings of advanced stock.
Flower Score	0	0	0.650	**10**	**0.22**	**2**	**2**	**5**	**8**	**8**	It is anticipated that the flower score will improve through the planting of foraging tree species. Based on the above planting palette, it is anticipated this will achieve >0.51 by year 15.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If flower score does not improve to an 8 by year 15 then remedial actions will be implemented including advanced planting stock of foraging tree species with higher foraging potential.

Timing of Biological Shortages	0	0	4	**10**	**1.33**	**1.33**	**1.33**	**1.33**	**10**	**10**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 within the assessment unit 'Timing of Biological shortages' will improve to cover all shortages based on flora species presence by year 15.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Timing of biological shortages within the assessment unit is to cover all shortages by Year 15. If the species diversity does not approach this requirement at Year 10, then remedial actions will be applied. These include remedial plantings of advanced stock.
Quality of Foraging Habitat	0	0	1	**20**	0.33	**0**	**0**	**0**	**5**	**5**	It is anticipated that the quality of foraging habitat in the form of significant foraging species count will improve through the planting of significant foraging tree species such as *Eucalyptus tereticornis*, *Corymbia intermedia*, and *Eucalyptus crebra.*	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If the quality of foraging habitat does not improve to a 5, then remedial actions will be implemented including reviewing the abundance of significant foraging species and planting advanced stock of species recognised as significant foraging tree species Eby and Law (2008).
Non-native Plant Cover	65%	25%	35%	**20**	41.67%	**5**	**10**	**20**	**20**	**20**	Non-native Plant Cover is currently relatively high consisting of *Lantana camara*, several herbaceous weed species, and exotic grasses. It is anticipated that the weed management controls in actions 2, 6 & 7, will steadily improve 'Non-native Plant Cover' to below 5% within 10 years.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If improvement to 5% has not been achieved at Year 10 then then remedial actions to reduce weed cover will be applied. These include refining weed control methods.
Site Condition Score						**13.33**	**18.33**	**36.33**	**73**	**83**			
MAX Site Condition Score						***100***	***100***	***100***	***100***	***100***			
Site Condition Score - out of 4						**0.53**	**0.73**	**1.45**	**2.92**	**3.32**			
Size of patch	Patch size is greater than 200 ha	Patch size is greater than 200ha	Patch size is greater than 200ha	**10**	**10**	**10**	**10**	**10**	**10**	**10**	NA	NA	NA
Connectedness	1-3 active camps within 20 km	1-3 active camps within 20 km	1-3 active camps within 20 km	**10**	**3**	**3**	**3**	**3**	**3**	**3**	NA	NA	NA
Context	31-75%	31-75%	31-75%	**10**	**6**	**6**	**6**	**6**	**6**	**6**	NA	NA	NA
Ecological Corridors	Not within an ecological corridor	Not within an ecological corridor	Not within an ecological corridor	**10**	**0**	**0**	**0**	**0**	**0**	**0**	NA	NA	NA

Role of site location to species overall population in the state	No active level 3 roosts within 2km	No active Level 3 roosts within 20km	No active level 3 roosts within 2km	**10**	**0**	**0**	**0**	**0**	**0**	**0**	NA	NA	NA
Threats to the species	Low (barbed wire fencing)	Low (barbed wire fencing)	Low (barbed wire fencing)	**10**	**10**	**10**	**10**	**10**	**10**	**10**	The proposed offset site currently has barbed wire fencing, a recognised threat to Flying-foxes, delineating paddocks within the proposed offset area. Management action 8 will control and retrofit barbed wire. As a precaution a low level of threats is prescribed.	Baseline attributes have been established. This criterium is reliant upon the management of barbed wire fencing.	The control of barbed wire will provide reduction in threats.
Site Context Score						**29**	**29**	**29**	**29**	**29**			
MAX Site Context Score						**60**	**60**	**60**	**60**	**60**			
Site Context Score - out of 3						**1.45**	**1.45**	**1.45**	**1.45**	**1.45**			
GHFF Foraging Tree Density / ha	0	0	20	**10**	**6.67**	**2**	**2**	**4**	**8**	**8**	Natural assisted regeneration and plantings as per management actions 1, 2, 3, 5, 6 & 7 will improve stem densities of foraging trees within the assessment unit to 201 - 260 per hectare by year 15.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The average stem density within the assessment unit is to achieve at 201 - 160 per hectare by Year 15. If the stem density does not achieve 65 by year 10, then remedial actions will be applied. These include remedial plantings of advanced stock.
Species Stocking Rate Score						**2**	**2**	**4**	**8**	**8**			
MAX Species Stocking Rate Score						**10**	**10**	**10**	**10**	**10**			
Species Stocking Rate Score - out of 3						**0.60**	**0.60**	**1.20**	**2.40**	**2.40**			
Total						**2.58**	**2.78**	**4.10**	**6.77**	**7.17**			

Table 6: Grey-headed Flying-fox Environmental Outcomes – Assessment Unit 2 / Environmental Management Zone 2 (Non-remnant Open Paddock RE12.8.17)

Assessment Unit - Regional Ecosystem	AU 2 – Non-remnant Open Paddock RE12.8.17													
Site Reference	**Transect 9**	**Transect 10**	**Transect 11**	**Transect 12**	**Max Score**	**Average**	**AU Score**	**Year 5 Score**	**Year 10 Score**	**Year 15 Score**	**Year 20 Score**	**Justification / Management Actions / Timing**	**Monitoring**	**KPIs and Adaptive Management**
	Raw Data	**Raw Data**	**Raw Data**	**Raw Data**										
Vegetation Condition	Cat X	Cat X	Cat X	Cat X	**20**	**5**	**5**	**5**	**5**	**10**	**20**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 the assessment unit 'Vegetation Condition' will readily attain Regrowth status within 15 years, and Remnant status within 20 years as defined under the Vegetation Management Act.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The assessment unit is to reach regrowth status in 15 years and remnant status at 20 years as per VMA definitions, which require 70% of height and 50% of expected cover to be reached. If the vegetation is not progressing toward regrowth status at Year 10, then remedial actions will be applied. These include remedial plantings of advanced stock.
Species Richness	2	0	2	1	**20**	**1.25**	**5**	**5**	**5**	**20**	**20**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 within the assessment unit 'Species Richness' will improve to >6 species by year 15 including planting palette including *Eucalyptus tereticornis, Corymbia intermedia, Eucalyptus crebra, Corymbia tessellaris, Eucalyptus melanophloia, Eucalyptus melliodora,* and *Angophora subvelutina*.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species richness within the assessment unit is to achieve >6 foraging species by Year 20. If the species diversity does not reflect this requirement at Year 15, then remedial actions will be applied. These include remedial plantings of advanced stock.
Flower Score	0.525	0	0.570	0.650	**10**	**0.4363**	**5**	**5**	**5**	**8**	**8**	It is anticipated that the flower score will improve through the planting of foraging tree species. Based on the above planting palette, it is anticipated this will achieve >0.51 by year 15.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If flower score does not improve to an 8 by year 15 then remedial actions will be implemented including advanced planting stock of foraging tree species with higher foraging potential.
Timing of Biological Shortages	8.5	0	10	4	**10**	**5.63**	**5.625**	**5.625**	**5.625**	**10**	**10**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 within the assessment unit 'Timing of Biological shortages' will improve to cover all shortages based on	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified	Timing of biological shortages within the assessment unit is to cover all shortages by Year 15. If the species diversity does not

												flora species presence by year 15.	professionals at 5, 10, 15 and 20 years.	approach this requirement at Year 10, then remedial actions will be applied. These include remedial plantings of advanced stock.
Quality of Foraging Habitat	1	0	1	1	**20**	**0.75**	**0**	**0**	**0**	**5**	**5**	Quality of foraging habitat will increase with planting of 3 significant foraging species – *E. tereticornis, E. crebra,* and *C. intermedia*.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If the quality of foraging habitat does not improve to a 5 by year 15, then remedial actions will be implemented including reviewing the abundance of significant foraging species and planting advanced stock of species recognised as significant foraging tree species Eby and Law (2008).
Non-native Plant Cover	20%	30%	10%	30%	**20**	**22.5%**	**10**	**10**	**20**	**20**	**20**	Non-native Plant Cover is currently moderate, consisting of *Lantana camara*, several herbaceous weed species, and exotic grasses. It is anticipated that the weed management controls in actions 2, 6 & 7, will steadily improve 'Non-native Plant Cover' to below 5% within 10 years.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If improvement to 5% has not been achieved at Year 10 then then remedial actions to reduce weed cover will be applied. These include refining weed control methods.
Site Condition Score							**30.625**	**30.625**	**40.625**	**73**	**83**			
MAX Site Condition Score							***100***	***100***	***100***	***100***	***100***			
Site Condition Score - out of 4							**1.23**	**1.23**	**1.63**	**2.92**	**3.32**			
Size of patch	Patch size is greater than 200ha	Patch size is greater than 200ha	Patch size is greater than 200ha	Patch size is greater than 200ha	**10**	**10**	**10**	**10**	**10**	**10**	**10**	NA	NA	NA
Connectedness	1-3 active camps within 20 km	1-3 active camps within 20 km	1-3 active camps within 20 km	1-3 active camps within 20 km	**10**	**3**	**3**	**3**	**3**	**3**	**3**	NA	NA	NA
Context	31 - 75%	31 - 75%	31 - 75%	31 - 75%	**10**	**6**	**6**	**6**	**6**	**6**	**6**	NA	NA	NA
Ecological Corridors	Not within ecological corridor	Not within ecological corridor	Not within ecological corridor	Not within ecological corridor	**10**	**0**	**0**	**0**	**0**	**0**	**0**	NA	NA	NA
Role of site location to species overall population in the state	No active Level 3 roost	No active Level 3 roost	No active Level 3 roost	No active Level 3 roost	**10**	**0**	**0**	**0**	**0**	**0**	**0**	NA	NA	NA

	within 20 km	within 20 km	within 20 km	within 20 km										
Threats to the species	Low (barbed wire fencing)	Low (barbed wire fencing)	Low (barbed wire fencing)	Low (barbed wire fencing)	**10**	**10**	**10**	**10**	**10**	**10**	**10**	The proposed offset site currently has barbed wire fencing, a recognised threat to Flying-foxes, delineating paddocks within the proposed offset area. Management action 8 will control and retrofit barbed wire. As a precaution a low level of threats is prescribed.	Baseline attributes have been established. This criterium is reliant upon the management of barbed wire fencing.	The control of barbed wire will provide reduction in threats.
Site Context Score							**29**	**29**	**29**	**29**	**29**			
MAX Site Context Score							**60**	**60**	**60**	**60**	**60**			
Site Context Score - out of 3							**1.45**	**1.45**	**1.45**	**1.45**	**1.45**			
GHFF Foraging Tree Density / ha	15	0	10	5	**10**	**7.5**	**2**	**2**	**4**	**8**	**8**	Natural assisted regeneration and plantings as per management actions 1, 2, 3, 5, 6 & 7 will improve stem densities of foraging trees within the assessment unit to 533 - 568 stems per hectare by year 15.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The average stem density within the assessment unit is to achieve at 533 - 568 stems per hectare by Year 15. If the stem density does not achieve 74 by year 10, then remedial actions will be applied. These include remedial plantings of advanced stock.
Species Stocking Rate Score							**2**	**2**	**4**	**8**	**8**			
MAX Species Stocking Rate Score							**10**	**10**	**10**	**10**	**10**			
Species Stocking Rate Score - out of 3							**0.6**	**0.6**	**1.2**	**2.4**	**2.4**			
Total							**3.28**	**3.28**	**4.28**	**6.77**	**7.17**			

Table 7: Grey-headed Flying-fox Environmental Outcomes – Assessment Unit 3 / Environmental Management Zone 3 (Regrowth RE12.8.17)

Assessment Unit - Regional Ecosystem	AU 3 – Regrowth RE12.8.17												
Site Reference	**Transect 1**	**Transect 7**	**Transect 8**	**Max Score**	**Average**	**AU Score**	**Year 5 Score**	**Year 10 Score**	**Year 15 Score**	**Year 20 Score**	**Justification / Management Actions / Timing**	**Monitoring**	**KPIs and Adaptive Management**
	Raw Data	**Raw Data**	**Raw Data**										
Vegetation Condition	Cat C	Cat C	Cat C	**20**	**10**	**10**	**10**	**10**	**20**	**20**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 the assessment unit 'Vegetation Condition' will readily attain Remnant status within 15 years, as defined under the Vegetation Management Act.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The assessment unit is to reach remnant status in 15 years and remnant status at 20 years as per VMA definitions, which require 70% of height and 50% of expected cover to be reached. If the vegetation is not progressing toward remnant status at Year 10, then remedial actions will be applied. These include remedial plantings of advanced stock.
Species Richness	3	7	5	**20**	**5**	**10**	**10**	**10**	**20**	**20**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 within the assessment unit 'Species Richness' will improve to >6 species by year 15 through natural assisted regeneration and minor infill planting including planting palette consisting of *Eucalyptus tereticornis, Eucalyptus melliodora, Corymbia intermedia, Eucalyptus crebra, Corymbia tessellaris,* and *Eucalyptus melanophloia.*	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species richness within the assessment unit is to achieve >6 foraging species by Year 15. If the species diversity does not reflect this requirement at Year 10, then remedial actions will be applied. These include remedial plantings of advanced stock.
Flower Score	0.637	0.539	0.550	**10**	**0.58**	**8**	**8**	**8**	**8**	**8**	It is not anticipated that the flower score will decline.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Although unexpected, if the flower score shows decline then remedial actions will be implemented including remedial planting of advanced stock containing species with higher foraging potential as denoted by individual flower scores.
Timing of Biological Shortages	8.5	10	10	**10**	**9.50**	**10**	**10**	**10**	**10**	**10**	It is not anticipated that the timing of biological shortages will decline.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Although unexpected, if the timing of biological shortages shows decline then remedial actions will be implemented including remedial planting of advanced stock containing species to cover shortages.
Quality of Foraging Habitat	2	3	2	**20**	**2.33**	**5**	**5**	**5**	**5**	**5**	It is anticipated that the quality of foraging habitat in the form of significant foraging species count will be maintained or improved at least one significant foraging species through the planting palette	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If the quality of foraging habitat is not maintained as a 5 or improved, then remedial actions will be implemented including reviewing the abundance of significant foraging species and planting

											including *Eucalyptus tereticornis* and *Corymbia intermedia.*		advanced stock of species recognised as significant foraging tree species Eby and Law (2008).
Non-native Plant Cover	10%	15%	3%	**20**	**9.33%**	**10**	**10**	**20**	**20**	**20**	Non-native Plant Cover currently comprises *Lantana camara*, several herbaceous weed species, and exotic grasses. It is anticipated that the weed management controls in actions 2, 6 & 7, will steadily improve 'Non-native Plant Cover' to below 5% within 10 years.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If improvement to 5% has not been achieved at Year 10 then then remedial actions to reduce weed cover will be applied. These include refining weed control methods.
Site Condition Score						**53**	**53**	**63**	**83**	**83**			
MAX Site Condition Score						***100***	***100***	***100***	***100***	***100***			
Site Condition Score - out of 4						**2.12**	**2.12**	**2.52**	**3.32**	**3.32**			
Size of patch	Patch size is greater than 200ha	Patch size is greater than 200ha	Patch size is greater than 200ha	**10**	**10**	**10**	**10**	**10**	**10**	**10**	NA	NA	NA
Connectedness	1-3 active camps within 20 km	1-3 active camps within 20 km	1-3 active camps within 20 km	**10**	**3**	**3**	**3**	**3**	**3**	**3**	NA	NA	NA
Context	31 - 75%	31 - 75%	31 - 75%	**10**	**6**	**6**	**6**	**6**	**6**	**6**	NA	NA	NA
Ecological Corridors	Not within ecological corridor	Not within ecological corridor	Not within ecological corridor	**10**	**0**	**0**	**0**	**0**	**0**	**0**	NA	NA	NA
Role of site location to species overall population in the state	No active Level 3 roost within 20 km	No active Level 3 roost within 20 km	No active Level 3 roost within 20 km	**10**	**0**	**0**	**0**	**0**	**0**	**0**	NA	NA	NA
Threats to the species	Low (barbed wire fencing)	Low (barbed wire fencing)	Low (barbed wire fencing)	**10**	**10**	**10**	**10**	**10**	**10**	**10**	The proposed offset site currently has barbed wire fencing, a recognised threat to Flying-foxes, delineating paddocks within the proposed offset area. Management action 8 will control and retrofit barbed wire. As a precaution a low level of threats is prescribed.	Baseline attributes have been established. This criterium is reliant upon the management of barbed wire fencing.	The control of barbed wire will provide reduction in threats.
Site Context Score						**29**	**29**	**29**	**29**	**29**			
MAX Site Context Score						**60**	**60**	**60**	**60**	**60**			
Site Context Score - out of 3						**1.45**	**1.45**	**1.45**	**1.45**	**1.45**			
GHFF Foraging Tree Density / ha	95	300	430	**10**	**275**	**4**	**4**	**6**	**8**	**8**	Natural assisted regeneration and plantings as per management actions 1, 2, 3, 5, 6 & 7 will improve stem densities of foraging trees within the assessment unit to 533 - 568 stems per hectare by year 15.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	The average stem density within the assessment unit is to achieve at 533 - 568 stems per hectare by Year 15. If the stem density does not achieve 315 - 532 by year 10, then remedial actions will be applied. These include remedial plantings of advanced stock.
Species Stocking Rate Score						**4**	**4**	**6**	**8**	**8**			

MAX Species Stocking Rate Score		**10**	**10**	**10**	**10**	**10**
Species Stocking Rate Score - out of 3		**1.2**	**1.2**	**1.8**	**2.4**	**2.4**
Total		**4.77**	**4.77**	**5.77**	**7.17**	**7.17**

Table 8: Grey-headed Flying-fox Environmental Outcomes – Assessment Unit 4 / Environmental Management Zone 4 (Remnant RE12.8.17)

Assessment Unit - Regional Ecosystem	AU 4 – Remnant 12.8.7											
Site Reference	**Transect 2**	**Transect 3**	**Max Score**	**Average**	**AU Score**	**Year 5 Score**	**Year 10 Score**	**Year 15 Score**	**Year 20 Score**	**Justification / Management Actions / Timing**	**Monitoring**	**KPIs and Adaptive Management**
	Raw Data	**Raw Data**										
Vegetation Condition	Cat B	Cat B	**20**	**20**	**20**	**20**	**20**	**20**	**20**	It is not anticipated that the vegetation status will decline.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	NA – the assessment unit is remnant status.
Species Richness	4	6	**20**	**5**	**10**	**10**	**10**	**20**	**20**	It is expected that with management actions 1, 2, 3, 5, 6 & 7 including minor infill planting within the assessment unit 'Species Richness' will improve to at least six foraging species by year 20 including planting palette *Eucalyptus melliodora, Eucalyptus crebra, Eucalyptus tereticornis, Eucalyptus melanophloia, Corymbia intermedia, Corymbia tessellaris,* and *Angophora subvelutina*	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Species richness within the assessment unit is to achieve at least six foraging species by Year 15. If the species diversity does not reflect this requirement at Year 15, then remedial actions will be applied. These include remedial plantings of advanced stock.
Flower Score	0.400	0.563	**10**	**0.48**	**5**	**5**	**5**	**8**	**8**	It is anticipated that the flower score will be improved through the planting of foraging tree species. Based on the above planting palette, it is anticipated this will achieve a flower score greater than 0.51 by year 15 achieving a score of 8 out of 10.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If flower score does not improve to an 8 by year 15 then remedial actions will be implemented including advanced planting stock of foraging tree species with higher foraging potential.
Timing of Biological Shortages	10	10	**10**	**10**	**10**	**10**	**10**	**10**	**10**	It is not anticipated that the timing of biological shortages will decline.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	While not anticipated to occur due to the remnant status, if the flower score shows decline then remedial actions will be implemented. These include remedial plantings of advanced stock.
Quality of Foraging Habitat	2	3	**20**	**2.50**	**5**	**5**	**5**	**5**	**5**	It is anticipated that the quality of foraging habitat in the form of significant foraging species count will be maintained or improved to two significant foraging species through the planting palette including *Eucalyptus tereticornis* and *Corymbia intermedia*.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If the quality of foraging habitat is not maintained as a 5 or improved, then remedial actions will be implemented including reviewing the abundance of significant foraging species and planting advanced stock of species recognised as significant foraging tree species Eby and Law (2008).
Non-native Plant Cover	18%	30%	**20**	**24%**	**10**	**10**	**20**	**20**	**20**	Non-native Plant Cover currently comprises *Lantana camara*, several herbaceous weed species, and exotic grasses. It is anticipated that the weed management controls in actions 2, 6 & 7, will steadily improve 'Non-	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	If improvement to 5% has not been achieved at Year 10 then then remedial actions to reduce weed cover will be applied. These include refining weed control methods.

										native Plant Cover' to below 5% within 10 years.		
Site Condition Score					**60**	**60**	**70**	**83**	**83**			
MAX Site Condition Score					**100**	**100**	**100**	**100**	**100**			
Site Condition Score - out of 4					**2.4**	**2.4**	**2.8**	**3.32**	**3.32**			
Size of patch	Patch size is greater than 200ha	Patch size is greater than 200ha	**10**	**10**	**10**	**10**	**10**	**10**	**10**	NA	NA	NA
Connectedness	1-3 active camps within 20 km	1-3 active camps within 20 km	**10**	**3**	**3**	**3**	**3**	**3**	**3**	NA	NA	NA
Context	31 - 75%	31 - 75%	**10**	**6**	**6**	**6**	**6**	**6**	**6**	NA	NA	NA
Ecological Corridors	Not within ecological corridor	Not within ecological corridor	**10**	**0**	**0**	**0**	**0**	**0**	**0**	NA	NA	NA
Role of site location to species overall population in the state	No active Level 3 roost within 20 km	No active Level 3 roost within 20 km	**10**	**0**	**0**	**0**	**0**	**0**	**0**	NA	NA	NA
Threats to the species	Low (barbed wire fencing)	Low (barbed wire fencing)	**10**	**10**	**10**	**10**	**10**	**10**	**10**	The proposed offset site currently has barbed wire fencing, a recognised threat to Flying-foxes, delineating paddocks within the proposed offset area. Management action 8 will control and retrofit barbed wire. As a precaution a low level of threats is prescribed.	Baseline attributes have been established. This criterium is reliant upon the management of barbed wire fencing.	The control of barbed wire will provide reduction in threats.
Site Context Score					**29**	**29**	**29**	**29**	**29**			
MAX Site Context Score					**60**	**60**	**60**	**60**	**60**			
Site Context Score - out of 3					**1.45**	**1.45**	**1.45**	**1.45**	**1.45**			
GHFF Foraging Tree Density / ha	300	275	**10**	**287.50**	**4**	**4**	**6**	**8**	**8**	Natural assisted regeneration and plantings as per management actions 1, 2, 3, 5, 6 & 7 will improve stem densities of foraging trees within the assessment unit to greater than 426 – 568 per hectare by year 15.	Baseline Site Condition attributes are established. Habitat quality transects to be completed by suitably qualified professionals at 5, 10, 15 and 20 years.	Stem densities within the assessment unit is to achieve 426 – 568 stems per hectare by year 15. If the stem density is not transitioning to achieving 315 - 425 by year 10, then remedial actions will be applied. These include remedial plantings of advanced stock.
Species Stocking Rate Score					**4**	**4**	**6**	**8**	**8**			
MAX Species Stocking Rate Score					**10**	**10**	**10**	**10**	**10**			
Species Stocking Rate Score - out of 3					**1.2**	**1.2**	**1.8**	**2.4**	**2.4**			
Total					**5.05**	**5.05**	**6.05**	**7.17**	**7.17**			

Appendix B

OAG Calculator Sheets

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Koala
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Koala	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Non-rem AU1	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	50.8	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	14.64	16.34%	No		
									Future area without offset (adjusted hectares)	50.8	**Future area with offset (adjusted hectares)**	50.8								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**3**	**Future quality without offset (scale of 0-10)**	**3**	**Future quality with offset (scale of 0-10)**	**7**	4.00	75%	3.00	2.88				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Koala
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Koala	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Non-rem AU2	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	104.7	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	30.18	33.68%	No		
									Future area without offset (adjusted hectares)	104.7	**Future area with offset (adjusted hectares)**	104.7								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**3**	**Future quality without offset (scale of 0-10)**	**3**	**Future quality with offset (scale of 0-10)**	**7**	4.00	75%	3.00	2.88				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Koala
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Koala	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Regrowth AU3	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	62	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	0.00	0.00%	No		
									Future area without offset (adjusted hectares)	62.0	**Future area with offset (adjusted hectares)**	62.0								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**7**	**Future quality without offset (scale of 0-10)**	**7**	**Future quality with offset (scale of 0-10)**	**7**	0.00	85%	0.00	0.00				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Koala
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Koala	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Rem AU4	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	8.1	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	0.00	0.00%	No		
									Future area without offset (adjusted hectares)	8.1	**Future area with offset (adjusted hectares)**	8.1								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**7**	**Future quality without offset (scale of 0-10)**	**7**	**Future quality with offset (scale of 0-10)**	**7**	0.00	85%	0.00	0.00				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	GHFF
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	GHFF	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Non-rem AU1	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	50.8	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	18.30	20.43%	No		
									Future area without offset (adjusted hectares)	50.8	**Future area with offset (adjusted hectares)**	50.8								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**2**	**Future quality without offset (scale of 0-10)**	**2**	**Future quality with offset (scale of 0-10)**	**7**	5.00	75%	3.75	3.60				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	GHFF
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	GHFF	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Non-rem AU2	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	104.7	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	30.18	33.68%	No		
									Future area without offset (adjusted hectares)	104.7	**Future area with offset (adjusted hectares)**	104.7								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**3**	**Future quality without offset (scale of 0-10)**	**3**	**Future quality with offset (scale of 0-10)**	**7**	4.00	75%	3.00	2.88				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	GHFF
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	GHFF	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Regrowth AU3	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	62	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	11.30%	No		
									Future area without offset (adjusted hectares)	62.0	**Future area with offset (adjusted hectares)**	62.0				10.13				
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**5**	**Future quality without offset (scale of 0-10)**	**5**	**Future quality with offset (scale of 0-10)**	**7**	2.00	85%	1.70	1.63				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	GHFF
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	GHFF	**Area**	128	Hectares	
			Quality	**7**	Scale 0-10	
			Total quantum of impact	89.60	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	89.60	Adjusted hectares	Rem AU4	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	8.1	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	90%	0.00	0.00	1.32	1.48%	No		
									Future area without offset (adjusted hectares)	8.1	**Future area with offset (adjusted hectares)**	8.1								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**5**	**Future quality without offset (scale of 0-10)**	**5**	**Future quality with offset (scale of 0-10)**	**7**	2.00	85%	1.70	1.63				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Swift Parrot
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact	Units	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	Swift parrot	9,983	Count	
Condition of habitat Change in habitat condition, but no change in extent	No				
Threatened species					
Birth rate e.g. Change in nest success	No				
Mortality rate e.g Change in number of road kills per year	No				
Number of individuals e.g. Individual plants/animals	No				

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No			Avonvale Offset AU1	**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**	53	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	53.0	**Future area with offset (adjusted hectares)**	53.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start value	Future value without offset	Future value with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	9983	Count	AU1	20	0	0	16256	16256	75%	12192.00	3270.77	32.76%	No		
Condition of habitat Change in habitat condition, but no change in extent	No															
Threatened species																
Birth rate e.g. Change in nest success	No															
Mortality rate e.g Change in number of road kills per year	No															
Number of individuals e.g. Individual plants/animals	No															

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Swift Parrot
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact	Units	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	Swift parrot	9,983	Count	
Condition of habitat Change in habitat condition, but no change in extent	No				
Threatened species					
Birth rate e.g. Change in nest success	No				
Mortality rate e.g Change in number of road kills per year	No				
Number of individuals e.g. Individual plants/animals	No				

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No			Avonvale Offset AU1	**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**	53	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	53.0	**Future area with offset (adjusted hectares)**	53.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start value	Future value without offset	Future value with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	9983	Count	AU2	20	0	0	26752	26752	75%	20064.00	5382.60	53.92%	No		
Condition of habitat Change in habitat condition, but no change in extent	No															
Threatened species																
Birth rate e.g. Change in nest success	No															
Mortality rate e.g Change in number of road kills per year	No															
Number of individuals e.g. Individual plants/animals	No															

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Swift Parrot
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact	Units	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	Swift parrot	9,983	Count	
Condition of habitat Change in habitat condition, but no change in extent	No				
Threatened species					
Birth rate e.g. Change in nest success	No				
Mortality rate e.g Change in number of road kills per year	No				
Number of individuals e.g. Individual plants/animals	No				

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No			Avonvale Offset AU1	**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**	53	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	53.0	**Future area with offset (adjusted hectares)**	53.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start value	Future value without offset	Future value with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	9983	Count	AU3	20	207	207	2708	2501	75%	1875.75	503.21	5.04%	No		
Condition of habitat Change in habitat condition, but no change in extent	No															
Threatened species																
Birth rate e.g. Change in nest success	No															
Mortality rate e.g Change in number of road kills per year	No															
Number of individuals e.g. Individual plants/animals	No															

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Swift Parrot
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact	Units	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	Swift parrot	9,983	Count	
Condition of habitat Change in habitat condition, but no change in extent	No				
Threatened species					
Birth rate e.g. Change in nest success	No				
Mortality rate e.g Change in number of road kills per year	No				
Number of individuals e.g. Individual plants/animals	No				

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No			Avonvale Offset AU1	**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**	53	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	53.0	**Future area with offset (adjusted hectares)**	53.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start value	Future value without offset	Future value with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	9983	Count	AU4	20	20	20	117	97	75%	72.75	19.52	0.20%	No		
Condition of habitat Change in habitat condition, but no change in extent	No															
Threatened species																
Birth rate e.g. Change in nest success	No															
Mortality rate e.g Change in number of road kills per year	No															
Number of individuals e.g. Individual plants/animals	No															

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Regent Honeyeater
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact	Units	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	Regent honeyeater	9868	Count	
Condition of habitat Change in habitat condition, but no change in extent	No				
Threatened species					
Birth rate e.g. Change in nest success	No				
Mortality rate e.g Change in number of road kills per year	No				
Number of individuals e.g. Individual plants/animals	No				

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**	53	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	53.0	**Future area with offset (adjusted hectares)**	53.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start value	Future value without offset	Future value with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	9868	Count	AU1	20	0	0	0	0	75%	0.00	0.00	0.00%	No		
Condition of habitat Change in habitat condition, but no change in extent	No															
Threatened species																
Birth rate e.g. Change in nest success	No															
Mortality rate e.g Change in number of road kills per year	No															
Number of individuals e.g. Individual plants/animals	No															

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Regent Honeyeater
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact	Units	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	Regent honeyeater	9868	Count	
Condition of habitat Change in habitat condition, but no change in extent	No				
Threatened species					
Birth rate e.g. Change in nest success	No				
Mortality rate e.g Change in number of road kills per year	No				
Number of individuals e.g. Individual plants/animals	No				

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**	53	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	53.0	**Future area with offset (adjusted hectares)**	53.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start value	Future value without offset	Future value with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	9868	Count	AU2	20	0	0	16720	16720	75%	12540.00	3364.13	34.09%	No		
Condition of habitat Change in habitat condition, but no change in extent	No															
Threatened species																
Birth rate e.g. Change in nest success	No															
Mortality rate e.g Change in number of road kills per year	No															
Number of individuals e.g. Individual plants/animals	No															

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Regent Honeyeater
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact	Units	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	Regent honeyeater	9868	Count	
Condition of habitat Change in habitat condition, but no change in extent	No				
Threatened species					
Birth rate e.g. Change in nest success	No				
Mortality rate e.g Change in number of road kills per year	No				
Number of individuals e.g. Individual plants/animals	No				

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**	53	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	53.0	**Future area with offset (adjusted hectares)**	53.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start value	Future value without offset	Future value with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	9868	Count	AU3	20	103	103	1667	1564	75%	1173.00	314.68	3.19%	No		
Condition of habitat Change in habitat condition, but no change in extent	No															
Threatened species																
Birth rate e.g. Change in nest success	No															
Mortality rate e.g Change in number of road kills per year	No															
Number of individuals e.g. Individual plants/animals	No															

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Regent Honeyeater
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	**6.8%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact	Units	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	Regent honeyeater	9868	Count	
Condition of habitat Change in habitat condition, but no change in extent	No				
Threatened species					
Birth rate e.g. Change in nest success	No				
Mortality rate e.g Change in number of road kills per year	No				
Number of individuals e.g. Individual plants/animals	No				

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**	53	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	53.0	**Future area with offset (adjusted hectares)**	53.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start value	Future value without offset	Future value with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Number of features e.g. Nest hollows, habitat trees	Yes	9868	Count	AU4	20	0	0	60	60	75%	45.00	12.07	0.12%	No		
Condition of habitat Change in habitat condition, but no change in extent	No															
Threatened species																
Birth rate e.g. Change in nest success	No															
Mortality rate e.g Change in number of road kills per year	No															
Number of individuals e.g. Individual plants/animals	No															

Appendix C

Rehabilitation Management Plan

Mount Walker West Offset Area

Rehabilitation Management Plan

Springfield Residential Development (EPBC 2019/8575)

DWG NO.	DRAWING TITLE	ISSUE	DATE
9612 E 01 MWW RMP A	COVER SHEET	A	01/12/2025
9612 E 02 MWW RMP A	INTRODUCTION AND NOTES	A	01/12/2025
9612 E 03 MWW RMP A	REHABILITATION ZONES	A	01/12/2025
9612 E 04 MWW RMP A	DETAIL SHEET	A	01/12/2025
9612 E 05-08 MWW RMP A	PLANTING SPECIES SCHEDULES	A	01/12/2025
9612 E 09 MWW RMP A	SITE PREPARATION	A	01/12/2025
9612 E 10 MWW RMP A	PLANTING NOTES	A	01/12/2025
9612 E 11 MWW RMP A	MAINTENANCE AND MONITORING	A	01/12/2025
9612 E A01 MWW RMP A	APPENDIX 1. WEED TREATMENT AND REMOVAL	A	01/12/2025

Saunders Havill

PATHWAYS TO SUCCESS

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Introduction and Notes*

Introduction

This Mount Walker West Rehabilitation Management Plan (MWW RMP) has been prepared by Saunders Havill (SH) for Cherish Enterprises and forms part of the Mount Walker West Offset Area Management Plan (OAMP) for the Springfield Residential Development (EPBC 2019/8575).

The Mount Walker West Offset Area is located at Tralee Road, Mount Walker West, Queensland within the Ipswich City Council Local Government Area (LGA).

The primary objective of this RMP is to provide a detailed guide for the creation of resilient, fully-functioning vegetation communities that achieve the Environmental Outcomes proposed under the OAMP. Vegetation communities are to be rehabilitated in accordance with the composition and structure of the delineated Regional Ecosystems within each Environmental Management Zone to support the koala, grey-headed flying-fox, regent honeyeater and swift parrot.

This RMP is to function as a guide and reference document for the proposed rehabilitation techniques, planting palettes and monitoring program proposed for the EPBC 2019/8575 offset area.

This document should be read in conjunction with the Mount Walker West Offset Area Management Plan for EPBC 2019/8575.

No planting is proposed to occur within designated 'Non-offset Land Use Areas' which include Building Location Envelopes (BLEs) and bushfire management zones located within the landholdings.

BACKGROUND

Cherish Enterprises Pty Ltd are the owner of 227.6 ha of partially cleared rural land located within the Ipswich City Council LGA approximately 31 km south-west of the Ipswich Town Centre. The landholding is made up of all or part of the following titles:

- 87/CH31962 (129.5 ha)
- 111/CH311417 (64.75 ha)
- 28/CH311940 (32.58 ha)

The offset area is located approximately 42 km north-west of the Springfield Residential Development project area and is located within the same LGA. The portion of the landholdings proposed to be dedicated as offset area is 225.6 ha and excludes one area proposed to be used as Building Location Envelopes (BLEs) for the establishment of a rural acreage and has been excluded from the offset area. This includes a designated bushfire management zone where planting is not permitted.

The offset area contains multiple constructed farm dams which will be retained and utilised as part of the management of the offset.

Vegetation

The Avonvale offset area is mapped as containing two regional ecosystems being RE12.8.17 and RE12.3.3 with vegetation structure varying from open paddock to sparse/dense regrowth and remnant.

RE12.3.3 is described as: Narrow fringing woodland of *Eucalyptus tereticornis*, *Casuarina cunninghamiana* subsp. *cunninghamiana* +/- *Melaleuca viminalis*. Other species associated with this RE include *Melaleuca bracteata*, *M. trichostachya*, *M. linariifolia*. North of Brisbane *Waterhousea floribunda* commonly occurs and may at times dominate this RE. *Melaleuca fluviatilis* occurs in this RE in the north of the bioregion. *Lomandra hystrix* often present in stream beds. Occurs on fringing levees and banks of rivers and drainage lines of alluvial plains throughout the region. Riverine. (BVG1M: 16a).

RE 12.8.17 is described as: Mixed woodland with combinations of *Eucalyptus crebra, E. melanophloia, E. tereticornis, Corymbia tessellaris, C. intermedia*, and commonly containing *Angophora subvelutina* and *E. melliodora*, with a grassy ground layer. Usually occurs on mid and lower slopes of hills on Cainozoic igneous rocks, especially basalt. Not a Wetland. (BVG1M: 11a).

Planting species the above regional ecosystems is proposed as part of the overall planting outcome with the dominant regional ecosystem as defined by Environmental Management Zones.

The majority of the offset area has been cleared for grazing with areas of sparse to dense regrowth and remnant vegetation.

Soils

The Atlas of Australia soils map the site as predominantly comprising Dermosols with areas mapped as containing Vertosols and Tenosols as defined by the Australian Soils Classification (ASC).

Dermosols are red, brown, yellow, grey or black and have loam to clay textures. This type of soil covers the higher-rainfall coastal and sub-coastal regions.

Vertosols are defined as a soil type with very high-soil fertility and large water holding capacity. Vertosols are typically brown, grey or black soils which crack open when dry. The presence of Vertosols is anticipated to support the broadscale planting requirements.

Tenosols generally have a low fertility and low water-holding capacity. Tenosols have weak soil profile development. In the ASC, they are defined as having limited B horizon development (less than 15% clay content) but more development than the most rudimentary soils (i.e. Rudosols), including possible bleached layers and colour changes. Tenosols are widespread and can be shallow and stony.

REHABILITATION – APPROACHES

Rehabilitation or "Ecological Restoration" can be described as "the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed" (source: Society for Ecological Restoration International). The following four ecological restoration approaches are listed under the SEQERF guidelines and are described in further detail on Sheet 03.

Ecological Restoration Approaches	
Natural Regeneration	
Applies:	To relatively large, intact and weed-free areas of native vegetation. Where native plants are healthy and capable of regenerating without human intervention. When native plant seed is stored in the soil or will be able to reach the site from nearby natural areas, by birds or other animals, wind or water. Where the plant community has a high potential for recovery after any short-live disturbance such as a fire or cyclonic winds. When preventative action is all that is required to avert on-going disturbances e.g. erection of fencing to prevent intrusion by cattle.
Role of planting:	Planting in such areas can work against the aims of restoration by interfering with natural regeneration.
Goal vegetation community:	The re-establishing plant community will be similar in structure, composition and diversity to the original vegetation.
Assisted Natural Regeneration	
Applies:	To natural areas where the native plant community is largely healthy and functioning. When native plant seed is still stored in the soil or will be able to reach the site from nearby natural areas, by birds or other animals, wind or water. Where the natural regeneration processes (seedling germination, root suckering, etc.) are being inhibited by external factors, such as weed invasion, soil compaction, cattle grazing, mechanical slashing, etc. When limited human intervention, such as weed control, minor amelioration of soil conditions, erection of fencing, cessation of slashing, etc. will be enough to trigger the recovery processes through natural regeneration. When the main management issue is weed infestation and/or current land use practices.
Role of planting:	Planting in such areas can work against the aims of restoration by interfering with natural regeneration except where species cannot return to site without direct intervention.
Goal vegetation community:	The re-establishing plant community will be substantially similar in structure, composition and diversity to the original vegetation.
Reconstruction	
Applies:	Where the site is highly degraded or altered. When the degree of disturbance has been so great and long-standing that the pre-existing native plant community cannot recover by natural means. To sites such as areas of fill, sites affected by stormwater flow, areas that have been drastically cleared, even though there may be a few remaining native trees or shrubs. When a greater degree of human intervention is required, such as weed control, cessation of grazing and/or slashing, amelioration of soil conditions such as importation of soils, drainage works or re-shaping of the landscape.
Role of planting:	Importation of native species to the area is required, either through planting or direct seeding (in some situations). natural regeneration and recruitment is insufficient to initially re-establish the original vegetation. Depending on the prevailing circumstances, the planting of a broad diversity of species from the target ecosystem may be unnecessary and the use of pioneers may be sufficient to re-establish ecological processes.
Goal vegetation community:	The re-establishing planted community should be similar to the original vegetation in structure, composition and diversity.
Fabrication (Type Conversion)	
Applies:	Where site conditions have been irreversibly changed. When it is not possible to restore the original native plant community. Where a better-adapted local plant community can be planted that will function within the changed conditions. In situations such as the construction of a wetland plant community to mitigate increased urban storm-water run-off.
Role of planting:	Revegetation (planting) is the major component in a fabrication program.
Goal vegetation community:	The re-establishing planted community should be similar to a naturally occurring plant community of the same type (e.g. a constructed freshwater wetland should resemble a natural system in terms of structure, composition and diversity).

Adapted from Gold Coast Council's 'Guideline for the preparation of a Rehabilitation Plan'

REHABILITATION - METHODOLOGY

Detailed assessment of site conditions prior to commencement of documentation is essential. As part of most rehabilitation scopes, it is worth considering an appropriate methodology for both compiling documentation and site works. This can be broken down into the following items:

- Site assessment
- Rehabilitation Design Documentation (this plan)
- Site Works
- Maintenance and monitoring

METHODOLOGY – SITE ASSESSMENT

Detailed assessment of site conditions prior to commencement of documentation is essential in the establishment of a site-specific ecological restoration methodology. In accordance with the SEQERF. The following checklist has formed part of the site assessment process and is detailed in the OAMP:

- Describe the history and background of the site
- Describe the soil, drainage, topography and aspect
- Describe the native vegetation on the site and along site boundaries
- Describe the weeds on site
- Describe the vegetation dispersal and structure
- Describe the fauna use onsite
- Describe estimated native regeneration response.

The responses to the above checklist provides the basis of the proposed restoration approach primarily using reconstruction with elements of assisted natural regeneration for each management zone within this RMP.

Consideration should be made in the importance of integrating site-specific measures for fauna habitat and movement. With many fauna species having specific habitat requirements, foraging patterns and movement patterns. During the site assessment process, the following provisions should be taken into consideration:

- Fauna movement opportunities via easements, tracts, utility corridors and or infrastructure pathways;
- Diversity and type of fauna and distribution on site;
- Habitat opportunities e.g. Dense foliage, roosting areas, log hollows and potential nesting boxes;
- Fauna disturbance and vicinity of works to significant nesting areas and or fauna movement;
- Distribution of significant specialized food resources e.g. Koala trees; and
- Stage weed removal and or altering of weed control technique if the weeds are currently forming a significant fauna habitat.

For the sake of keeping this plan concise, site analysis results are compiled under a separate template, and may or may not be included in this set, however the analysis outcomes derive the Rehabilitation design methodology.

METHODOLOGY – REHABILITATION DESIGN

This documentation has been compiled through processes outlined in the SEQERF, site analysis and previous rehabilitation project experiences. The rehabilitation design—comprising distinct management zones—provides assessment managers, clients and contractors a clear methodology to assist the recovery of an ecosystem(s) that has been degraded, damaged or destroyed. Rehabilitation zones were identified through detailed site analysis and are described on *Sheet 03*.

REHABILITATION TIMELINE

Specific timeframes for rehabilitation are described within the following sections of this RMP. The following timeframes for each phase of rehabilitation is recommended. It is noted timeframes may be subject to change depending on climate and site conditions. Where timeframes are required to change, the proposed schedule will be updated accordingly. Timing is taken from the legal securement of the offset area.

- Source and propagate seed – Years 1-2
- Site preparation (initial weed treatment, soil cultivation, controlled burns) – Years 1-2
- Broadscale planting works – Years 2-3
- Maintenance (watering, follow-up weed works) – Years 2-5 with potential to extend to Year 7 (minimum of 2-5 years for establishment)

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER
DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:
South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

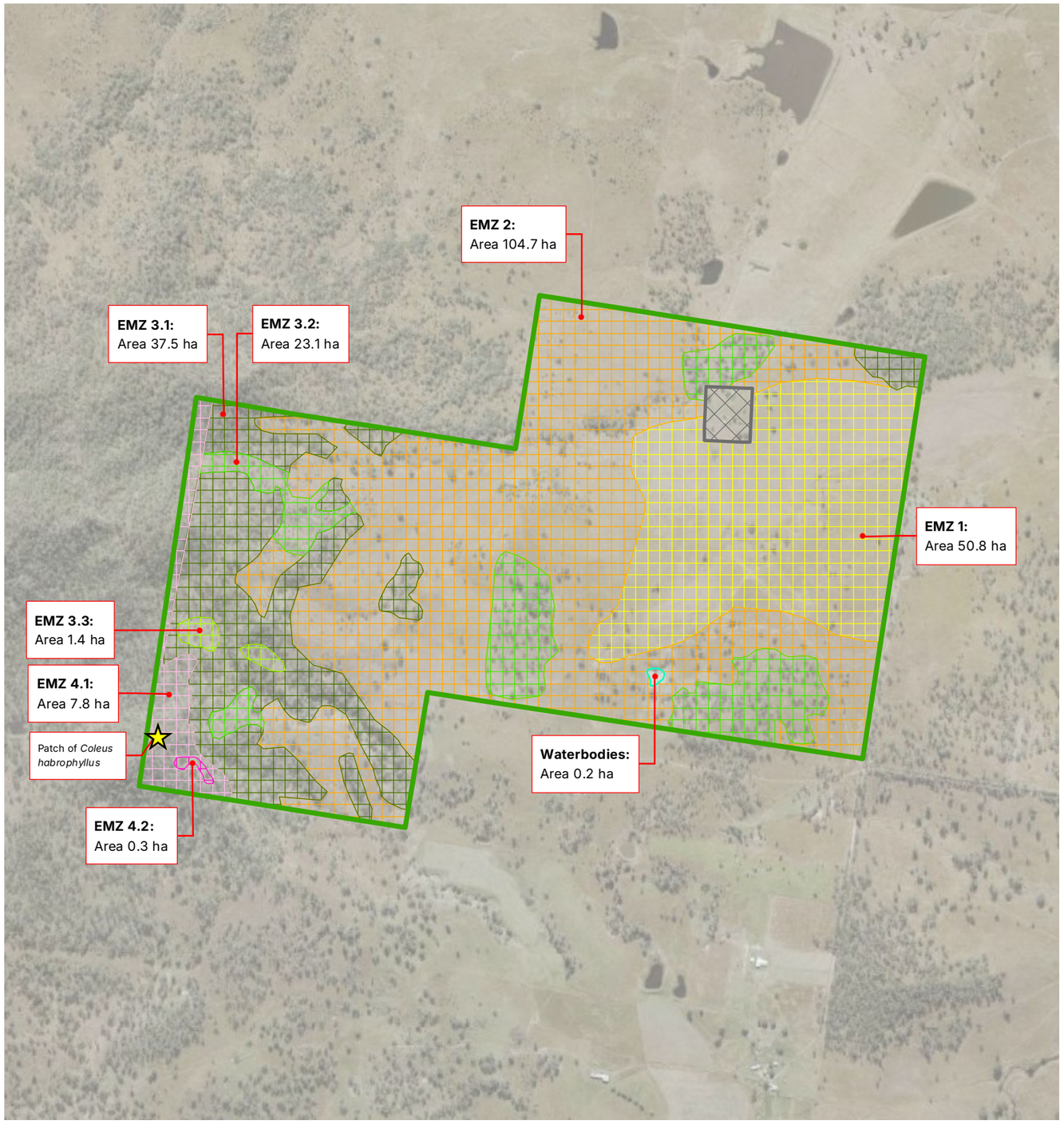
PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 02 MWW RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Rehabilitation Zones*



ENVIRONMENTAL MANAGEMENT ZONES LEGEND

Environmental Management Zone 1 – Non-remnant Paddock RE12.3.3 (Reconstruction)

Existing native trees, shrubs and groundcovers to be protected and retained where possible.

Appropriate (sensitive) weed management methodology within this zone to encourage natural regeneration, minimise damage to existing native vegetation, stabilise soil and minimise impacts to aquatic / semi-aquatic fauna.

Entire zone to be planted with trees, following weed management works at densities appropriate for providing foraging habitat for koala, grey-headed flying-fox, regent honeyeater and swift parrot. Any planting on creek bank to comply with 'Categories of channel vegetation' figure on Sheet 10. Species to be of local provenance and consistent with native species occurring naturally on site and/or regional ecosystems 12.3.3.

Refer to Rehabilitation Notes for additional details, plant species and densities.

Environmental Management Zone 2 – Non-remnant Paddock RE12.8.17 (Reconstruction)

Existing native trees, shrubs and groundcovers to be protected and retained where possible.

Appropriate (sensitive) weed management methodology within this zone to encourage natural regeneration, minimise damage to existing native vegetation, stabilise soil and minimise impacts to aquatic / semi-aquatic fauna.

All rehabilitation works within creek riparian zone to adhere to Natural Channel Design guidelines. Weed management to comprise hand/manual removal techniques near waterway, or in lead up to rainfall to minimise harm to broader estuarine environment. Ongoing weed management throughout the maintenance period to reinforce primary weed removal. Any planting on creek bank to comply with 'Categories of channel vegetation' figure on Sheet 10.

Entire zone to be planted with trees following weed management works at densities appropriate for providing foraging habitat for koala, grey-headed flying-fox, regent honeyeater and swift parrot. Any planting on creek bank to comply with 'Categories of channel vegetation' figure on Sheet 10. Species to be of local provenance and consistent with native species occurring naturally on site and/or regional ecosystems 12.8.17.

Refer to Rehabilitation Notes for additional details, plant species and densities.

Environmental Management Zone 3 – Sparse to Dense Regrowth RE12.8.17 (Assisted Natural Regeneration with Infill Planting)

Existing native trees, shrubs and groundcovers to be protected and retained where possible.

Appropriate (sensitive) weed management methodology within this zone to encourage natural regeneration, minimise damage to existing native vegetation, stabilise soil and minimise impacts to aquatic / semi-aquatic fauna.

All rehabilitation works within creek riparian zone to adhere to Natural Channel Design guidelines. Weed management to comprise hand/manual removal techniques near waterway, or in lead up to rainfall to minimise harm to broader estuarine environment. Ongoing weed management throughout the maintenance period to reinforce primary weed removal. Any planting on creek bank to comply with 'Categories of channel vegetation' figure on Sheet 10.

Infill planting in cleared patches to be planted with trees throughout at a rate of 1 per 10 m^2, and trees installed at locations >3m from existing tree trunks. Infill planting is to occur utilising seedling trees where required to supplement density of foraging tree species for koala, grey-headed flying-fox, regent honeyeater and swift parrot. Species to be of local provenance and consistent with native species occurring naturally on site and/or regional ecosystems 12.8.17.

Refer to Rehabilitation Notes for additional details, plant species and densities.

Environmental Management Zone 4 – Remnant RE12.8.17 (Assisted Natural Regeneration with Infill Planting)

Existing native trees, shrubs and groundcovers to be protected and retained where possible.

Appropriate (sensitive) weed management methodology within this zone to encourage natural regeneration, minimise damage to existing native vegetation, stabilise soil and minimise impacts to aquatic / semi-aquatic fauna.

Infill planting in cleared patches to be planted with trees throughout at a rate of 1 per 1000 m^2, and trees installed at locations >3m from existing tree trunks. Infill planting is to occur utilising seedling trees where required to supplement density of foraging tree species for koala, grey-headed flying-fox, regent honeyeater and swift parrot. Species to be of local provenance and consistent with native species occurring naturally on site and/or regional ecosystems 12.8.17.

Management works within area containing Endangered *Coleus habrophyllus* area include management of *Lantana camara* as required.

Refer to Rehabilitation Notes for additional details, plant species and densities.

Waterbodies

No rehabilitation measures are proposed within this zone.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

N

SCALE (A3)
1:14,000

Service Layer Credits: Includes material © State of Queensland (Department of Resources); © Planet Labs Netherlands B.V. reproduced under licence from Planet and Geoplex, all rights reserved, 2025.

0 50 100 200 300 400 500 m

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

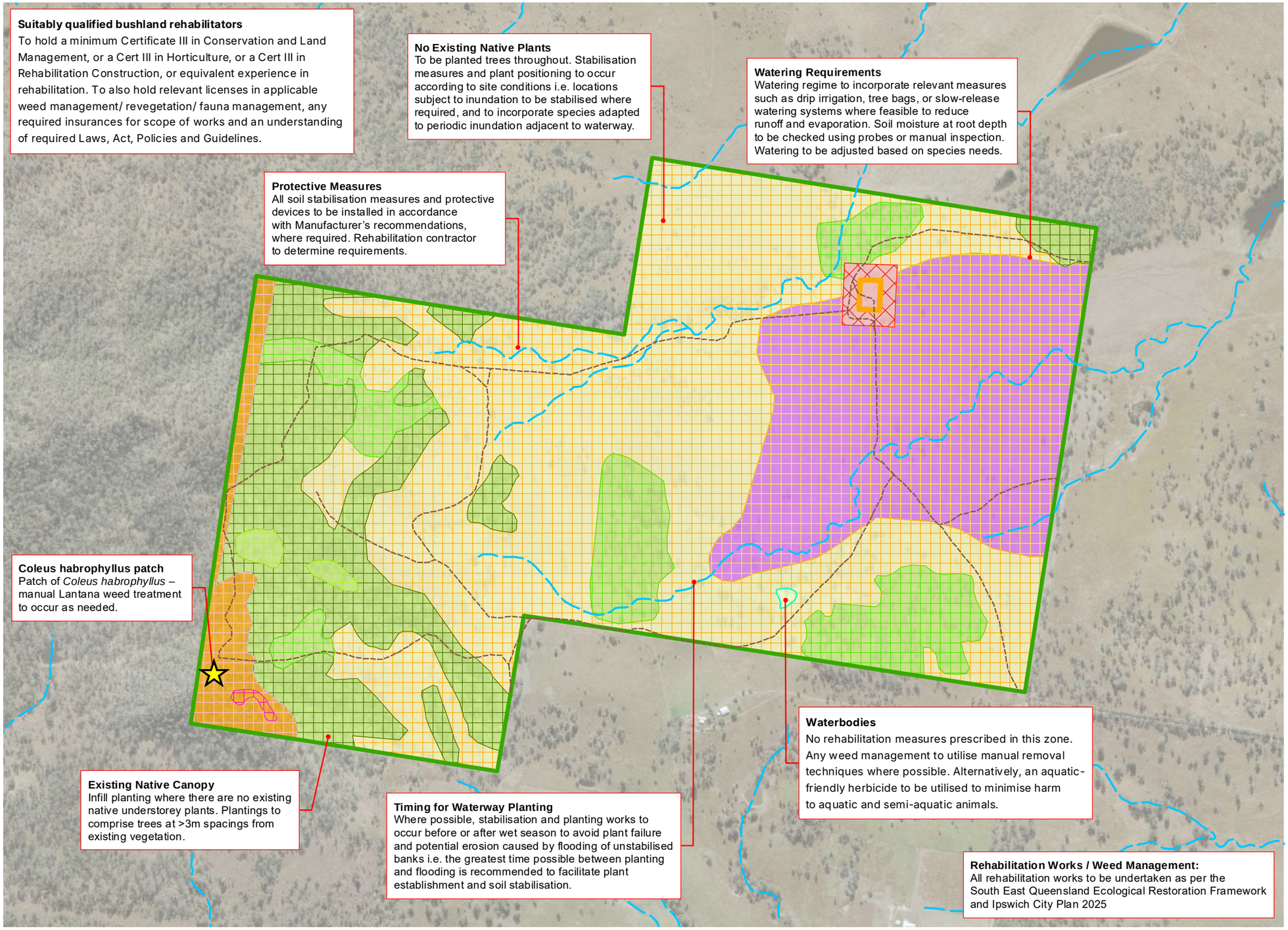
PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 03 MWW RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Detail Sheet*



LEGEND

- Mapped Fisheries Waterways
- Access Tracks (indicative - to be maintained)
- Non-Offset Land Use Area [2 ha]
- Building Location Envelope [0.4 ha]
- Bushfire Management Zone [1.6 ha]
- Mount Walker West Offset Area [227.6 ha]
- Waterbodies [0.2 ha]

Assessment Units

- *Assessment Unit 1:* Non-remnant RE 12.3.3 [50.8 ha]
- *Assessment Unit 2:* Non-remnant RE 12.8.17 [104.7 ha]
- *Assessment Unit 3:* Regrowth RE 12.8.17 [62 ha]
- *Assessment Unit 4:* Remnant RE 12.8.17 [8.1 ha]

Management Zones

- **Environmental Management Zone 1:** Non-remnant Paddock RE12.3.3 (Reconstruction) [50.8 ha]
- **Environmental Management Zone 2:** Non-remnant Paddock RE12.8.17 (Reconstruction) [104.5 ha]
- **Environmental Management Zone 3.1:** Dense Regrowth RE12.8.17 (Assisted Natural Regeneration with Infill Planting) [37.5 ha]
- **Environmental Management Zone 3.2:** Sparse Regrowth RE12.8.17 (Assisted Natural Regeneration with Infill Planting) [23.1 ha]
- **Environmental Management Zone 3.3:** Infill Planting RE12.8.17 (Assisted Natural Regeneration with Infill Planting) [1.4 ha]
- **Environmental Management Zone 4.1:** Remnant Vegetation RE12.8.17 (Assisted Natural Regeneration with Infill Planting) [7.8 ha]
- **Environmental Management Zone 4.2:** Infill Planting RE12.8.17 (Assisted Natural Regeneration with Infill Planting) [0.3 ha]

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER
DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

N

SCALE (A3)
1:10,000

Service Layer Credits: Includes material © State of Queensland (Department of Resources); © Planet Labs Netherlands B.V. reproduced under licence from Planet and Geoplex, all rights reserved, 2025.

0 50 100 200 300 400 m

AMENDMENTS				
ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 04 MWW RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Planting Species Schedule (i)*

FINAL SPECIES PALETTE TO COMPRISE MAXIMUM DIVERSITY OF SPECIES FROM SCHEDULES. TO BE APPROVED BY ENVIRONMENTAL COORDINATOR.

NOTES

- Final species palette to comprise maximum diversity of species from schedules.
- Area calculations are a maximum calculation for use as needed.
- Final on-ground planting numbers and densities may be subject to change based on planting requirements and seed stock availability except for densities and volumes prescribed for swift parrot and regent honeyeater foraging species.

Environmental Management Zone 1 – Non-remnant Paddock RE 12.3.3 (Reconstruction)

Notes:

1) Trees to be planted at a density of 1 tree per 10 m².
2) Setback trees 3 metres minimum from all property boundaries and services
3) Distribute plants in groups on site in random arrangement - to be confirmed with super-intendent on site
4) Plant species according to tolerances and site conditions
5) Plant quantities to be confirmed by rehabilitation supervisor according to site conditions. Unsuitable or unavailable species to be substituted with other species from this schedule.
6) Species consistent with RE 12.3.3 technical description.

SCIENTIFIC NAME	COMMON NAME	HABITAT VALUE	PLANT FORM	POT SIZE	PLANTING DENSITY	PERCENTAGE	QUANTITY
T1 / TREES							
*Eucalyptus tereticornis subsp. tereticornis**	Forest Red Gum	**SP preferred** Koala GHFF	Tree to 50 m	Tube	1 per 10 m²	40%	20320
Eucalyptus crebra	Narrow-leaved Ironbark	Koala GHFF	Tree to 35 m	Tube	1 per 10 m²	10%	5080
Corymbia clarksoniana	Clarkson's Bloodwood	Koala GHFF	Tree to 15 m	Tube	1 per 10 m²	10%	5080
Angophora leiocarpa	Smooth-barked Apple	Koala GHFF	Tree to 25 m	Tube	1 per 10 m²	5%	2540
Angophora subvelutina	Broad-leaved Apple	Koala GHFF	Tree to 20 m	Tube	1 per 10 m²	5%	2540
Corymbia intermedia	Pink Bloodwood	Koala GHFF	Tree to 35 m	Tube	1 per 10 m²	5%	2540
Corymbia tessellaris	Moreton Bay Ash	Koala GHFF	Tree to 35 m	Tube	1 per 10 m²	5%	2540
Lophostemon suaveolens	Swamp Box	Koala GHFF	Tree to 25 m	Tube	1 per 10 m²	5%	2540
Allocasuarina leuhmannii	Bull-oak	N/A Pioneer	Shrub or small tree	Tube	1 per 10 m²	5%	2540
Acacia concurrens	Black Wattle	N/A Pioneer	Shrub or small tree	Tube	1 per 10 m²	5%	2540
Acacia maidenii	Maiden's Wattle	N/A Pioneer	Shrub or small tree	Tube	1 per 10 m²	5%	2540
						TOTAL	**50,800**

*Planting percentages required at prescribed rate to fulfil offset planting requirements for Swift Parrot.

RE 12.3.3 GROUNDCOVERS (Indicative – as required)					
Imperata cylindrica	*Blady Grass*	N/A Other	Grass	Tube or seed	As required
Themeda triandra	*Kangaroo Grass*	N/A Other	Grass	Tube or seed	As required
Eremochloa bimaculata	*Poverty Grass*	N/A Other	Grass	Tube or seed	As required
Cymbopogon refractus	*Barbed Wire Grass*	N/A Other	Grass	Tube or seed	As required
Heteropogon contortus	*Black Speargrass*	N/A Other	Grass	Tube or seed	As required
Poa sieberiana var. sieberiana	*Blue Tussock Grass*	N/A Other	Grass	Tube or seed	As required
Dichanthium sericeum	*Queensland bluegrass*	N/A Other	Grass	Tube or seed	As required
Eragrostis brownii	*Browns Lovegrass*	N/A Other	Grass	Tube or seed	As required
Sarga leiocladum	*Wild Sorghum*	N/A Other	Grass	Tube or seed	As required
Panicum effusum	*Hairy Panic*	N/A Other	Grass	Tube or seed	As required
Aristida vagans	*Threeawn Speargrass*	N/A Other	Grass	Tube or seed	As required
Oplismenus aemulus	*Australian Basket Grass*	N/A Other	Grass	Tube or seed	As required
Gahnia aspera	*Saw Sedge*	N/A Other	Sedge	Tube or seed	As required
Lepidosperma laterale	*Variable Swordsedge*	N/A Other	Sedge	Tube or seed	As required
Lomandra longifolia	*Spiny-headed Mat-rush*	N/A Other	Sedge	Tube or seed	As required
Dianella caerulea	*Blue Flax-lily*	N/A Other	Herb	Tube or seed	As required
Eremophila debilis	*Winter Apple*	N/A Other	Prostrate shrub	Tube or seed	As required
Hardenbergia violacea	*False Sarsaparilla*	N/A Other	Prostrate shrub	Tube or seed	As required
Eustrephus latifolius	*Wombat Berry*	N/A Other	Vine	Tube or seed	As required
Chrysocephalum apiculatum	*Yellow Buttons*	N/A Other	Herb	Tube or seed	As required
Glycine clandestina	*Twining Glycine*	N/A Other	Scrambling vine	Tube or seed	As required
Murdannia graminea	*Grass Lily*	N/A Other	Herb	Tube or seed	As required

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER
DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:
South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 05 MWW RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Planting Species Schedule (ii)*

FINAL SPECIES PALETTE TO COMPRISE MAXIMUM DIVERSITY OF SPECIES FROM SCHEDULES. TO BE APPROVED BY ENVIRONMENTAL COORDINATOR.

NOTES

- Final species palette to comprise maximum diversity of species from schedules.
- Area calculations are a maximum calculation for use as needed.
- Final on-ground planting numbers and densities may be subject to change based on planting requirements and seed stock availability except for densities and volumes prescribed for swift parrot and regent honeyeater foraging species.

Environmental Management Zone 2– Non-remnant Paddock RE 12.8.17 (Reconstruction)

Notes:

1) Trees to be planted at a density of 1 tree per 10 m².
2) Setback trees 3 metres minimum from all property boundaries and services
3) Distribute plants in groups on site in random arrangement - to be confirmed with super-intendent on site
4) Plant species according to tolerances and site conditions
5) Plant quantities to be confirmed by rehabilitation supervisor according to site conditions. Unsuitable or unavailable species to be substituted with other species from this schedule.
6) Species consistent with RE 12.8.17 technical description.

SCIENTIFIC NAME	COMMON NAME	HABITAT VALUE	PLANT FORM	POT SIZE	PLANTING DENSITY	PERCENTAGE	QUANTITY
T1 / TREES							
*Eucalyptus melliodora**	Yellow Box	**RHE preferred** **SP preferred** Koala GHFF	Tree to 30 m	Tube	1 per 10 m²	20%	20900
Eucalyptus crebra	Narrow-leaved Ironbark	Koala GHFF	Tree to 35 m	Tube	1 per 10 m²	28%	29260
*Eucalyptus tereticornis subsp. tereticornis**	Forest Red Gum	**SP preferred** Koala GHFF	Tree to 50 m	Tube	1 per 10 m²	12%	12540
Eucalyptus melanophloia	Silver-leaved Ironbark	Koala GHFF	Tree to 20 m	Tube	1 per 10 m²	5%	5225
Corymbia intermedia	Pink Bloodwood	Koala GHFF	Tree to 35 m	Tube	1 per 10 m²	5%	5225
Corymbia tessellaris	Moreton Bay Ash	Koala GHFF	Tree to 35 m	Tube	1 per 10 m²	5%	5225
Angophora subvelutina	Broad-leaved Apple	Koala GHFF	Tree to 20 m	Tube	1 per 10 m²	5%	5225
Allocasuarina torulosa	Forest She-oak	N/A Pioneer	Tree to 8 m	Tube	1 per 10 m²	10%	10450
Acacia concurrens	Black Wattle	N/A Pioneer	Shrub	Tube	1 per 10 m²	5%	5225
Acacia disparrima	Hickory Wattle	N/A Pioneer	Shrub	Tube	1 per 10 m²	5%	5225
						TOTAL	**104,500**

*Planting percentages required at prescribed rate to fulfil offset planting requirements for Regent Honeyeater and Swift Parrot.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:
South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 06 MWW RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Planting Species Schedule (iii)*

FINAL SPECIES PALETTE TO COMPRISE MAXIMUM DIVERSITY OF SPECIES FROM SCHEDULES. TO BE APPROVED BY ENVIRONMENTAL COORDINATOR.

NOTES

- Final species palette to comprise maximum diversity of species from schedules.
- Area calculations are a maximum calculation for use as needed.
- Final on-ground planting numbers and densities may be subject to change based on planting requirements and seed stock availability except for densities and volumes prescribed for swift parrot and regent honeyeater foraging species.

Environmental Management Zone 3.1– Dense Regrowth RE 12.8.17 (Assisted Natural Regeneration)

Notes:

1) Trees to be planted at a density of 1 tree per 100 m^2.
2) Setback trees 3 metres minimum from all property boundaries and services
3) Distribute plants in groups on site in random arrangement - to be confirmed with super-intendent on site
4) Plant species according to tolerances and site conditions
5) Plant quantities to be confirmed by rehabilitation supervisor according to site conditions. Unsuitable or unavailable species to be substituted with other species from this schedule.
6) Species consistent with RE 12.8.17 technical description.

SCIENTIFIC NAME	COMMON NAME	HABITAT VALUE	PLANT FORM	POT SIZE	PLANTING DENSITY	PERCENTAGE	QUANTITY
T1 / TREES							
*Eucalyptus melliodora**	Yellow Box	**RHE preferred SP preferred** Koala GHFF	Tree to 30 m	Tube	1 per 100 m^2	20%	750
Eucalyptus crebra	Narrow-leaved Ironbark	Koala GHFF	Tree to 35 m	Tube	1 per 100 m^2	28%	1050
*Eucalyptus tereticornis subsp. tereticornis**	Forest Red Gum	**SP preferred** Koala GHFF	Tree to 50 m	Tube	1 per 100 m^2	12%	450
Eucalyptus melanophloia	Silver-leaved Ironbark	Koala GHFF	Tree to 20 m	Tube	1 per 100 m^2	5%	187
Corymbia intermedia	Pink Bloodwood	Koala GHFF	Tree to 35 m	Tube	1 per 100 m^2	5%	187
Corymbia tessellaris	Moreton Bay Ash	Koala GHFF	Tree to 35 m	Tube	1 per 100 m^2	5%	187
Angophora subvelutina	Broad-leaved Apple	Koala GHFF	Tree to 20 m	Tube	1 per 100 m^2	5%	187
Allocasuarina torulosa	Forest She-oak	N/A Pioneer	Shrub	Tube	1 per 100 m^2	10%	375
Acacia concurrens	Black Wattle	N/A Pioneer	Shrub	Tube	1 per 100 m^2	5%	187
Acacia disparrima	Hickory Wattle	N/A Pioneer	Shrub	Tube	1 per 100 m^2	5%	187
						TOTAL	**3747**

*Planting percentages required at prescribed rate to fulfil offset planting requirements for Regent Honeyeater and Swift Parrot.

Environmental Management Zone 3.2– Sparse Regrowth RE 12.8.17 (Assisted Natural Regeneration)

Notes:

1) Trees to be planted at a density of 1 tree per 50 m^2.
2) Setback trees 3 metres minimum from all property boundaries and services
3) Distribute plants in groups on site in random arrangement - to be confirmed with super-intendent on site
4) Plant species according to tolerances and site conditions
5) Plant quantities to be confirmed by rehabilitation supervisor according to site conditions. Unsuitable or unavailable species to be substituted with other species from this schedule.
6) Species consistent with RE 12.8.17 technical description.

SCIENTIFIC NAME	COMMON NAME	HABITAT VALUE	PLANT FORM	POT SIZE	PLANTING DENSITY	PERCENTAGE	QUANTITY
T1 / TREES							
*Eucalyptus melliodora**	Yellow Box	**RHE preferred SP preferred** Koala GHFF	Tree to 30 m	Tube	1 per 50 m^2	20%	924
Eucalyptus crebra	Narrow-leaved Ironbark	Koala GHFF	Tree to 35 m	Tube	1 per 50 m^2	28%	1293
*Eucalyptus tereticornis subsp. tereticornis**	Forest Red Gum	**SP preferred** Koala GHFF	Tree to 50 m	Tube	1 per 50 m^2	12%	554
Eucalyptus melanophloia	Silver-leaved Ironbark	Koala GHFF	Tree to 20 m	Tube	1 per 50 m^2	5%	231
Corymbia intermedia	Pink Bloodwood	Koala GHFF	Tree to 35 m	Tube	1 per 50 m^2	5%	231
Corymbia tessellaris	Moreton Bay Ash	Koala GHFF	Tree to 35 m	Tube	1 per 50 m^2	5%	231
Angophora subvelutina	Broad-leaved Apple	Koala GHFF	Tree to 20 m	Tube	1 per 50 m^2	5%	231
Allocasuarina torulosa	Forest She-oak	N/A Pioneer	Tree to 20 m	Tube	1 per 50 m^2	10%	462
Acacia concurrens	Black Wattle	N/A Pioneer	Shrub	Tube	1 per 50 m^2	5%	231
Acacia disparrima	Hickory Wattle	N/A Pioneer	Shrub	Tube	1 per 50 m^2	5%	231
						TOTAL	**4618**

*Planting percentages required at prescribed rate to fulfil offset planting requirements for Regent Honeyeater and Swift Parrot.

Environmental Management Zone 3.3– Infill Planting RE 12.8.17 (Assisted Natural Regeneration)

Notes:

1) Trees to be planted at a density of 1 tree per 10 m^2.
2) Setback trees 3 metres minimum from all property boundaries and services
3) Distribute plants in groups on site in random arrangement - to be confirmed with super-intendent on site
4) Plant species according to tolerances and site conditions
5) Plant quantities to be confirmed by rehabilitation supervisor according to site conditions. Unsuitable or unavailable species to be substituted with other species from this schedule.
6) Species consistent with RE 12.8.17 technical description.

SCIENTIFIC NAME	COMMON NAME	HABITAT VALUE	PLANT FORM	POT SIZE	PLANTING DENSITY	PERCENTAGE	QUANTITY
T1 / TREES							
*Eucalyptus melliodora**	Yellow Box	**RHE preferred SP preferred** Koala GHFF	Tree to 30 m	Tube	1 per 10 m^2	20%	280
Eucalyptus crebra	Narrow-leaved Ironbark	Koala GHFF	Tree to 35 m	Tube	1 per 10 m^2	28%	392
*Eucalyptus tereticornis subsp. tereticornis**	Forest Red Gum	**SP preferred** Koala GHFF	Tree to 50 m	Tube	1 per 10 m^2	12%	168
Eucalyptus melanophloia	Silver-leaved Ironbark	Koala GHFF	Tree to 20 m	Tube	1 per 10 m^2	5%	70
Corymbia intermedia	Pink Bloodwood	Koala GHFF	Tree to 35 m	Tube	1 per 10 m^2	5%	70
Corymbia tessellaris	Moreton Bay Ash	Koala GHFF	Tree to 35 m	Tube	1 per 10 m^2	5%	70
Angophora subvelutina	Broad-leaved Apple	Koala GHFF	Tree to 20 m	Tube	1 per 10 m^2	5%	70
Allocasuarina torulosa	Forest She-oak	N/A Pioneer	Tree to 8 m	Tube	1 per 10 m^2	10%	140
Acacia concurrens	Black Wattle	N/A Pioneer	Tree to 20 m	Tube	1 per 10 m^2	5%	70
Acacia disparrima	Hickory Wattle	N/A Pioneer	Shrub	Tube	1 per 10 m^2	5%	70
						TOTAL	**1400**

*Planting percentages required at prescribed rate to fulfil offset planting requirements for Regent Honeyeater and Swift Parrot.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:

South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 07 MWW RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Planting Species Schedule (iv)*

FINAL SPECIES PALETTE TO COMPRISE MAXIMUM DIVERSITY OF SPECIES FROM SCHEDULES. TO BE APPROVED BY ENVIRONMENTAL COORDINATOR.

NOTES

- Final species palette to comprise maximum diversity of species from schedules.
- Area calculations are a maximum calculation for use as needed.
- Final on-ground planting numbers and densities may be subject to change based on planting requirements and seed stock availability except for densities and volumes prescribed for swift parrot and regent honeyeater foraging species.

Environmental Management Zone 4.1– Remnant Vegetation RE 12.8.17 (Assisted Natural Regeneration)

Notes:

1) Trees to be planted at a density of 1 tree per 1000 m².
2) Setback trees 3 metres minimum from all property boundaries and services
3) Distribute plants in groups on site in random arrangement - to be confirmed with super-intendent on site
4) Plant species according to tolerances and site conditions
5) Plant quantities to be confirmed by rehabilitation supervisor according to site conditions. Unsuitable or unavailable species to be substituted with other species from this schedule.
6) Species consistent with RE 12.8.17 technical description.

SCIENTIFIC NAME	COMMON NAME	HABITAT VALUE	PLANT FORM	POT SIZE	PLANTING DENSITY	PERCENTAGE	QUANTITY
T1 / TREES							
*Eucalyptus melliodora**	Yellow Box	**RHE preferred** **SP preferred** Koala GHFF	Tree to 30 m	Tube	1 per 1000 m²	20%	16
Eucalyptus crebra	Narrow-leaved Ironbark	Koala GHFF	Tree to 35 m	Tube	1 per 1000 m²	30%	23
*Eucalyptus tereticornis subsp. tereticornis**	Forest Red Gum	**SP preferred** Koala GHFF	Tree to 50 m	Tube	1 per 1000 m²	10%	9
Eucalyptus melanophloia	Silver-leaved Ironbark	Koala GHFF	Tree to 20 m	Tube	1 per 1000 m²	10%	7
Corymbia intermedia	Pink Bloodwood	Koala GHFF	Tree to 35 m	Tube	1 per 1000 m²	10%	7
Corymbia tessellaris	Moreton Bay Ash	Koala GHFF	Tree to 35 m	Tube	1 per 1000 m²	6%	6
Angophora subvelutina	Broad-leaved Apple	Koala GHFF	Tree to 20 m	Tube	1 per 1000 m²	10%	8
						TOTAL	**78**

*Planting percentages required at prescribed rate to fulfil offset planting requirements for Regent Honeyeater and Swift Parrot.

Environmental Management Zone 4.2– Infill Planting RE 12.8.17 (Assisted Natural Regeneration)

Notes:

1) Trees to be planted at a density of 1 tree per 10 m².
2) Setback trees 3 metres minimum from all property boundaries and services
3) Distribute plants in groups on site in random arrangement - to be confirmed with super-intendent on site
4) Plant species according to tolerances and site conditions
5) Plant quantities to be confirmed by rehabilitation supervisor according to site conditions. Unsuitable or unavailable species to be substituted with other species from this schedule.
6) Species consistent with RE 12.8.17 technical description.

SCIENTIFIC NAME	COMMON NAME	HABITAT VALUE	PLANT FORM	POT SIZE	PLANTING DENSITY	PERCENTAGE	QUANTITY
T1 / TREES							
*Eucalyptus melliodora**	Yellow Box	**RHE preferred** **SP preferred** Koala GHFF	Tree to 30 m	Tube	1 per 10 m²	20%	60
Eucalyptus crebra	Narrow-leaved Ironbark	Koala GHFF	Tree to 35 m	Tube	1 per 10 m²	30%	90
*Eucalyptus tereticornis subsp. tereticornis**	Forest Red Gum	**SP preferred** Koala GHFF	Tree to 50 m	Tube	1 per 10 m²	10%	36
Eucalyptus melanophloia	Silver-leaved Ironbark	Koala GHFF	Tree to 20 m	Tube	1 per 10 m²	10%	30
Corymbia intermedia	Pink Bloodwood	Koala GHFF	Tree to 35 m	Tube	1 per 10 m²	10%	30
Corymbia tessellaris	Moreton Bay Ash	Koala GHFF	Tree to 35 m	Tube	1 per 10 m²	6%	24
Angophora subvelutina	Broad-leaved Apple	Koala GHFF	Tree to 20 m	Tube	1 per 10 m²	10%	30
						TOTAL	**300**
RE 12.8.17 GROUNDCOVERS (Indicative – as required)							
Themeda triandra	*Kangaroo Grass*	N/A Other	Grass	Tube or seed	As required		
Cymbopogon refractus	*Barbed Wire Grass*	N/A Other	Grass	Tube or seed	As required		
Heteropogon contortus	*Black Speargrass*	N/A Other	Grass	Tube or seed	As required		
Poa sieberiana var. sieberiana	*Blue Tussock Grass*	N/A Other	Grass	Tube or seed	As required		
Dichanthium sericeum	*Queensland bluegrass*	N/A Other	Grass	Tube or seed	As required		
Eragrostis brownii	*Browns Lovegrass*	N/A Other	Grass	Tube or seed	As required		
Sarga leiocladum	*Wild Sorghum*	N/A Other	Grass	Tube or seed	As required		
Panicum effusum	*Hairy Panic*	N/A Other	Grass	Tube or seed	As required		
Aristida vagans	*Threeawn Speargrass*	N/A Other	Grass	Tube or seed	As required		
Oplismenus aemulus	*Australian Basket Grass*	N/A Other	Grass	Tube or seed	As required		
Gahnia aspera	*Saw Sedge*	N/A Other	Sedge	Tube or seed	As required		
Lepidosperma laterale	*Variable Swordsedge*	N/A Other	Sedge	Tube or seed	As required		
Lomandra longifolia	*Spiny-headed Mat-rush*	N/A Other	Sedge	Tube or seed	As required		
Dianella caerulea	*Blue Flax-lily*	N/A Other	Herb	Tube or seed	As required		
Eremophila debilis	*Winter Apple*	N/A Other	Prostrate shrub	Tube or seed	As required		
Hardenbergia violacea	*False Sarsparilla*	N/A Other	Prostrate shrub	Tube or seed	As required		
Eustrephus latifolius	*Wombat Berry*	N/A Other	Vine	Tube or seed	As required		
Chrysocephalum apiculatum	*Yellow Buttons*	N/A Other	Herb	Tube or seed	As required		
Glycine clandestina	*Twining Glycine*	N/A Other	Scrambling vine	Tube or seed	As required		
Asperula conferta	*Common Woodruff*	N/A Other	Herb	Tube or seed	As required		

*Planting percentages required at prescribed rate to fulfil offset planting requirements for Regent Honeyeater and Swift Parrot.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:

South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 08 MWW RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Site Preparation*

METHODOLOGY – SITE PREPARATION

Prior to site works commencing, the site should be secured from degrading impacts such as grazing by stock, unauthorised access and rubbish.

Some factors that may require immediate attention include:

- The presence of highly invasive weed species which may disperse further prior to substantial site works commencing
- The presence of weed species which may have a long-term impact on ecological communities such as exotic and weed varieties of vines
- Flammable materials (including weed thickets, grasses and vines)
- Damaging and easy access by 4WD, motorbikes and pedestrians into core retained vegetation and ecological restoration areas. This may require installation of temporary fencing if deemed appropriate Site works can be typically broken down into the following categories:
    - Primary Works
    - Follow-up Works
    - Maintenance Works (refer Methodology – Maintenance)

Primary Works

Primary works or initial works within the site or a section of the site will commonly involve a sequence of activities such as the control of all groundcover weeds, woody weeds in the understorey and exotic vines prior to the control of weed trees. Primary work has the effect of creating a large degree of disturbance which will stimulate the germination of native and exotic species. Therefore, continuing works should be scheduled shortly after the initial visit to allow for timely control of the newly regenerating weeds.

Highly invasive weeds, such as the Restricted Invasive Plants listed under the Biosecurity Act 2014, should be treated as a priority during primary works to alleviate competition on native flora species and inhibit spread into newly disturbed areas. For example, canopy smothering vines such as Cat's Claw Creeper can have a detrimental impact on native canopy trees and should be prioritised over less invasive herbs such as Blue Billy Goat Weed. Some weeds will also need to be treated in stages i.e. where the weed provides protection and habitat for native fauna or where it is providing bank stabilisation. For example, where Lantana is providing the only habitat for small birds, it should be removed in phases as native shrub habitat establishes.

Techniques used during primary work commonly involve spot spray, cut-scrape paint, cut-paint, scrape-paint, roll-hang and over spraying (source: SEQERF). *Refer to Weed Management notes for additional details.* Following completion of weed management, rehabilitation (such as assisted natural regeneration, construction and fabrication planting) can occur in areas unaffected by weed management activities or areas that primary weed management activities have concluded. Refer to Rehabilitation Works notes for additional details. At the end of primary work, the zone will have been comprehensively and systematically worked, ready for follow-up works.

Follow-up Works

At intervals, which will vary according to the type of weed impacting the site and growing conditions, follow-up work will be necessary. This generally involves the spot-spraying of newly germinating weeds and resprouting sections of woody weeds and vines. It is at this stage that observational visits should be made to the site to determine what progress the vegetation is making and decide when to implement further follow-up work. A site that receives badly timed, too frequent or too little follow-up will rapidly experience setbacks, as weed propagules will quickly become established in the newly disturbed areas. Germinating native seedlings may be swamped by weeds or damaged by inexperienced operators thereby exhausting the seed bank. Unless adequate follow-up can be ensured when planning restoration works, there is little point in commencing primary work, as time and resources are consumed with no substantial gain achieved (source: SEQERF).

METHODOLOGY – WEED NOTES

Weed management typically comprises a major part of rehabilitation site works. Weed management provides the basis of aiding natural regeneration and assisted natural regeneration. It also forms part of the preliminary work required for reconstruction and fabrication scopes.

Weed Management is to be undertaken in accordance with the SEQERF Primary, Follow-up and Maintenance works notes above. Weed management shall encompass all species declared at the commonwealth, state and local level, and any weeds that appear to be invasive at the site.

A total of 25 species of weed recorded within the offset area and surrounding areas within the broader offset property. Two (2) species of WONS were recorded within the offset area being Lantana camara (Lantana) and Senecio madagascariensis (Fireweed). Seven (7) species of Category 3 restricted weeds listed under the Queensland Biosecurity Act 2014 were recorded.

Critical skills for Weed Management include:

- Knowledge of relevant legislation
- Plant Identification skills
- Knowledge of different weed management techniques

Knowledge of Relevant Legislation

It is expected contractors have a depth of knowledge of relevant legislation to complete site rehabilitation works. This includes invasive plant classifications and control obligations under the Queensland *Biosecurity Act 2014* and local Biosecurity Plans (Refer to adjacent schedules for classification of weeds under the Act).

Bush regenerators must also comply with the requirements of the Workplace Health and Safety Act 2011 or, when working on Commonwealth lands, the Commonwealth's Occupational Health and Safety (Commonwealth Employment) Act 1991.

Contractors should also obtain all relevant permits required under State and Commonwealth legislation (e.g. Nature Conservation Act 1992, Fisheries Act 1994, Vegetation Management Act 1999, Biosecurity Act 2014). Contractors must also be aware of and adhere to cultural heritage protection obligations under the Aboriginal Cultural Heritage Act 2003 and where chemicals are in use, the Agricultural Chemicals Distribution Control Act 1966.

In addition to the above, contractors should also be familiar with local government body requirements (e.g. Local Codes, Policies and Guidelines).

RESTRICTED MATTERS (*BIOSECURITY ACT 2014*)	
Category	**Description**
1	must be reported to an inspector within 24 hours if it is present in, or on, something in your possession or under your control or at a place where you are the occupier, unless an appropriately authorised officer has already been advised or you possess a permit for the restricted matter. Includes red imported fire ants, electric ants, Asian honey bees, and certain animal diseases, aquatic diseases and pathogens.
2	must be reported to an inspector within 24 hours if it is present in, or on, something in your possession or under your control or at a place where you are the occupier, unless an appropriately authorised officer has already been advised or you possess a permit for the restricted matter. includes certain noxious fish, weeds and pest animals
3	You must not distribute this restricted matter. It must not be given as a gift, sold, traded or released into the environment unless the distribution or disposal is authorised in a regulation or under a permit. Deliberate human distribution or disposal contrary to the legislation is a key source of spread into other areas. includes weeds, pest animals and noxious fish
4	You must not move this restricted matter to ensure that it does not spread into other areas of the state. includes specific weeds, pest animals and noxious fish
5	You must not possess or keep this restricted matter under your control. These pests have a high risk of negatively impacting on the environment. You may only keep this restricted matter under a permit of the *Biosecurity Act 2014* or another Act. includes weeds, pest animals and noxious fish
6	You must not feed this category of restricted matter. Feeding this restricted matter may cause their numbers to increase and negatively impact the economy or the environment. Feeding for the purpose of preparing for or undertaking a control program is exempted. Includes invasive animals such as feral deer, foxes, rabbits and wild dogs and noxious fish such as carp, gambusia and tilapia.
7	If you have these noxious fish in your possession, you must kill the restricted matter and dispose of the carcass by burying the whole carcass in the ground above the high tide water mark or placing it in a waste disposal receptacle. Includes noxious fish such as carp, weather loach, climbing perch and gambusia

Plant Identification Skills

Both native and weed species should be identified prior to primary weed removal works and ongoing throughout the follow-up and maintenance periods. This is to maximise natural regeneration and reducing likelihood of accidental weed spraying to native vegetation. Regenerating species to be treated and maintained in a similar manner to newly planted revegetation tube stock. If contractor is unsure of species, advice should be sought by botanist, specialist contractor or confirmed with Queensland Herbarium. Refer to indicative Weed Treatment schedules derived from Queensland Herbarium for an indication of weed species and treatments.

Site specific notes

Based on site-specific data, the following weed management methods and techniques are recommended:

- Stick rake, grubbing, ploughing or slashing major accessible areas of Lantana where not on a slope greater than 15% or where no existing native values occur.
- Apply broadscale herbicide and spot spray during high germination summer periods (Nov-March). Utilise organic based Lantana targeted herbicides which minimise impacts on native vegetation regenerating within and surrounding Lantana patches.
- Control methods applied will be guided by methods outlined in the DAF's Improved practices catalogue: Best management practice for maintaining and improving land condition on grazing lands (DAF, 2017).
- Cautionary options to reduce run off or contamination from herbicides will be utilised within proximity to the creek within EMZ 4. Spot spraying of glyphosate will limit potential for impact as it is known to breakdown immediately on contact with soil and has no residual effect (Gray et al. 2006). It is understood that permits from relevant state Environment Protection Authorities may be required if herbicides are to be sprayed on riverbanks. If seen fit, other forms of control, such as mechanical or fire management, may be utilised adjacent to the creek within EMZ 4 to reduce potential impacts to waterbodies.

Knowledge of Different Weed Management Techniques

A range of weed management techniques are available to combat a variety of weeds and scenarios. Refer to adjacent schedules and Appendix A for weed management techniques.

WEED MANAGEMENT TECHNIQUES	
METHOD	**DESCRIPTION**
Herbicide	**The herbicide weed control techniques described below provide a range of proven methods that can be used on a restoration site.**
Cut - Scrape-Paint	Cut the stem of the plant close to the ground (approximately 1-2cm) ensuring that soil does not come in contact with the cut surface. The cut can be made at a slight angle in order to increase the surface area that is exposed to the chemical. Apply herbicide immediately to the cut stump using poison pot and brush or dripper bottle. Using a knife, scrape the sides of the stump thoroughly to expose the green tissue. Apply herbicide to the scraped stump. The chemical must be applied within 10 seconds of the cut or scrape being made in order for it to be fully effective.
Cut - Paint	Cut the stem of the plant close to ground level. Apply herbicide to the cut stump using poison pot and brush or dripper bottle. This method is best suited to easy-to-treat weeds such as small-leaved privet (Ligustrum sinense), provided that the diameter of the stem at ground level is less than approximately three centimetres. If a glyphosate-/ metsulfuron methyl herbicide mix is being used in the poison pot, a greater range of weeds can be controlled using this method e.g. Easter cassia.
Scrape - Paint	Scrape as much of the stem as possible (one side of the stem) using a knife and apply herbicide to the scrape. Leave a small section of the vine unscraped and then twist the vine so that the next scrape is made on the opposite side of the stem to the preceding scrape. Continue along the length of the vine, scraping and painting as much of the stem as possible, with scraping to be concentrated along the thicker stems close to the root of the plant. This is the best method to use for madeira vine, as it allows the chemical to translocate to the underground storage organs and aerial tubers which may be hanging in large clusters above head height. This avoids the potential problem of tubers from cut stems left hanging in the trees from dropping to the ground and sprouting. When scraping madeira vine stems a deep scrape is advisable – scrape right through to the fibrous, stringy section of the stem, taking care not to sever the vine. This method is also suitable for treatment of ochna.
Over-spraying	Over-spraying involves the use of knapsacks or power sprayers to treat large expanses of weed such as lantana thickets. The foliage must be covered with herbicide but not to the point of running off the plant. The dead plants remain in place and can be cut down at a later stage. Prior to over-spraying, any weeds that are growing closely around established native plants must be hand removed or treated by cut-scrape-paint.
Spot-spraying	A knapsack filled with an appropriate herbicide mix is used by the operator to selectively control environmental weeds. A keen eye and an ability to distinguish between the native and weed species likely to be present, especially at seedling stage, is essential. Marker dye is added to the chemical mix to allow the operator to see what has already been sprayed, thus covering the ground weeds comprehensively and thoroughly Glyphosate and metsulfuron methyl are the main herbicides used for spot-spraying in ecological restoration, together with the addition of a penetrant and/or surfactant and marker dye.
Splatter Gun	This small gas-powered injector kit is fitted into a knapsack for easy carrying and delivers large droplets in a stream over the weed. The gun is used to deliver a concentrated herbicide (glyphosate or metsulfuron methyl) across large dense expanses of weed. The method is used for species such as lantana (ratio of 1:9 of glyphosate:water). Splatter gun involves spraying strips at one to two metre intervals over the thicket. The herbicide is then translocated throughout the entire plant. The method does not require the whole plant to be covered as in over-spray.
Oil-hang	Vines such as mile-a-minute (Ipomoea cairica) which produce long stolons extending many metres along the surface of the ground, are suited to the roll-hang method. Locate the base of the plant and carefully pull up the runners and roll them up. The resulting roll of vine is then hung in the fork of a tree to dry out as if it is left on the ground it is likely to re-shoot. Where runners are climbing up into a tree they are cut off at head height prior to the runner being rolled up – there is no need to pull cut vines down from trees as this action is likely to damage the tree. The base of the vine is treated using the cut scrape-paint method.
Gouge-paint	This method applies to plant species that have a fleshy underground storage organ, such as the large tuber that is often found at the base of madeira vine. It is also particularly appropriate for the treatment of climbing asparagus (Protasparagus plumosus). If using this technique on climbing asparagus, first cut the stems that are growing into the canopy at head height and also at the base. The fleshy rhizome can then be gouged, or alternatively in the case of climbing asparagus, it may be struck several times firmly with the head of a pair of loppers, allowing the brown outer covering of the crown to peel away exposing the white fleshy inner section of the rhizome for application of herbicide. Gouge out sections of the fleshy base with a knife and apply herbicide using a paint pot and brush or dripper bottle within 10 seconds.
Basal Barking	This method involves mixing an oil-soluble herbicide in diesel/kerosene and painting or spraying the full circumference of the trunk or stem of the plant from ground level to a height of approximately 45cm. Basal bark application is suitable for thin-barked woody weeds including saplings, regrowth and multi-stemmed shrubs. The method will usually result in the mortality of difficult-to-control woody weeds at any time of the year, provided the bark is not wet or too thick to enable the herbicide to penetrate. The method should not be used in wet weather, adjacent to waterways or in areas where native trees and shrubs are located. The use should be restricted to situations where a weed is particularly difficult to control e.g. cherry guava and where other methods have been unsuccessful.
Stem Injection	Large woody weeds such as camphor laurel, coral trees (Erythrina spp, Privet Ligustrum spp) and umbrella trees are generally treated by stem-injection. Holes are drilled at regular intervals around the base of the tree and exposed roots using a drill. A tree injection syringe attached to a small capacity knapsack is used to fill the holes with the herbicide. Stem-injection of trees can also be undertaken using a hatchet to create cuts in a 'brickwork pattern' in trunks of trees for the application of herbicide (known as tree frilling). Frilling is more labour intensive than drilling. The greatest benefit of stem injection is that the trees can be left standing in situ as they die, provided there is no risk to humans or infrastructure from falling limbs. This creates convenient roosts for birds and other animals and prevents the formation of large amounts of debris on the ground and damage to understorey plants which would result if the trees were to be cut down using a chainsaw.
Wick Wiping	Wick wipers can be manually used with a sponge or wick applicator, attached to a container filled with herbicide or as an attachment towed by a tractor. The manual method can be used to selectively apply herbicide to the leaves of weeds growing in sensitive situations. The handheld container can leak, and generally spot spraying would be recommended. The use of a tractor drawn wick wiper is used to control taller growing species such as introduced grasses and to encourage the growth of lower growing species. This method could be used in preparation for planting.
Mechanical	**Mechanical weed control involves the use of powered and non-powered equipment such as brush cutters, chainsaws, slashers, shovels, pruners, saws, etc. These methods are best used in situations where there is a large, uninterrupted stand of weeds.**
Dig and Bag	Dig and remove tuberous/ rhizomatous root systems. Remove roots or whole plant in hard/ compacted soils. Place in suitable container and remove from site, dispose of by deep burial, burn or burial at a land fill, must not place declared weed species in recycling (mulch).
Hand-Pull	Remove totally from ground by hand (human). Perform when soil is moist. Applicable to small infestations or areas of environmental sensitivity (including sensitive watercourses, when frogs are breeding, or presence of threatened species).
General Mechanical	May involve use of machinery (e.g. brush cutter, chainsaw, slasher, dozer, excavator). Suitable for large infestations and weed trees. Initially cost-effective but requires immediate revegetation of site or matting/ mulch application and extensive maintenance periods. Generates excessive soil and vegetation disturbance.

Note: Table adapted from a table in SEQERF

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER
DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:
South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 09 MWW RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Planting Notes*

Burns and Soil Cultivation

Controlled cool burns – if weather allows, controlled cool burns are undertaken prior to cultivation or planting to remove grass and broadleaved plants. Qualified and experienced burning contractors are used in all instances, and in accordance with rural fire legislation, permit conditions and stakeholder/near neighbour notification requirements.

Cultivation of soil through ripping – this helps root penetration, increases moisture infiltration and retention around the planted tree's root zone and increases planting efficiency. In all instances, lines are ripped along contours. At no stage will downhill ripping be undertaken due to the high risk of channelling water in the rip lines and associated risk of serious erosion. The upper limit for contour ripping is 30 degrees. Below this, limits for contour ripping are to be set by the contractor, with operator safety being the primary consideration. Ripping must always take place during dry soil conditions, to enable effective soil fracture, and be completed several months before planting, to allow for settling of soil within the rip. Cultivation should not take place when soil moisture content is sufficient to allow the ripping implement to 'slice' through the soil without de-compacting it. Importantly:

- Ripping should always be undertaken with an angled steel plate affixed to the boot of the ripper to enable maximum soil decompaction at depth
- Minimum soil ripping depth is 30 cm – optimal soil ripping depth is 50 cm
- Ripped planting rows are spaced between 4 to 5 m apart to allow future vehicles access but retain planting density targets
- Machinery used to undertake ripping is typically a minimum D5 dozer, however, some high horsepower 4WD tractors or skid steers may also be suitable.

External Nursery

The Offset Provider will coordinate with local nurseries to source and propagate seedlings for planting. Species selection is critical in achieving the desired ecological restoration outcomes for rehabilitation sites. The planting palette proposed in this RMP has been derived from:

- Local Regional Ecosystem (RE) descriptions.
- Observed site native vegetation.
- 'Pioneer' species are useful in site stabilisation and encouraging native regeneration (proposed to be planted in T2 subcanopy layer).
- Required foraging species to support regent honeyeater and swift parrot.
- Utilising flowering and fruiting species are useful to attract wildlife and result in introduction of seeds.
- Species availability from seed propagation and or local nurseries.

Sourcing Seed Stock

Seed stock will be comprised of locally sourced seed stock where possible. Sourcing planting from local nurseries is the commonly chosen option and has the following benefits:

- Awareness of genetic considerations when collecting seed.
- Experience with breaking dormancy mechanisms in hard to germinate seeds.
- Highly successful propagation techniques.
- Ability to provide high quality stock to order
- Draw on industry resources.

Swift parrot and regent honeyeater foraging tree species (*E. melliodora* and *E. tereticornis*) are required to be planted at the densities and quantities prescribed in this RMP in order to meet the required offset outcomes for the species. Densities of the other species may be modified where unable to meet the seed stock requirements, however, the volume of tube stock to be planted should be the same.

METHODOLOGY – PLANTING

Primary weed management works, broad scale planting (reconstruction and fabrication) and assisted natural regeneration is proposed to be undertaken. Prior to installation, the following items should be considered:

- Timing of planting
- Site preparation
- Planting density
- Planting installation

Timing of Planting

The timing of planting should ideally be aligned with the wet season in SEQ (summer and autumn). This minimises the need for intensive watering to establishment planting. Planting between February to May is the most beneficial as it also seeks to avoid intense heat periods of summer. Furthermore, planting at flood-prone and frost-prone locations should aim for plant establishment prior to the onsite of flooding / frost events. Despite this, it is understood planting may occur at various times within rehabilitation areas due to development timing needs.

Site Preparation

Site or planting preparation includes:

- Fencing to exclude grazing animals and people (if required)
- Pre-spraying of exotic grasses and other weeds to planting areas
- Consideration of source of water for new planting (access tracks, temporary irrigation)
- Arranging delivery of mulch, jute netting and tree guards (if required)
- Treatment of heavily compacted soils by ripping and or application of gypsum
- Soil amelioration as required

Planting Density

The planting capacity or number of trees (all species) that can be supported within each EMZ was determined based on the following planting densities proposed in accordance with the South East Queensland Ecological Restoration Framework (SEQERF):

- 1 tree per 10 m^2 or 1000 trees per hectare for non-remnant paddock
- 1 per 50 m^2 or 200 trees for sparse regrowth
- 1 per 100 m^2 or 100 trees for dense regrowth
- 1 per 1000 m^2 or 10 trees for remnant

The proposed density of trees per hectare depending on the EMZ was multiplied by the size of the EMZ (in hectares) to determine the maximum planting capacity. Waterbodies were excluded from potential planting areas.

Each EMZ was assigned a planting palette of tree species developed based on the ground-truthed pre-clear regional ecosystem mapping and local availability of seed stock. Each planting palette comprises a mix of preferred foraging species for the Swift Parrot, other eucalypt trees and pioneer species such as *Acacia* sp. and *Allocasuarina* sp. Preferred foraging tree species comprise a percentage of the total planting palette where it is suitable for the pre-clear RE and/or consistent with the local seed stock.

Refer to plant schedule for the proposed species composition and planting densities.

Planting Installation

The following outlines the preferred installation methodology for revegetation works within the rehabilitation areas. It has been designed to maximise plant establishment success rates and minimise plant mortality. Revegetation works shall be either undertaken or directly supervised by an experienced and qualified contractor. All works shall be in accordance with the provisions of this RMP, and local government policies and Australian Standards.

Techniques are determined based on individual site conditions and will vary from bare seed, seed pods, drone seeding, seedling planting by ground machine, or spades/mattocks, or a combination of several techniques across the site.

Where cultivation has occurred, seedlings are planted into the prepared rip-lines. Seedlings should be planted in cultivated or uncultivated sites at a depth to make good contact with moist soil, and the soil then compressed around the seedling to remove any air pockets.

Planting should be of sufficient depth to ensure the entire root ball is buried with a minimum of five centimetres of natural ground covering the top of the root ball/potting mix. The stem of the seedling should be as vertical as possible.

Spreading bare seeds onto the top of the ground by hand or machine has a very low germination rate and requires high volumes of seed and good soil to seed contact to be successful. A high degree of pre-plant preparation is required before direct seeding is undertaken. Relatively flat open sites with little ground layer competition and sandy soils could be suitable for direct seeding by machine. Inaccessible sites with good pre-plant ground layer vegetation control could be suitable for drone dispersal.

Tube stock of native trees and shrubs should be planted into moist soil with good soil to seed contact at an optimum depth to maximise the seed germination. Seeds of the same species combined with various materials (e.g. clay) into a small pod shape can be used to reduce seed predation by insects, protect the seeds from adverse weather conditions, and increase germination. Inaccessible sites with good pre-plant ground layer vegetation control may be suitable for drone or manual dispersal of seed pods.

Timing must occur during seasons of high rainfall and mild temperatures. Dry weather conditions, extreme high temperatures, and extreme low temperatures will have a negative impact on seed germination and seedling survival.

Seedling types must be a variety of local provenance genetics to ensure future resilience and ecological benefits. Multiple seedlings can be grown in a solid tray or individually in 50 mm tube stock pots. Transplanting the tallest, most mature seedlings with solid mature root ball density maximises the survival and early growth rate of the seedlings.

Fertilising seedlings is important just prior to planting. Alternately a liquid fertiliser can be added to the water when the seedlings are soaked on the day of planting. A complete, slow-release fertiliser is recommended, and is to be administered appropriately during planting. Topdressing with slow-release fertiliser is preferred to avoid toxic levels of fertiliser accumulating in the plant hole around the plant roots.

Moisture is a key element to reduce seedling transplant shock. The ground should have a full moisture profile, the seedlings should be soaked fully before planting, and there should be a high chance of rain after planting. Hand watering planted seedlings should be considered only as a last resort. Planting seedlings provides an opportunity to have the greatest control over forest design.

Maps, including species combinations, will inform the planting contractors of the species mix for each planting site, the density and spacing of the seedlings and the specific location of each species mix across the site. Seedlings of the same species can be planted in small groups or spread randomly across the site.

Quality control is undertaken at the time of planting. Clear instructions to planting contractor is required to ensure the planting quality standard is understood. This is usually best undertaken on the same day as contractor induction to make sure the planters understand the quality standards from day one. Any trees not planted correctly, or planted at the incorrect spacing, will need to be reworked at the contractor's cost. Further inspection of the planting work will be undertaken prior to completion of the planting work to ensure the standard and spacing requirements have been met. Invoices received from the planting contractor cannot be paid until the final inspection has been undertaken and any problems rectified. Work that does not meet the standard will need to be re-done as soon as possible at the expense of the contractor.

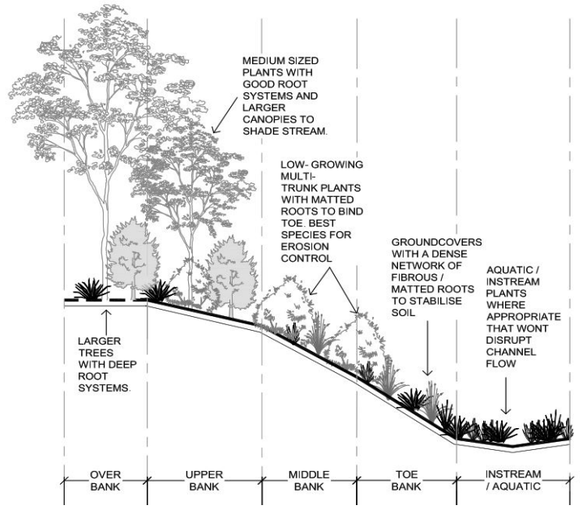


Figure 2: Categories of channel vegetation adapted from the Brisbane City Council Natural Channel Design Guidelines.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:

South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT: Cherish Enterprises

PROJECT: Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE: REHABILITATION MANAGEMENT PLAN

DRAWING NO.: **9612 E 10 MWW RMP A**

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - *Maintenance and Monitoring*

METHODOLOGY – MAINTENANCE

By the maintenance stage, the vegetation community is at a point where native plant species are germinating and establishing. Weed density is starting to decrease as the native plants are able to out-compete the weeds. One of the fundamental principles of ecological restoration is that it attempts to create or re-establish an ecosystem that is self-sustaining. Therefore, it is the underlying goal that maintenance will eventually be decreased to a minimum. While this is not always possible, due to factors such as the continual reintroduction of weed propagules to the site from surrounding areas; unfavourable seasons or weather event; persistent weed species; or global influences such as the enhanced greenhouse effect, it should always be strived for (source: SEQERF). Maintenance works include watering, follow-up weed management, pest management and remedial planting as informed by adaptive management.

Watering regime – if required based on site conditions

Watering is a critical component during the establishment phase of ecological restoration where site conditions are unsuitable for plant growth. Watering regime is to be adjusted based on site conditions, species, and seasonal variability. Indicative intensive watering regime is as below.

Primary Establishment Phase (0–12 months)

- Frequency:
  - Weeks 1–4: Water every 2–3 days, especially in sandy or well-drained soils.
  - Weeks 5–12: Reduce to twice weekly, depending on rainfall and soil moisture.
  - Months 4–12: Weekly deep watering during dry spells.
- Volume:
  - Apply 10–20 litres per plant for trees and shrubs.
  - Groundcovers require less water, but will require full root zone saturation.
- Method:
  - Use drip irrigation, tree bags, or slow-release watering systems to minimise runoff and evaporation.
  - Avoid overhead watering to reduce disease risk.
- Seasonal Adjustments
  - Summer (Dec–Feb): Increase frequency due to high evapotranspiration.
  - Autumn/Winter (Mar–Aug): Reduce watering unless dry conditions persist.
  - Spring (Sep–Nov): Resume intensive watering as temperatures rise.
- Monitoring and Adaptation
  - Check soil moisture at root depth using probes or manual inspection.
  - Observe plant stress indicators: wilting, leaf drop, discoloration.
  - Adjust watering based on species needs.

Pest management

Non-native vertebrate pests will be managed as part of the broad management of the offset prescribed under the OAMP. Management will target non-native vertebrate predator and herbivore species which have potential to damage regenerating habitat areas. This includes wild dogs, European red foxes, feral cats, feral pigs and deer.

Weed control

Intensive weed control maintenance will be undertaken for at least two years after planting is completed, or until the planted seedlings are tall enough to access full sunlight and adequate soil moisture free from adjacent competing plants. Ongoing weed maintenance activities will be completed throughout the life of the offset with a focus on WONS. Care should be taken to ensure weed control approaches do not impact planted seedlings and herbicide application is used precisely and selectively to ensure no dieback to the plantings or developing understorey. Herbicide application must be undertaken by licensed and experienced contractors, and in accordance with registered label conditions and safety data sheet requirements at all times. Mechanical methods will be used where appropriate.

MONITORING AND REPORTING FRAMEWORK

Monitoring

Monitoring methods to track rehabilitation progress will comprise a mix of informal and formal monitoring methods to track progress against the proposed environmental outcomes for each MNES and objectives of this RMP. All monitoring will be undertaken by a suitably qualified Rehabilitation Contractor/Landscape consultant and/or Ecologist.

It is important for the long-term success of a habitat establishment project that both growth and survival are monitored at regular intervals. A monitoring program is proposed whereby the offset area is monitored annually using informal techniques (i.e., photo monitoring) and formal monitoring techniques at prescribed intervals under the MHQA method (i.e., years 5, 10, 15 and 20).

Informal

Informal or qualitative monitoring techniques will be employed as part of the offset monitoring. Informal monitoring methods are less time-consuming and technical and form an important tool for determining ecological restoration success. Informal monitoring will occur through site inspections at prescribed monitoring intervals and will include the following techniques:

1. Photo monitoring, and
2. Visual assessment.

Photo monitoring

Photo monitoring is a cost-effective and objective method to visually assess plant survival and growth. Photo monitoring can be used to build a consistent reference point for rehabilitation progress and provide a visual time series of the offset area from a baseline state to a self-sustaining state. Permanent photo points will be established in the first year of the offset commencement prior to any works commencing on-site (weed management or planting) using a star picket marked with fluorescent yellow safety cap or painted timber stakes. This will enable photos to be taken of the site at regular intervals as it is being restored. Photo point locations will be spread between EMZs at representative locations of each EMZ. Indicative photo monitoring locations will be established by the overseeing qualified Rehabilitation Contractor/Landscape Consultant and/or Ecologist. Photo monitoring will use the following method to ensure adequate data collection and consistency across monitoring events as recommended by the Guide to photo monitoring of ecological restoration projects (OEH, 2018):

- Each photo will include the established star picket demarcating the photo point location to create a fixed reference object in the field of view.
- Point the photo towards an established compass bearing (e.g. 55° North) for the photo point location.
- Take multiple photos (left, right, centre) allowing for each image to overlap to create a panoramic view. This will increase the coverage and representativeness of the scene/subject.
- Always take the photo from the same point, and at the same height.
- Use the same camera or the same type of camera each time the photo is taken.
- Minimise sun glare and shadow in the photo and try to take photos at the same time of day.
- Identify key species that will be visible in the photo.
- Take along copies of the original photos for reference when returning to the photo points to help match the field of view contents.

Visual assessment

At each photo monitoring location, a visual assessment will also be completed whereby general observations such as mortality rate, species, weed/WONS presence and other degrading factors are recorded.

Reporting

Following each photo monitoring event, a Photo Monitoring Report will be prepared which will include the following information:

- Photo set at each monitoring location.
- Commentary on mortality rate and presence of WONS/other weeds at a minimum with any additional relevant observations to inform adaptive management such as species-specific responses or herbivory.
- Adaptive management (if required).

Photo Monitoring Reports will be distributed to the rehabilitation contractor to instigate rectification works. After each monitoring event, photos will be transferred to a master photo monitoring data template, designed to show changes in each photo monitoring location between events.

Formal

Formal monitoring of rehabilitation works involves collecting quantitative data at prescribed monitoring intervals using a combination of monitoring methods and techniques. Formal monitoring provides data that cannot be measured by informal observations and can be easily compared against quantitative performance indicators. This will include:

MHQA Surveys

MHQA transects at 5-yearly intervals (5, 10, 15 and 20 years) following the commencement of the offset. Transects will be repeated at baseline locations before the end of the relevant monitoring interval (e.g. before the end of Year 5) and will be completed in accordance with the baseline survey methodologies described in the OAMP.

Reporting and Monitoring – Summary

The results of informal (photo monitoring and visual assessment) will be detailed in bi-annual monitoring reports and formal monitoring (MHQA surveys) in Milestone Survey Reports. Bi-annual monitoring reports will include a summary of estimated success rate (namely of tree species), any degrading factors at the site that may or are currently affecting survival success and any recommended adaptive management measures while Milestone Survey Reports will report on habitat quality improvements relative to the baseline survey condition and proposed Environmental Outcomes detailed in the OAMP.

The reporting schedule for the monitoring program is summarised in the table below.

Report	Purpose	Frequency	Responsible party
Milestone Survey Report *Details the results of MHQA, GHFF FHA and swift parrot and regent honeyeater foraging habitat assessment.*	Designed to demonstrate increase in value of offset area for Matters of National Environmental Significance (koala, grey-headed flying-fox, swift parrot and regent honeyeater) as proposed under the OAMP.	Five-yearly at Years 5, 10, 15 and 20	Suitably qualified Ecologist as appointed by the Proponent
Photo Monitoring Report *Qualitative monitoring report showing photos of the offset area, commentary on rehabilitation progress and recommended adaptive management measures.*	Function is to provide regular assessment of the offset area and feedback to engaged rehabilitation contractors to guide on-ground works.	Bi-annually from Years 1 to 5 Years 10, 15 and 20	Suitably qualified Rehabilitation Contractor, Landscape Consultant or Ecologist as appointed by Offset Provider

ADAPTIVE MANAGEMENT

Adaptive management is a systematic approach for improving rehabilitation outcomes by learning from existing management techniques. It is a cyclic process that involves:

1. Identification of unsuccessful treatments and new threats during monitoring events
2. Investigation of new and alternative treatments
3. Implementation of new / alternative management strategies based on best available knowledge
4. Review of new / alternative management strategies during monitoring

Adopting an adaptive approach to rehabilitation works is recommended to maximise environmental outcomes for the site. Once an area is revegetated, the survival and growth of plants needs to be assessed, monitored and managed. Plans need to be adaptive in order to respond to identified issues on the site.

Multiple corrective action triggers for adaptive management are proposed. This includes:

- Native plant mortality >20% during the initial contractor establishment phase (3-5 years) of the plantings
- WONS cover >5% after Year 10
- Number of non-juvenile stems of swift parrot foraging species (*C. citriodora* and *E. tereticornis*) not increasing (as extrapolated from stem density assessments)
- Number of non-juvenile stems of regent honeyeater foraging species (*C. citriodora* and *E. tereticornis*) not increasing (as extrapolated from stem density assessments)
- Planting with groundcover species (grasses and forbs) if required to improve species richness targets as determined through MHQA monitoring. Indicative species palette is provided in this RMP.

A survival rate of 80% of tree species is proposed to be achieved for the offset area during the establishment phase of the plantings (3-5 years) with a focus on species identified as preferred or supporting foraging species for the Critically Endangered regent honeyeater and swift parrot. This is required in order to achieve the proposed offset outcomes for the species under the OAMP. The 80% survival rate is to be achieved throughout the 3-5 year contractor establishment phase, after which the plantings are considered self-sustaining. It is anticipated the overall density of plantings will normalise to typical eucalypt forest density during the successional phase of the offset (5-20 years post planting). Where survival rates are observed to be less than 80% during the contractor establishment phase, this may indicate the presence of a degrading factor not previously identified or considered at the site and may require adaptive management measures to be considered and implemented. Degrading factors are to be identified as part of regular monitoring and will form the basis for actioning adaptive management.

Adaptive management measures may include a combination of the following:

- Identify and address the degrading factor (e.g. soil issue, species failure).
- Remedial plantings in areas of dieback to bolster survival rates to above 80% during the contractor establishment phase.
- Introduce a different species *i.e.,* if one plant species consistently dies on a site, consider using in its place a species that is performing well.
- Adjust planting methods such as using advanced tube stock or direct seeding, modifying site preparation techniques.
- Modify weed management techniques or frequency where WONS exceed 5% after Year 10.

REHABILITATION TEAM RESPONSIBILITIES

It is critical for all parties to understand their responsibilities within the rehabilitation 'team'.

PARTY	DESCRIPTION
Proponent	Ensure all consultants, contractors, sub-contractors or others utilising the area are aware of the Rehabilitation Management Plan. Appoint appropriate consultants and contractors to undertake works as prescribed on the drawings. Provide security via an uncompleted works bond and maintenance bond for the cost of works if required. Cover costs of all resources to ensure works are completed as per approved plans.
Consultants	Brief proponent on their requirements in implementing and maintaining works as per the Rehabilitation Management Plan. Attend monitoring inspections. Undertake monitoring and reporting as per this plan. Be available to respond to technical queries to the approved documentation when on-site conditions require changes. Liaise with team throughout all stages of approval, initial works and maintenance of works.
Assessment Manager	Provide technical expertise via commentary on the approval of documentation. Attend monitoring inspections. Reduce and release securities held against works at the completion of successful milestone inspections. Be available to respond to technical queries to the approved documentation when on-site conditions require changes. Accept and review maintenance reports as dictated (if required)
Land Manager / Contractor	Ensuring implementation of works and compliance with this Rehabilitation Management Plan. Attend monitoring inspections. Has a minimum Certificate III in Conservation and Land Management, or a Certificate III in Horticulture, or a Certificate III in Rehabilitation Construction, or equivalent experience in rehabilitation. Hold relevant licenses in applicable weed management/ revegetation/ fauna management, any required insurances for scope of works and an understanding of required Laws, Act, Policies and Guidelines. Recommend changes to the documentation when specific experience or on-site conditions require so.

References

Chenoweth EPLA and Bushland Restoration Services (2012). South East Queensland Ecological Restoration Framework: manual. Prepared on behalf of SEQ Catchments and South East Queensland Local Governments, Brisbane.

Department of Agriculture and Fisheries (Qld). (2017). *Improved practices catalogue: Best management practice for maintaining and improving land condition on grazing lands*. Queensland Government.

Gray, J. M., Rawling, J. L., & Chapman, G. A. (2006). Soil and land assessment for native vegetation rehabilitation: Technical guidelines (Publication No. DNR 06_081). New South Wales Department of Natural Resources.

Office of Environment and Heritage (2018). Guide to photo monitoring of ecological restoration projects. OEH New South Wales, January 2018.

Thackway, R., Neldner, V.J. and Bolton, M.P. (2008). Vegetation. In McKenzie, N.J., Grundy, M.J., Webster, R. and Ringrose Voase, A.J. (eds) Guidelines for surveying soil and land resources (2nd edition). CSIRO Publishing, Melbourne.

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:

South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E 11 MWW RMP A

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - APPENDIX 01 *Weed Treatment and Removal (i)*

Queensland Herbarium Invasive Naturalised Plants In South East Queensland

Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
1	Mimosaceae	Acacia boliviana (Bolivian wattle)	1	1	4	T/O	Mechanical or chain removal.	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
2	Mimosaceae	Acacia farnesiana (mimosa bush)	6	15	3	T/A	Mechanical removal of small plants.	
3	Mimosaceae	Acacia nilotica subsp. indica (prickly acacia)	3	3	4.4	T/A	Mechanical or chain removal.	
4	Cactaceae	Acanthocereus tetragonus (sword pear)	1	1	3	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
5	Polygonaceae	Acetosa sagittata (rambling dock)	4	18	4	V/U	Tubers: Dig up, bag and remove.	
6	Agavaceae	Agave americana (century plant)	4	9	4	S/OA	Dig out by hand or machine	
7	Agavaceae	Agave sisalana (sisal)	2	4	4	S/OA	Dig out by hand or machine	
8	Agavaceae	Agave vivipara var. vivipara (sisal)	2	3	4	S/OA	Dig out by hand or machine	
9	Asteraceae	Ageratina adenophora (crofton weed)	6	38	5	H/O	Hand pull and hang to dry.	
10	Asteraceae	Ageratina riparia (mistflower)	5	38	5	H/O	Hand pull and hang to dry.	
11	Asteraceae	Ageratum houstonianum (blue billygoat weed)	8	81	4	H/UO	N/A	
12	Simaroubaceae	Ailanthus altissima (tree of heaven)	1	3	4	T/O	Seedlings: Hand pull	
13	Amaranthaceae	Alternanthera philoxeroides (alligator weed)	1	3	5	Ha/U	Physical removal of plant should not be attempted	
14	Poaceae	Andropogon virginicus (whisky grass)	6	14	4	H/A	Hand pull or dig out small infestations.	
	Basellaceae	Anredera cordifolia (madeira vine)	8	16	5	V/O	Small Vines & Tubers: Hand pull. Bag and dispose.	
16	Asclepiadaceae	Araujia sericifera (mothvine)	9	38	4	V/O	Seedlings & Vines: Hand pull. Bag and remove fruit.	
17	Aristolochiaceae	Aristolochia elegans (Dutchman's pipe)	8	30	4	V/O	Stems: Hand pull; Fruit: Bag and remove.	
18	Poaceae	Arundo donax (giant reed)	1	4	4	H/O	Physical removal of small infestations.	
19	Asclepiadaceae	Asclepias curassavica (red cotton bush)	9	43	3	S/O	Hand pull; Slash	
20	Asparagaceae	Asparagus aethiopicus cv. Sprengeri (asparagus ground fern)	5	35	5	H/O	Dig out unwanted plants and dispose of at the appropriate council landfill. Remove the entire crown of underground stem of plant to prevent regrowth	
21	Asparagaceae	Asparagus africanus (ornamental asparagus, asparagus fern)	7	26	5	V/O	Dig out roots and dispose of at local council landfill site. Remove entire crown and underground stem to prevent regrowth	
22	Asparagaceae	Asparagus plumosus (asparagus fern)	4	8	4	V/O	Rhizomes: crown and hang to dry.	
23	Poaceae	Axonopus compressus (broad leaved carpet grass)	5	23	4	H/AO	Cut stems from roos.	
24	Asteraceae	Baccharis halimifolia (groundsel bush)	10	168	5	S/O	Seedlings: Hand pull	
25	Asteraceae	Bidens pilosa (cobbler's pegs)	10	110	4	H/U	Hand pull or cultivation.	
26	Poaceae	Brachiaria decumbens (signal grass)	4	14	4	H/A	Grazing	
27	Poaceae	Brachiaria mutica (para grass)	6	18	4	Ha/A	Grazing	
28	Crassulaceae	Bryophyllum daigremontianum x B. delagoense (hybrid mother-of millions)	6	15	5	H/O	Hand pull and dispose	
29	Crassulaceae	Bryophyllum delagoense (mother of millions)	8	38	5	H/O	Hand pull and dispose	
30	Crassulaceae	Bryophyllum pinnatum (resurrection plant)	6	17	4	H/O	Hand pull and dispose	
31	Buddlejaceae	Buddleja madagascariensis (buddleja)	5	6	3	S,V/O	N/A	
32	Cabombaceae	Cabomba caroliniana (cabomba, fanwort)	4	12	5	Ha/F	Mechanical removal of small infestations	
33	Caesalpiniaceae	Caesalpinia decapetala (thorny poinciana)	4	20	4	S,V/O	Seed-heads: Bag and remove.	
34	Brassicaceae	Cakile edentula (American sea rocket)	4	24	4	H/U	Manually grub and destroy.	
35	Commelinaceae	Callisia fragrans (purple succulent)	3	9	4	H/O	N/A	
36	Cannaceae	Canna indica (canna lily)	3	9	3	H/O	Dig out entire plant	
37	Sapindaceae	Cardiospermum grandiflorum (balloon vine)	7	31	4	V/O	Seedlings & Small Vines: Hand Pull	
38	Apocynaceae	Cascabela thevetia (syn. Thevetia peruviana) (yellow oleander)	5	9	3	ST/O	Hand pull small infesttions. Slashing can be used but should be followed up by herbicide application.	
39	Apocynaceae	Catharanthus roseus (pink periwinkle)	5	22	4	S/O	Hand pull	
40	Ulmaceae	Celtis sinensis (Chinese celtis)	8	19	5	T/O	Remove when small. Hand pull or dig out small seedlings. Combine dozing, burning and controlled grazing for large infestations	
41	Poaceae	Cenchrus ciliaris (buffel grass)	4	15	4	H/A	Hand or mechanical removal of young plants	
42	Poaceae	Cenchrus echinatus (Mossman river grass)	8	43	3	H/A	Hand or mechanical removal of young plants	
43	Solanaceae	Cestrum parqui (green cestrum)	6	36	4	S/O	Seedlings: Hand pull	
44	Caesalpiniaceae	Chamaecrista rotundifolia (round-leaf cassia)	6	14	3	ST/A	Seedlings: Hand pull	
45	Poaceae	Chloris gayana (Rhodes grass)	9	55	4	H/A	Hand pulling and removal and digging of larger clumps	
46	Asteraceae	Chrysanthemoides monilifera subsp. rotundata (bitou bush)	3	23	5	S/OA	N/A	
47	Lauraceae	Cinnamomum camphora (camphor laurel)	7	25	5	T/O	Seedlings: Hand pull	
48	Rubiaceae	Coffea arabica (coffee)	3	7	3	ST/A	Saplings: Hand pull	
49	Arecaceae	Colocasia esculenta (taro)	3	4	3	H/AO	Hand pull.	
50	Commelinaceae	Commelina benghalensis (hairy wandering jew)	4	7	4	H/O	Collect and Bag	
51	Asteraceae	Conyza bonariensis (flax-leaf fleabane)	7	38	3	H/U	Hand or mechanical removal of small infestations	
54	Poaceae	Cortaderia selloana (pampas grass)	2	1	4	H/O	Small Plants: dig out by hand or machine	
55	Asclepiadaceae	Cryptostegia grandiflora (rubber vine)	6	19	4	V/O	Scattered or medium-density infestations: Where possible, repeated slashing close to ground level is recommended.	
56	Poaceae	Cynodon dactylon (couch, Bahama grass introduced cultivars)	10	45	4	H/OA	Hand pull small infestations, removing all roots or smother with mulch.	
57	Cyperaceae	Cyperus brevifolius (Mullumbimby couch)	8	53	3	H/O	Each has to be dug out with a spade and the entire plant turned over, exposing the root system while making sure all aerial parts of the plant are completely covered.	
58	Cyperaceae	Cyperus involucratus (African sedge)	6	15	4	Ha/OF	Each has to be dug out with a spade and the entire plant turned over, exposing the root system while making sure all aerial parts of the plant are completely covered.	
59	Fabaceae	Desmodium intortum (greenleaf desmodium)	4	11	3	H/A	Hand pull or crown and dispose	
60	Fabaceae	Desmodium uncinatum (silverleaf desmodium)	5	14	4	H/A	Hand pull or crown and dispose	
61	Poaceae	Digitaria didactyla (Queensland blue couch)	9	70	4	H/A	Hand pull or cultivation	
62	Poaceae	Digitaria eriantha (pangola grass)	5	20	3	H/A	Hand pull or cultivation	
63	Verbenaceae	Duranta erecta (duranta)	6	14	4	ST/O	Shrubs: CS&P (1:1.5)	
64	Poaceae	Echinochloa colona (awnless barnyard grass)	9	44	3	H/A	Hand or mechanical removal of small infestations	
65	Poaceae	Echinochloa crus-galli (barnyard grass)	6	34	4	H/A	Hand pull or dig out small infestations.	
66	Hydrocharitaceae	Egeria densa (egeria waterweed)	2	7	4	Ha/F	Hand pulling, cutting and digging with machines effective	
67	Pontederiaceae	Eichhornia crassipes (water hyacinth)	4	8	5	Ha/OF	Mechanical removal of small infestations	
68	Poaceae	Eleusine indica (crowsfoot grass)	8	55	4	H/A	Pull and chip. Replant with native couch.	
69	Poaceae	Eragrostis curvula (African lovegrass)	7	29	4	H/U	Chipped out before they flower. When chipping out the plant ensure that the tussock crowns are removed, as this will prevent regrowth. If in seed, the stems must be cut and bagged first.	
70	Rosaceae	Eriobotrya japonica (loquat)	3	5	3	T/O	Seedlings: Hand pull	
71	Fabaceae	Erythrina crista-galli (cockspur coral tree)	2	4	4	T/O	N/A	
72	Myrtaceae	Eugenia uniflora (Brazilian cherry)	4	19	4	ST/O	N/A	
73	Euphorbiaceae	Euphorbia cyathophora (painted spuge)	8	20	3	H/O	Hand pull	
74	Euphorbiaceae	Euphorbia heterophylla (milk weed)	5	12	3	H/O?	Hand pull	
75	Agavaceae	Furcraea foetida (Cuban hemp)	3	4	4.3	S/OA	Dig out by hand or machine	
76	Agavaceae	Furcraea selloa (hemp)	1	2	4	S/OA	Dig out by hand or machine	
77	Caesalpiniaceae	Gleditsia triacanthos (honey locust)	7	12	4	T/O	For the control of dense infestations on grazing land, burning followed by spot spraying is an economical control method.	
78	Colchicaceae	Gloriosa superba (glory lily)	3	26	4	V/O	N/A	
79	Asclepiadaceae	Gomphocarpus physocarpus (balloon cotton bush)	10	132	4	S/OU	Slash in winter and burn cuttings. Wanderer Butterfly can also be used as biological control.	

= Weed Species Recorded on site

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:

South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT: Cherish Enterprises

PROJECT: Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE: REHABILITATION MANAGEMENT PLAN

DRAWING NO.: **9612 E A01_1 MWW RMP A**

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - APPENDIX 01 *Weed Treatment and Removal (ii)*

Queensland Herbarium Invasive Naturalised Plants In South East Queensland								
Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
80	Asteraceae	Gymnocoronis spilanthoides (Senegal tea)	3	4	5	Ha/F	Place plant material in a sealed plastic bag, leave in sunlight to rot then burn or dispose of at a council-approved land fill tip	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
81	Cactaceae	Harrisia martinii (harrisia cactus)	2	4	4	S/O	The use of the biological mealy-bug agent is recommended	
82	Zingiberaceae	Hedychium coronarium (wild ginger)	2	2	4	H/O	Small Plants: Hand pull and dispose	
83	Zingiberaceae	Hedychium gardnerianum (ginger lily)	1	3	4	H/O	Small Plants: Hand pull and dispose	
84	Malpighiaceae	Hiptage benghalensis (hiptage)	3	5	4	S,V/O	Hand pull small infestations.	
85	Acanthaceae	Hygrophila costata (Glush weed)	3	7	5	Ha/F	Hand pull smal infestations. Can be controlled by planting competitive native species.	
86	Poaceae	Hymenachne amplexicaulis cv. Olive (hymenachne)	1	1	4	Ha/A	A combined approach of different control methods including mechanical, chemical and biological with land management practices is most effective	
87	Acanthaceae	Hypoestes phyllostachya (polka-dot plant	3	5	4	H/O	Hand pull or crown and dispose	
88	Balsaminaceae	Impatiens walleriana (balsam)	2	6	4	H/O	N/A	
89	Convolvulaceae	Ipomoea cairica (mile-a-minute)	7	56	4	V/O	Vines & Runners: hand pull, roll up and hand up to dry.	
90	Convolvulaceae	Ipomoea indica (blue morning glory)	5	24	4	V/O	Vines and Runners: hand pull, roll up and hang to dry.	
91	Bignoniaceae	Jacaranda mimosifolia (jacaranda)	4	12	3	T/O	Seedlings: Hand pull	
92	Euphorbiaceae	Jatropha gossypiifolia (cotton-leaf physic nut, bellyache bush)	1	1	4	S/O	Hand pull	
93	Juncaceae	Juncus articulatus (jointed rush)	1	2	4	Ha/FO	Hand pull.	
94	Acanthaceae	Justicia betonica (squirreltail)	2	4	4	S/O	Hand pull smal infestations. Can be controlled by planting competitive native species.	
95	Sapindaceae	Koelreuteria elegans (Chinese rain tree)	1	1	3.6	T/O	Seedlings: Hand pull	
96	Verbenaceae	Lantana camara var. camara (lantana)	10	455	5	S/O	Seedlings: Hand pull	
97	Verbenaceae	Lantana montevidensis (creeping lantana)	8	62	5	S/O	Fire and/or mechanical control	
98	Mimosaceae	Leucaena leucocephala (leucaena)	6	14	4	ST/A	Small plants: Hand pull or mechanical removal	
99	Oleaceae	Ligustrum lucidum (tree privet)	5	9	5	T/O	Seedlings: Hand pull	
100	Oleaceae	Ligustrum sinense (Chinese privet)	4	11	5	T/O	Seedlings: Hand pull	
101	Liliaceae	Lilium formosanum (Taiwan lily)	5	10	4	H/O	Hand pull or crown and dispose	
102	Caprifoliaceae	Lonicera japonica (Japanese honeysuckle)	3	6	4	V/O	Vines and Runners: hand pull, roll up and hang to dry.	
103	Solanaceae	Lycium ferocissimum (African boxthorn)	1	5	4.4	S/O	N/A	
104	Bignoniaceae	Macfadyena unguis-cati (cat's claw creeper)	5	36	5	V/O	Tubers: crown or dig up, bag and remove.	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
105	Fabaceae	Macroptilium atropurpureum (siratro)	8	39	4	V/A	N/A	
106	Fabaceae	Macrotyloma axillare (perennial horse gram)	4	12	3	V,H/A	N/A	
107	Poaceae	Melinis minutiflora (molasses grass)	5	17	5	H/A	Grazing or mowing	
108	Poaceae	Melinis repens (red Natal grass)	10	134	4	H/A	Grazing or mowing	
109	Mimosaceae	Mimosa pudica (common sensitive plant)	4	12	4	S/A	N/A	
110	Moraceae	Morus alba (white mulberry)	3	10	3	T/O	N/A	
111	Rutaceae	Murraya paniculata cv. Exotica (murraya)	6	26	4	S/O	Seedlings: Hand pull	
112	Haloragaceae	Myriophyllum aquaticum (parrot's feather)	3	15	4	Ha/F	N/A	
113	Brassicaceae	Nasturtium officinale (Qld use Rorippa nasturtium-aquaticum) (watercress)	7	19	4	Ha/FU	Manually grub and destroy.	
114	Fabaceae	Neonotonia wightii (glycine)	5	16	5	H/A	N/A	
115	Nymphaeaceae	Nymphaea caerulea subsp. zanzibarensis (blue lotus)	4	17	4	Ha/OF	Hand pull small infestations.	
116	Nymphaeaceae	Nymphaea mexicana (yellow waterlily)	2	4	4	Ha/OF	Hand pull small infestations.	
117	Ochnaceae	Ochna serrulata (ochna)	7	33	5	S/O	N/A	
118	Onagraceae	Oenothera drummondii subsp. drummondii (beach evening primrose)	3	17	4	H/O	Hand pull	
119	Oleaceae	Olea europaea (olive)	2	6	4	T/A	Seedlings: Hand pull	
120	Cactaceae	Opuntia aurantiaca (tiger pear)	1	2	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
121	Cactaceae	Opuntia imbricata (rope pear)	1	1	4	H/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
122	Cactaceae	Opuntia monacantha (drooping tree pear, syn. O. vulgaris)	2	3	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
123	Cactaceae	Opuntia stricta (common prickly pear)	7	67	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
124	Cactaceae	Opuntia tomentosa (velvet tree pear)	8	46	4	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	
125	Poaceae	Panicum maximum (green panic and guinea grass)	8	78	5	H/A	Hand or mechanical removal of small infestations	
126	Asteraceae	Parthenium hysterophorus (parthenium weed)	6	14	4	H/U	Hand pulling of small areas is not recommended	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.
127	Poaceae	Paspalum conjugatum (paspalum grass)	7	38	4	H/A	Cut below crown.	
128	Poaceae	Paspalum dilatatum (paspalum grass)	10	30	4	H/A	Hand pull or dig up	
129	Poaceae	Paspalum mandiocanum (broad leaf paspalum)	3	6	4	H/A	N/A	
130	Poaceae	Paspalum notatum (bahia grass)	4	10	4	H/A	Hand pull or dig up	
131	Passifloraceae	Passiflora edulis (passion fruit)	6	12	3	V/AO	Hand Pull	
132	Passifloraceae	Passiflora foetida (stinking passion flower)	7	50	4	V/O	Hand Pull	
133	Passifloraceae	Passiflora suberosa (cork passionflower)	8	166	4	V/O	N/A	
134	Passifloraceae	Passiflora subpeltata (white passion flower)	10	60	4	V/O	Stems: Hand pull	
135	Scrophulariaceae	Paulownia tomentosa (paulownia)	3	5	4	T/AO	Seedlings: Hand pull	
136	Poaceae	Pennisetum alopecuroides (swamp foxtail)	7	29	4	H/O	Hand Pull	
137	Poaceae	Pennisetum clandestinum (kikuyu grass)	4	12	4	H/A	Hand Pull	
138	Poaceae	Pennisetum purpureum (elephant grass)	2	9	4	H/O	Grazing or mechanical removal	
139	Poaceae	Pennisetum setaceum (fountain grass)	3	11	3	H/O	Hand Pull	
140	Verbenaceae	Phyla canescens (lippia, Condamine couch)	3	4	4	Ha/O	A combined approach of different control methods including chemical and mechanical with land management practices is most effective	
141	Poaceae	Phyllostachys aurea (fishpole bamboo)	1	2	4	S/O	N/A	
142	Phytolaccaceae	Phytolacca octandra (inkweed)	10	50	3	H/O	Hand pull or crown	
143	Pinaceae	Pinus elliottii (slash pine)	4	22	4	T/A	Seedlings: Hand pull; Saplings and Trees: cut close to ground or ring-bark	
144	Araceae	Pistia stratiotes (water lettuce)	3	8	4	Ha/OF	Mechanical removal of small infestations	
145	Mimosaceae	Prosopis pallida (algaroba)	2	2	4	ST/O	When using mechanical control methods, it is important to remove the bud zone of the root system (about 30 cm below the ground surface). If this is not removed, re-shooting can occur.	
146	Rosaceae	Prunus munsoniana (wild goose plum)	7	31	4	ST/A	Seedlings: Hand pull	
147	Myrtaceae	Psidium guajava and P. guineense (yellow guava and West Indes guava)	4	7	4	ST/AO	N/A	
148	Fabaceae	Pueraria lobata (kudzu)	3	4	4	V,S/O	Slash; Diminish by shading site	
149	Bignoniaceae	Pyrostegia venusta (flame vine)	1	1	4	V/O	N/A	
150	Rosaceae	Rhaphiolepis indica (Indian hawthorn)	3	10	4	ST/O	Seedlings: Hand pull	

= Weed Species Recorded on site

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:

South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT: Cherish Enterprises

PROJECT: Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE: REHABILITATION MANAGEMENT PLAN

DRAWING NO.: **9612 E A01_2 MWW RMP A**

Springfield Residential Development (EPBC 2019/8575)

Rehabilitation Management Plan - APPENDIX 01 *Weed Treatment and Removal (iii)*

Queensland Herbarium Invasive Naturalised Plants In South East Queensland

Rk	Family	Scientific and common names	Sr	R	S	LFS	Non-Chemical Control	Chemical Control
150	Rosaceae	Rhaphiolepis indica (Indian hawthorn)	3	10	4	ST/O	Seedlings: Hand pull	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance
151	Euphorbiaceae	Ricinus communis (castor oil plant)	7	20	4	S/O	Seedlings: Hand pull	
152	Phytolaccaceae	Rivina humilis (baby pepper)	8	61	4	H/O	Hand pull and hang to dry.	
153	Rosaceae	Rubus bellobatus (kittatinny blackberry)	5	22	4	S/O	Slashing hinders growth, giving some control if plants are slashed before they seed	
154	Rosaceae	Rubus discolor (R. fruticosus complex, a blakberry)	4	10	4	S/OA	Slashing hinders growth, giving some control if plants are slashed before they seed	
155	Rosaceae	Rubus ellipticus (yellowberry)	4	26	4	S/O	Slashing hinders growth, giving some control if plants are slashed before they seed	
156	Acanthaceae	Ruellia malacosperma (ruellia)	5	16	4	H/O	N/A	
157	Ruppiaceae	Ruppia maritima (sea tassel)	2	8	4	Ha/F	Hand pull or dig up	
158	Alismataceae	Sagittaria graminea var. platyphylla (sagittaria arrowhead)	3	7	4	Ha/FO	Physical removal of small infestations.	
159	Lamiaceae	Salvia coccinea (red salvia)	9	46	4	H/O	remove small areas by hand or machine	
160	Salviniaceae	Salvinia molesta (salvinia)	8	57	5	Ha/F	Mechanical removal of small infestations; Salvinia weevil (Biological control)	
161	Caprifoliaceae	Sambucus canadensis (American elder)	3	7	3	ST/O	Vines and Runners: hand pull, roll up and hang to dry.	
162	Dracaenaceae	Sansevieria trifasciata (sansevieria)	2	7	3	H/O	Hand pull or dig up	
163	Anacardiaceae	Schinus terebinthifolius (broad-leaf pepper tree)	6	49	5	T/O	Seedlings: Hand pull	
164	Asteraceae	Senecio madagascariensis (fire weed)	6	28	4	H/U	Vines: Hand pull and remove; Runners: Roll up and hang to dry.	
165	Asteraceae	Senecio tamoides (Canary creeper)	3	8	4	V/O	Vines: Hand pull and remove; Runners: Roll up and hang to dry.	
166	Caesalpiniaceae	Senna pendula var. glabrata (Easter cassia)	7	33	4	ST/O	Seedlings: Hand pull	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance
167	Caesalpiniaceae	Senna septemtrionalis (arsenic bush, was S. floribunda)	6	25	4	S/O	Seedlings: Hand pull	
168	Poaceae	Setaria palmifolia (palm leaf setaria)	5	13	3	H/O	Hand pull or dig up	
169	Poaceae	Setaria sphacelata (South African pigeon grass)	9	41	4	H/A	Hand pull or dig up	
170	Malvaceae	Sida rhombifolia (Paddy`s lucerne)	9	69	4	S/U	Hand pull or dig out.	
171	Asteraceae	Sigesbeckia orientalis (Indian weed)	10	148	4	H/U	Hand pull or cultivation.	
172	Solanaceae	Solanum erianthum (a tobacco bush)	7	19	3	S/O	Hand pull	
173	Solanaceae	Solanum hispidum (giant devil's fig)	5	23	4	S/O	Hand pull	
174	Solanaceae	Solanum mauritianum (wild tobacco tree)	8	30	4	S/O	Seedlings: Hand pull	
175	Solanaceae	Solanum seaforthianum (Brazilian nightshade)	8	78	4	V/O	Hand pull	
176	Solanaceae	Solanum torvum (devil's fig)	6	39	4	S/O	Seedlings: Hand pull	
177	Asteraceae	Solidago canadensis var. scabra (Canadian goldenrod)	7	15	4	H/O	Hand pull and hang to dry.	
178	Bignoniaceae	Spathodea campanulata (African tulip tree)	1	1	3	T/O	N/A	
179	Asteraceae	Sphagneticola trilobata (Singapore daisy)	6	34	5	H/O	Hand pull	
180	Poaceae	Sporobolus africanus (Parramatta grass)	8	48	5	H/U	Hand or mechanical removal of small infestations	
181	Poaceae	Sporobolus fertilis (giant Parramatta grass)	9	27	5	H/U	Hand or mechanical removal of small infestations	
182	Poaceae	Sporobolus pyramidalis and S. natalensis (giant rat's tail grasses)	8	72	5	H/U?	Hand or mechanical removal of small infestations	
183	Poaceae	Stenotaphrum secundatum (buffalo grass)	3	23	3	H/AO	Hand or mechanical removal of small infestations	
184	Fabaceae	Stylosanthes scabra (shrubby stylo)	4	4	4.3	H/A	N/A	
185	Arecaceae	Syagrus romanzoffiana (queen palm)	4	10	4	T/O	Seedlings: Hand pull or crown; Trees: cut below growing point	Herbicides must be applied by appropriately qualified / supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance
186	Asteraceae	Tagetes minuta (stinking roger)	8	32	3	H/U	Hand pull and hang to dry.	
187	Bignoniaceae	Tecoma capensis (Cape honeysuckle)	3	8	4	ST/O	N/A	
188	Bignoniaceae	Tecoma stans (yellow bells)	4	16	4	ST/O	N/A	
189	Poaceae	Themeda quadrivalvis (grader grass)	8	25	4	H/A	Hand pull or dig out small infestations.	
190	Acanthaceae	Thunbergia alata (black eyed susan)	5	22	4	H/O	N/A	
191	Acanthaceae	Thunbergia grandiflora (thunbergia, blue thunbergia)	2	3	5	V/O	N/A	
192	Acanthaceae	Thunbergia laurifolia (laurel clock vine)	1	1	4	V/O	N/A	
193	Fabaceae	Tipuana tipu (tipuana)	2	5	3	T/O	Seedlings: Hand pull	
194	Asteraceae	Tithonia diversifolia (Mexican sunflower)	5	11	4	H/O	N/A	
195	Commelinaceae	Tradescantia fluminensis (Qld use T. albiflora) (wandering jew)	5	9	4	H/O	N/A	
196	Commelinaceae	Tradescantia zebrina (zebrina)	3	12	4	H/O	N/A	
197	Tiliaceae	Triumfetta rhomboidea (Chinese burr)	7	44	4	H/U	Hand pull	
198	Asteraceae	Verbesina encelioides (crownbeard)	7	34	4	H/U	Vines: Hand pull and remove; Runners: Roll up and hang to dry.	
199	Iridaceae	Watsonia meriana var. bulbillifera (bulbil watsonia)	2	3	3	H/O	Dig up, bag and remove	
200	Asteraceae	Zinnia peruviana (wild zinnia)	6	33	3	H/O	Seedlings: Hand pull	

Explanatory notes.

Sub-region (Sr): Number of the ten sub-regions of the Southeast Queensland bioregion (Young and Dillewaard 1999) within which species recorded (Queensland Herbarium data).
Rec no. (R): Total number of records for species within study area, Queensland Herbarium CORVEG and HERBRECS data.
Scores (S): Based on panel data of invasiveness, 5 (highest) to 3 (moderate). ? indicate doubtful scores.

Life forms (LFS): T-tree (woody plant >5m), ST-small tree (2-5m), S-shrub (woody <2m), H-herb (grasses & forbes), Ha-aquatic herbs.
Source: A-agriculture, O-ornamental and landscaping, F-fish aquarium, U-unintentional introduction and/or contaminant.

Abbreviations: Control Methods

CS&P = cut scrape and paint

S&P = scrape and paint

C&P = cut and paint

F/I = frill or inject stem

Abbreviations: Herbicides

G = Glyphosate, eg. Roundup Biactive, Weedmaster Duo

MM = Metsulfuron methyl, eg, Brushoff

F = Fluroxypyr, eg. Starane

Abbreviations: Herbicide Dilution Rates for High Concentration Applications

GU = Glyphosate undiluted

G1 = 1 part water to 1 part glyhphosate

G1.5 = 1.5 parts water to 1 part glyphosate

G4 = 4 parts water to 1 part glyphosate

Abbreviations: Herbicide Spray Concentrations

G100 = 100mL glyphosate per 10L of water + surfuctant, eg 20mL LI 700 per 10L
G200 = 200mL glyphosate per 10L of water + surfuctant, eg 50mL LI 700 per 10L

G100 + MM = 100mL glyphosate + 1.5g metsulfuron methyl per 10L of water + wetting agent, eg. 2mL Agral per 10L water
G200 + MM = 200mL glyphosate + 1.5g metsulfuron methyl per 10L of water + wetting agent, eg. 2mL Agral per 10L water

MM = 1.5g metsulfuron methyl per 10L water + wetting agent, eg. 2mL Agral per 10L water

F100 = 100mL fluroxypyr per 10L water

F150 = 150mL fluroxypyr per 10L water

Other Abbreviations

= Locally non-indigenous native species

Ref. 1. Big Scrub Rainforest Landcare Group (2008), 'Common Weeds of Subtropical Rainforests of Eastern Australia: A practical manual on their identification and control'

Ref. 2. Department of Primary Industries and Fisheries (QLD), 'Weeds and pest animals and ants'.

Ref. 3. Holland et al. (1996), 'Suburban Weeds', DPI QLD.

Ref 4. Port Stephens Council (NSW), 'Weed Busters'.
Ref 5. Depertment of Primary Industries (NSW), 'Noxious and Environmental Weed Handbook, 3rd Edition'.
Ref 6. Department of Environment and Conservation, 'Florabase', (DEC- WA)

Ref 7. Vitelli, J.S. and Madigan, B.A. and Van Haaren, P.E. and Setter, S. and Logan, P. (2009) Control of the invasive liana, Hiptage benghalensis. Weed Biology and Management, 9 (1). pp. 54-62.

= Weed Species Recorded on site

Saunders Havill
BOWENHILLS | SPRINGFIELD
1300 123 744 | mail@saundershavill.com

DISCLAIMER

DESIGNS DOCUMENTED ON THIS DRAWING ARE THE PROPERTY OF SAUNDERS HAVILL AND ARE NOT FOR REPRODUCTION OR USE IN WHOLE OR PART WITHOUT WRITTEN PERMISSION THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL DO NOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY. CONFIRM ALL DIMENSIONS ON SITE AND CLARIFY ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

References:

South East Queensland Ecological Restoration Framework (2012)

AMENDMENTS

ISSUE	DATE	DESCRIPTION	DRAWN	CHECKED
A	1/12/2025	CLIENT DRAFT	TF	AW

CLIENT
Cherish Enterprises

PROJECT
Springfield Residential Development (EPBC 2019/8575)

DRAWING TITLE
REHABILITATION MANAGEMENT PLAN

DRAWING NO.
9612 E A01_3 MWW RMP A

Appendix D

CV – Suitably Qualified Ecologist

Curriculum Vitae

Senior Ecologist - Amy Westman

Amy is a Senior Ecologist specialising in conducting ecological surveys and preparing technical reports. Amy has a strong understanding of Local, State and Federal legislation triggers and has worked on a diverse range of development projects across South East Queensland and manages a portfolio of major development projects and post approvals projects with specific experience in ecological monitoring, reporting and auditing under the *Environmental Protection and Biodiversity Act 1999*.

Amy has a varied skillset which includes flora and flora surveys in accordance with State and Federal survey guidelines, impact assessment and analysis, auditing, technical report writing, compiling offset management plans, monitoring reports and compliance reports.

Qualifications

Bachelor of Science with Honours Class I in the Field of Ecology, The University of Queensland (2018)
Bachelor of Science with a Major in Zoology, The University of Queensland (2016)

Short Courses

BioCondition v2.2 - Application, Assessment and Scoring, Oberonia Botanical Services (2019)
Venomous Snake Relocation Course, Educational Reptile Displays (2020)

Principal Environmental Scientist - Andrew Ridley

Andrew has extensive field experience gained while working as an ecological research scientist with the Department of Agriculture and Fisheries. Andrew comes to Saunders Havill with documented expertise in data acquisition, analysis and project delivery having published scientific articles in peer reviewed journal and presented at international conferences.

At Saunders Havill, Andrew uses his ecological expertise to assess sites against a variety of biodiversity overlays. He has a strong understanding of the science driving assessment methodologies and knowledge of Queensland flora and fauna.

Andrew's experience within the academic area provides him with the 'know how' to maintain data integrity through the project flow path.

His skills are applicable across the entire spectrum of project requirements at SH, from instigation and formulation through development and production to client delivery.

Qualifications

Doctor of Philosophy, The University of Queensland (2006)
Bachelor of Science (Honours), The University of Queensland (1999)
Bachelor of Science, The University of Queensland (1998)

Short Courses

BioCondition v2.2 - Application, Assessment and Scoring, Oberonia Botanical Services (2019)
Venomous Snake Relocation Course, Educational Reptile Displays (2020)

Appendix E

Baseline MHQA and GHFF FHA

Assessment Unit - Regional Ecosystem	AU 1 - Non-remnant paddock with scattered trees RE12.3.3						
	RE12.3.3 Benchmark	Transect 4	Transect 5	Transect 6	Average of Transect(s)	% Benchmark	Score
SITE CONDITION							
Recruitment of woody perennial species in EDL	100	0	0	100	33.33	33.33	3
Native plant species richness - trees	5	0	0	1	0.33	6.67	0
Native plant species richness - shrubs	5	0	0	1	0.33	6.67	0
Native plant species richness - grasses	9	2	1	3	2.00	22.22	0
Native plant species richness - forbs	25	0	2	2	1.33	5.33	0
Tree canopy height (Canopy)*	25	0	0	18	6.00	24.00	0
Tree canopy height (Sub-canopy)*	9	0	0	0	0.00	0.00	0
						*Average tree canopy height	0
Tree canopy cover (Canopy)**	40	0	0	7.5	2.50	6.25	0
Tree canopy cover (Sub-canopy)**	8	0	0	0	0.00	0.00	0
						**Average tree canopy cover	0
Shrub canopy cover	4	0	0	0	0.00	0.00	0
Native grass cover*	52	22	85	56	54.33	104.49	5
Organic litter*	20	0	1	0	0.33	1.67	0
Large trees (euc plus non-euc) (per ha)	14	0	0	6	2.00	14.29	5
Coarse woody debris (per ha)	588	0	0	85	28.33	4.82	0
Non-native plant cover	0	65	25	35	41.67	41.67	3
Quality and availability of food and foraging habitat	NA	1	1	1	1.00	-	1
Quality and availability of shelter	NA	1	1	1	1.00	-	1
						Site Condition Score (/100)	18
						Overall Site Condition Score - out of 3	0.54
SITE CONTEXT							
Size of patch	10	10	10	10	10		10
Connectedness	5	2	2	2	2		2
Context	5	4	4	4	4		4
Ecological Corridors	6	0	0	0	0		0
Role of site location to species overall population in the state	5	5	5	5	5		5
Threats to the species	15	7	7	7	7		7
Species mobility capacity	10	4	4	4	4		4
Site Context Score (/56)							32
Overall Site Context Score - out of 3							1.71
SPECIES STOCKING RATE							
Koala Stocking Rate (utilising SSR & SSR Supplementary Table(s)	70	15	15	15	15		20
						Species Stocking Rate Score (/70)	15.00
						Overall Species Stocking Rate Score - out of 4	1.14
Overall Assessment Unit Score							3.40

Species Stocking Rate (SSR)							
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5		10	10	Scats detected onsite
		No	Yes - adjacent		Yes - on site		
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15	5	Dispersal
		Not habitat	Dispersal	Foraging	Breeding		
Approximate density (per ha)	Score	0	10	20	30	0	No evidence in AU
		0%	low	med	high		
Role/importance of species population on site*	Score (*Total from supplementary table below*)	0	5	10	15	5	See below
		0	5 - 15	20 - 35	40 - 45		
Total SRR score (out of 70)		20					
SRR Score (out of 4)	**1.142857143**						

*SSR Supplementary Table					
*Key source population for breeding	Score	0	10	0	
		No	Yes/ Possibly		
*Key source population for dispersal	Score	0	5	5	Precautionary approach
		No	Yes/ Possibly		
*Necessary for maintaining genetic diversity	Score	0	15	0	
		No	Yes/ Possibly		
*Near the limit of the species range	Score	0	15	0	
		No	Yes		

Assessment Unit - Regional Ecosystem	AU 2 - Non-remnant paddock with scattered trees RE12.8.17							
	RE12.8.17 Benchmark	Transect 9	Transect 10	Transect 11	Transect 12	Average of Transect(s)	% Benchmark	Score
SITE CONDITION								
Recruitment of woody perennial species in EDL	100	0	0	0	0	0	0	0
Native plant species richness - trees	7	2	2	2	2	2	28.57	2.5
Native plant species richness - shrubs	5	0	0	1	0	0.25	5.00	0
Native plant species richness - grasses	12	3	2	2	3	2.5	20.83	0
Native plant species richness - forbs	27	2	3	2	2	2.25	8.33	0
Tree canopy height (Canopy)*	19	18	0	18	0	9	47.37	3
Tree canopy height (Sub-canopy)*	10	3	3	6	5	4.25	42.50	3
							*Average tree canopy height	3
Tree canopy cover (Canopy)**	48	0	0	0	0	0	0.00	0
Tree canopy cover (Sub-canopy)**	20	0	0	4.7	0	1.175	5.88	0
							**Average tree canopy cover	0
Shrub canopy cover	5	0	0	0	0	0.00	0.00	0
Native grass cover*	32	64	56	84	37	60.25	188.28	5
Organic litter*	21	0	0	2	0	0.50	2.38	0
Large trees (euc plus non-euc) (per ha)	24	0	0	0	0	0.00	0.00	0
Coarse woody debris (per ha)	234	85	30	21	0	34.00	14.53	2
Non-native plant cover	0	20	30	10	30	22.50	22.50	5
Quality and availability of food and foraging habitat	NA	1	1	1	1	1.00	-	1
Quality and availability of shelter	NA	1	1	1	1	1.00	-	1
							Site Condition Score (/100)	19.5
							Overall Site Condition Score - out of 3	0.59
SITE CONTEXT								
Size of patch	10	10	10	10	10	10		10
Connectedness	5	2	2	2	2	2		2
Context	5	4	4	4	4	4		4
Ecological Corridors	6	0	0	0	0	0		0
Role of site location to species overall population in the state	5	5	5	5	5	5		5
Threats to the species	15	7	7	7	7	7		7
Species mobility capacity	10	4	4	4	4	4		4
Site Context Score (/56)								32
Overall Site Context Score - out of 3								1.71
SPECIES STOCKING RATE								
Koala Stocking Rate (utilising SSR & SSR Supplementary Table(s)	70	15	15	15	15	15		15
							Species Stocking Rate Score (/70)	15.00
							Overall Species Stocking Rate Score - out of 4	1.14
Overall Assessment Unit Score								3.44

Species Stocking Rate (SSR)							
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5		10	10	Scats detected onsite
		No	Yes - adjacent		Yes - on site		
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15	5	Dispersal
		Not habitat	Dispersal	Foraging	Breeding		
Approximate density (per ha)	Score	0	10	20	30	0	No evidence in AU
		0%	low	med	high		
Role/importance of species population on site*	Score (*Total from supplementary table below*)	0	5	10	15	5	See below
		0	5 - 15	20 - 35	40 - 45		
Total SRR score (out of 70)		20					
SRR Score (out of 4)	**1.142857143**						

*SSR Supplementary Table					
*Key source population for breeding	Score	0	10	0	
		No	Yes/ Possibly		
*Key source population for dispersal	Score	0	5	5	Precautionary approach
		No	Yes/ Possibly		
*Necessary for maintaining genetic diversity	Score	0	15	0	
		No	Yes/ Possibly		
*Near the limit of the species range	Score	0	15	0	
		No	Yes		

Assessment Unit - Regional Ecosystem	AU 3 - Regrowth RE12.8.17						
	RE12.8.17 Benchmark	Transect 1	Transect 7	Transect 8	Average of Transect(s)	% Benchmark	Score
SITE CONDITION							
Recruitment of woody perennial species in EDL	100	100	67	100	89	89	5
Native plant species richness - trees	7	3	9	4	5.33	76.19	2.5
Native plant species richness - shrubs	5	2	5	6	4.33	86.67	2.5
Native plant species richness - grasses	12	4	6	3	4.33	36.11	2.5
Native plant species richness - forbs	27	9	10	10	9.67	35.80	2.5
Tree canopy height (Canopy)*	19	14	12	12	12.66666667	66.67	3
Tree canopy height (Sub-canopy)*	10	3	4	5	4.00	40.00	3
						*Average tree canopy height	3
Tree canopy cover (Canopy)**	48	38.6	50.6	41.3	43.50	90.63	5
Tree canopy cover (Sub-canopy)**	20	4.2	16.7	15.3	12.06666667	60.33	5
						**Average tree canopy cover	5
Shrub canopy cover	5	9.2	0.6	4.2	0.00	46.67	3
Native grass cover*	32	75	28	28	43.67	136.46	5
Organic litter*	21	11	44	45	33.33	158.73	5
Large trees (euc plus non-euc) (per ha)	24	28	18	14	20.00	83.33	10
Coarse woody debris (per ha)	234	5	92	81	59.33	25.36	2
Non-native plant cover	0	10	15	3	9.33	9.33	5
Quality and availability of food and foraging habitat	NA	10	10	10	10.00	-	10
Quality and availability of shelter	NA	10	10	10	10.00	-	10
						Site Condition Score (/100)	73
						Overall Site Condition Score - out of 3	2.19
SITE CONTEXT							
Size of patch	10	10	10	10	10		10
Connectedness	5	2	2	2	2		2
Context	5	4	4	4	4		4
Ecological Corridors	6	0	0	0	0		0
Role of site location to species overall population in the state	5	5	5	5	5		5
Threats to the species	15	7	7	7	7		7
Species mobility capacity	10	10	10	10	10		10
Site Context Score (/56)							38
Overall Site Context Score - out of 3							2.04
SPECIES STOCKING RATE							
Koala Stocking Rate (utilising SSR & SSR Supplementary Table(s)	70	40	40	40	40		40
						Species Stocking Rate Score (/70)	40.00
						Overall Species Stocking Rate Score - out of 4	2.29
Overall Assessment Unit Score							6.51

Species Stocking Rate (SSR)							
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5		10	10	Scats detected onsite
		No	Yes - adjacent		Yes - on site		
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15	15	Foraging/Breeding
		Not habitat	Dispersal	Foraging	Breeding		
Approximate density (per ha)	Score	0	10	20	30	10	Low usage
		0%	low	med	high		
Role/importance of species population on site*	Score (*Total from supplementary table below)*	0	5	10	15	5	See below
		0	5 - 15	20 - 35	40 - 45		
Total SRR score (out of 70)		40					
SRR Score (out of 4)	**2.285714286**						

*SSR Supplementary Table					
*Key source population for breeding	Score	0	10	0	
		No	Yes/ Possibly		
*Key source population for dispersal	Score	0	5	5	Precautionary approach
		No	Yes/ Possibly		
*Necessary for maintaining genetic diversity	Score	0	15	0	
		No	Yes/ Possibly		
*Near the limit of the species range	Score	0	15	0	
		No	Yes		

Assessment Unit - Regional Ecosystem	AU 4 - Remnant RE12.8.17					
	RE12.8.17 Benchmark	Transect 2	Transect 3	Average of Transect(s)	% Benchmark	Score
SITE CONDITION						
Recruitment of woody perennial species in EDL	100	50	100	75	75	3
Native plant species richness - trees	7	7	9	8	114.29	5
Native plant species richness - shrubs	5	5	5	5	100.00	5
Native plant species richness - grasses	12	3	5	4	33.33	2.5
Native plant species richness - forbs	27	9	9	9	33.33	2.5
Tree canopy height (Canopy)*	19	16	20	18	94.74	5
Tree canopy height (Sub-canopy)*	10	8	7	7.5	75.00	5
					*Average tree canopy height	5
Tree canopy cover (Canopy)**	48		43	21.5	44.79	2
Tree canopy cover (Sub-canopy)**	20	17.2	22.1	19.65	98.25	5
					**Average tree canopy cover	3.5
Shrub canopy cover	5	5.5	5	5.25	105.00	5
Native grass cover*	32	20	31	25.50	79.69	3
Organic litter*	21	51	25	38.00	180.95	5
Large trees (euc plus non-euc) (per ha)	24	16	20	18.00	75.00	10
Coarse woody debris (per ha)	234	125	125	125.00	53.42	5
Non-native plant cover	0	18	30	24.00	24.00	5
Quality and availability of food and foraging habitat	NA	10	10	10.00	-	10
Quality and availability of shelter	NA	10	10	10.00	-	10
					Site Condition Score (/100)	79.5
					Overall Site Condition Score - out of 3	2.39
SITE CONTEXT						
Size of patch	10	10	10	10		10
Connectedness	5	2	2	2		2
Context	5	4	4	4		4
Ecological Corridors	6	0	0	0		0
Role of site location to species overall population in the state	5	5	5	5		5
Threats to the species	15	7	7	7		7
Species mobility capacity	10	10	10	10		10
Site Context Score (/56)						38
Overall Site Context Score - out of 3						2.04
SPECIES STOCKING RATE						
Koala Stocking Rate (utilising SSR & SSR Supplementary Table(s)	70	40	40	40		40
					Species Stocking Rate Score (/70)	40.00
					Overall Species Stocking Rate Score - out of 4	2.29
Overall Assessment Unit Score						6.71

Species Stocking Rate (SSR)							
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5		10	10	Scats detected onsite
		No	Yes - adjacent		Yes - on site		
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15	15	Foraging/breeding
		Not habitat	Dispersal	Foraging	Breeding		
Approximate density (per ha)	Score	0	10	20	30	10	Low density
		0%	low	med	high		
Role/importance of species population on site*	Score (*Total from supplementary table below*)	0	5	10	15	5	See below
		0	5 - 15	20 - 35	40 - 45		
Total SRR score (out of 70)		40					
SRR Score (out of 4)	**2.285714286**						

*SSR Supplementary Table					
*Key source population for breeding	Score	0	10	0	
		No	Yes/ Possibly		
*Key source population for dispersal	Score	0	5	5	Precautionary approach
		No	Yes/ Possibly		
*Necessary for maintaining genetic diversity	Score	0	15	0	
		No	Yes/ Possibly		
*Near the limit of the species range	Score	0	15	0	
		No	Yes		

Assessment Unit - Regional Ecosystem	AU 1 - Non-remnant paddock RE12.3.3					
Site Reference	Transect 4	Transect 5	Transect 6	Average Score	AU Score	OUT OF (X/X)
	Raw Data	Raw Data	Raw Data			
Vegetation Condition	5.0	5.0	5.0	5.00	5	20
Species Richness	0.0	0.0	1.0	0.33	0	20
Flower Score	0.000	0.000	0.650	0.22	2	10
Timing of Biological Shortages	0	0	4	1.33	1.333333	10
Quality of Foraging Habitat	0	0	1	0.33	0	20
Non-native Plant Cover	65.00	25.00	35.00	41.67	5	20
Site Condition Score					13.33	X
MAX Site Condition Score					100	X
Site Condition Score - out of 4					0.53	X
Size of patch	10	10	10	10	10	10
Connectedness	3	3	3	3	3	10
Context	6	6	6	6	6	10
Ecological Corridors	0	0	0	0	0	10
Role of site location to species overall population in the state	0	0	0	0	0	10
Threats to the species	10	10	10	10	10	10
Site Context Score					29	X
MAX Site Context Score					60	X
Site Context Score - out of 3					1.45	X
GHFF Foraging Tree Density - Recorded	0	0	4	1.33		
GHFF Foraging Tree Density - per hectare	0	0	20	6.67	2	10
Species Stocking Rate Score					2	X
MAX Species Stocking Rate Score					10	X
Species Stocking Rate Score - out of 3					0.60	X
Total					2.58	

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		0
T4									
Nil	0								
Average	**0.000**	**No**	**No**	**No**	**No**	**No**	**No**	**0**	
Total Species:	0								
GHFF Species:	0								
Important Species:	0								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		0
T5									
Nil	0								
Average	**0.000**	**No**	**No**	**No**	**No**	**No**	**No**	**0**	
Total Species:	0								
GHFF Species:	0								
Important Species:	0								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		4
T6									
Eucalyptus crebra	0.65	x	x					1	
Average	**0.650**	**Yes**	**Yes**	**No**	**No**	**No**	**No**	**1**	
Total Species:	1								
GHFF Species:	1								
Important Species:	1								

Listed as a Significant Food Tree
Listed under the recovery plan

Assessment Unit - Regional Ecosystem	AU 2 - Non-remnant paddock RE12.8.17						
Site Reference	Transect 9	Transect 10	Transect 11	Transect 12	Average Score	AU Score	OUT OF (X/X)
	Raw Data	Raw Data	Raw Data	Raw Data			
Vegetation Condition	5.0	5.0	5.0	5.0	5.00	5	20
Species Richness	2.0	0.0	2.0	1.0	1.25	5	20
Flower Score	0.525	0.000	0.570	0.650	0.4363	5	10
Timing of Biological Shortages	8.5	0	10	4	5.63	5.625	10
Quality of Foraging Habitat	1	0	1	1	0.75	0	20
Non-native Plant Cover	20.00	30.00	10.00	30.00	22.50	10	20
Site Condition Score						30.625	X
MAX Site Condition Score						100	X
Site Condition Score - out of 4						1.23	X
Size of patch	10	10	10	10	10	10	10
Connectedness	3	3	3	3	3	3	10
Context	6	6	6	6	6	6	10
Ecological Corridors	0	0	0	0	0	0	10
Role of site location to species overall population in the state	0	0	0	0	0	0	10
Threats to the species	10	10	10	10	10	10	10
Site Context Score						29	X
MAX Site Context Score						60	X
Site Context Score - out of 3						1.45	X
GHFF Foraging Tree Density - Recorded	3	0	2	1	1.50		
GHFF Foraging Tree Density - per hectare	15	0	10	5	7.50	2	10
Species Stocking Rate Score						2	X
MAX Species Stocking Rate Score						10	X
Species Stocking Rate Score - out of 3						0.60	X
Total						3.28	

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		8.5
T9									
Eucalyptus crebra	0.65	x	x					1	
Corymbia tessellaris	0.4			x	x		x		
Average	**0.525**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**1**	
Total Species:	2								
GHFF Species:	2								
Important Species:	1								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		0
T10									
Nil	0								
Average	**0.000**	**No**	**No**	**No**	**No**	**No**	**No**	**0**	
Total Species:	0								
GHFF Species:	0								
Important Species:	0								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
T11									
Eucalyptus crebra	0.65	x	x					1	
Eucalyptus melanophloia	0.49	x	x	x	x	x	x		
Average	**0.570**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**1**	
Total Species:	2								
GHFF Species:	2								
Important Species:	1								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		4
T12									
Eucalyptus crebra	0.65	x	x					1	
Average	**0.650**	**Yes**	**Yes**	**No**	**No**	**No**	**No**	**1**	
Total Species:	1								
GHFF Species:	1								
Important Species:	1								

Listed as a Significant Food Tree
Listed under the recovery plan

Assessment Unit - Regional Ecosystem	AU 3 - Regrowth RE12.8.17					
Site Reference	Transect 1	Transect 7	Transect 8	Average	AU Score	OUT OF
	Raw Data	Raw Data	Raw Data	Score		(X/X)
Vegetation Condition	10.0	10.0	10.0	10.00	**10**	**20**
Species Richness	3.0	7.0	5.0	5.00	**10**	**20**
Flower Score	0.637	0.539	0.550	0.58	**8**	**10**
Timing of Biological Shortages	8.5	10	10	9.50	**10**	**10**
Quality of Foraging Habitat	2	3	2	2.33	**5**	**20**
Non-native Plant Cover	10.00	15.00	3.00	9.33	**10**	**20**
Site Condition Score					**53**	***X***
MAX Site Condition Score					***100***	***X***
Site Condition Score - out of 4					**2.12**	***X***
Size of patch	10	10	10	**10**	**10**	**10**
Connectedness	3	3	3	**3**	**3**	**10**
Context	6	6	6	**6**	**6**	**10**
Ecological Corridors	0	0	0	**0**	**0**	**10**
Role of site location to species overall population in the state	0	0	0	**0**	**0**	**10**
Threats to the species	10	10	10	**10**	**10**	**10**
Site Context Score					**29**	***X***
MAX Site Context Score					***60***	***X***
Site Context Score - out of 3					**1.45**	***X***
GHFF Foraging Tree Density - Recorded	19	60	86	**19.00**		
GHFF Foraging Tree Density - per hectare	95	300	430	**275.00**	**4**	**10**
Species Stocking Rate Score					***4***	***X***
MAX Species Stocking Rate Score					***10***	***X***
Species Stocking Rate Score - out of 3					**1.20**	***X***
Total					**4.77**	

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
Flower Scores	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating and conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		8.5
T1									
Eucalyptus crebra	0.65	x	x					1	
Corymbia intermedia	0.86			x	x		x	1	
Corymbia tessellaris	0.4			x	x		x		
Average	**0.637**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**2**	
Total Species:	3								
GHFF Species:	2								
Important Species:	2								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
Flower Scores	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating and conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
T7									
Eucalyptus crebra	0.65	x	x					1	
Corymbia intermedia	0.86			x	x		x	1	
Corymbia tessellaris	0.4			x	x		x		
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Eucalyptus melanophloia	0.49	x	x	x	x	x	x		
Angophora subvelutina	0.35			x			x		
Eucalyptus melliodora	0.39	x	x	x		x	x		
Average	**0.539**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**3**	
Total Species:	7								
GHFF Species:	7								
Important Species:	3								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
Flower Scores	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating and conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
T8									
Eucalyptus crebra	0.65	x	x					1	
Corymbia intermedia	0.86			x	x		x	1	
Corymbia tessellaris	0.4			x	x		x		
Eucalyptus melanophloia	0.49	x	x	x	x	x	x		
Angophora subvelutina	0.35			x			x		
Average	**0.550**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**2**	
Total Species:	5								
GHFF Species:	2								
Important Species:	2								

Listed as a Significant Food Tree
Listed under the recovery plan

Assessment Unit - Regional Ecosystem	AU 4 - Remnant 12.8.17				
Site Reference	Transect 2	Transect 3	Average	AU Score	OUT OF
	Raw Data	Raw Data	Score		(X/X)
Vegetation Condition	20.0	20.0	20.00	**20**	**20**
Species Richness	4.0	6.0	5.00	**10**	**20**
Flower Score	0.400	0.563	0.48	**5**	**10**
Timing of Biological Shortages	10	10	10.00	**10**	**10**
Quality of Foraging Habitat	2	3	2.50	**5**	**20**
Non-native Plant Cover	18.00	30.00	24.00	**10**	**20**
Site Condition Score				**60**	***X***
MAX Site Condition Score				***100***	***X***
Site Condition Score - out of 4				**2.40**	***X***
Size of patch	10	10	**10**	**10**	**10**
Connectedness	3	3	**3**	**3**	**10**
Context	6	6	**6**	**6**	**10**
Ecological Corridors	0	0	**0**	**0**	**10**
Role of site location to species overall population in the state	0	0	**0**	**0**	**10**
Threats to the species	10	10	**10**	**10**	**10**
Site Context Score				**29**	***X***
MAX Site Context Score				***60***	***X***
Site Context Score - out of 3				**1.45**	***X***
GHFF Foraging Tree Density - Recorded	60	55	**57.50**		
GHFF Foraging Tree Density - per hectare	300	275	**287.50**	**4**	**10**
Species Stocking Rate Score				***4***	***X***
MAX Species Stocking Rate Score				***10***	***X***
Species Stocking Rate Score - out of 3				**1.20**	***X***
Total				**5.05**	

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
T2									
Eucalyptus crebra	0.65	x	x					1	
Eucalyptus melanophloia	0.49	x	x	x	x	x	x		
Corymbia intermedia	0.86			x	x		x	1	
Corymbia tessellaris	0.4			x	x		x		
Alphitonia excelsa	0								
Petalostigma pubescens	0								
Average	**0.400**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**2**	
Total Species:	6								
GHFF Species:	4								
Important Species:	2								

Scores:	Flower Score	Timing of Shortages						Quality of Foraging	
	Wt p*r	Food shortages Jul-Sep	Pregnancy Jul-Nov	Lactation Oct-Mar	Mating & conception Dec-May	Migration paths All year	Fruit industries Aug-Mar	Quality of foraging habitat (1 = Wt p*r ≥0.65)	
		2.5	1.5	1.5	1.5	1.5	1.5		10
T3									
Eucalyptus crebra	0.65	x	x					1	
Corymbia intermedia	0.86			x	x		x	1	
Angophora subvelutina	0.35			x			x		
Eucalyptus melanophloia	0.49	x	x	x	x	x	x		
Corymbia tessellaris	0.4			x	x		x		
Eucalyptus tereticornis	0.63	x	x	x		x	x	1	
Average	**0.563**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**3**	
Total Species:	6								
GHFF Species:	6								
Important Species:	3								

Listed as a Significant Food Tree
Listed under the recovery plan

Appendix F

Baseline Habitat Quality Transect Data

Habitat Quality Assessment Unit Score Sheet			

Part A - Administrative

Transect ID	1	Job Number / Property	9612 Mount Walker West Offset

Part B - Site Data

Recorders	AW, HC	Date	22/09/2025

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
AU3		12.9-10.17	12

Site description and Location (including details of discrete polygons within the assessment unit)
Open eucalypt woodland (Cat C regrowth) with maintained grassy understory and regrowth. Dominated by *Eucalyptus crebra* with *Corymbia tessellaris* and *C. intermedia* . Plot bearing 22° NE.

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	3			EDL / Dom / R
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow Leaved Ironbark	EDL / Dom / R
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash	EDL
Scientific Name	*Corymbia intermedia*	Common Name	Pink Bloodwood	EDL
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	2		
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow Leaved Ironbark
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	4		
Scientific Name	*Panicum decompositum*	Common Name	Native Millet
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name	*Digitaria didactyla*	Common Name	Queensland Couch
Scientific Name	*Artistida vagans*	Common Name	Threeawn Aristida
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	9		
Scientific Name	*Rostellularia abscendens*	Common Name	Narrow Leaved Pink Tongues
Scientific Name	*Dianella caerulea*	Common Name	Blue Flax Lily
Scientific Name	*Evolvulus alsinoides*	Common Name	Dwarf Morning Glory
Scientific Name	*Cyperus gracilis*	Common Name	Slender Sedge
Scientific Name	*Wahlenbergia gracilis*	Common Name	Small Flowered Bluebell
Scientific Name	*Wahlenbergia stricta*	Common Name	Australian Bluebell
Scientific Name	*Eremophila debilis*	Common Name	Winter Apple
Scientific Name	*Cheilanthes distans*	Common Name	Bristle Cloak Fern
Scientific Name	*Glycine clandestina*	Common Name	Twining Glycine
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	10.00%		
Scientific Name	*Senecio madagascariensis*	Common Name	Fireweed
Scientific Name	*Sporobolus pyramidalis / S. natalensis*	Common Name	Giant Rat's Tail Grass
Scientific Name	*Melinis repens*	Common Name	Red Natal Grass
Scientific Name	*Cirsium vulgare*	Common Name	Bull Thistle
Scientific Name	*Lantana camara*	Common Name	Lantana
Scientific Name	*Emilia sonchifolia*	Common Name	Emilia
Scientific Name	*Bidens pilosa*	Common Name	Cobbler's Peg
Scientific Name	*Verbena bonariensis*	Common Name	Purple Top Verbena
Scientific Name	*Stachytarpheta cayennensis*	Common Name	Snakeweed

Scientific Name	?	Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)	5.00		
1	0.50	26	
2		27	
3		28	
4		29	
5		30	
6		31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	85%	80%	55%	85%	70%	75%
Native other grass						
Native forbs and other species						
Native shrubs						
Non-native grass	0%	0%	5%	0%	0%	1%
Non native forbs and shrubs	10%	15%	5%	10%	25%	13%
Litter	5%	5%	35%	5%	5%	11%
Rock						
Bare Ground						
Cryptogram						
Total	100%	100%	100%	100%	100%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	380	Number of large eucalypt trees:	*Eucalyptus crebra* - 880, 600, 580, 410, 460, 430, 530, 510, 430, 420, 380, 610 *Corymbia intermedia* - 550, 540
Non- Eucalypt Large tree DBH benchmark used:	NA	Number of large non eucalypt trees:	
Total number of large trees recorded:	14		
Total Number Large Trees per ha:	28		

Median Tree Canopy Height Measurements	Canopy:	14	Sub-canopy:	3	Emergent:	NA

Percentage of ecologically dominant layer species regenerating:	100

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	38.6%	Sub-canopy:	4.20%	Emergent:	
Shrub canopy cover %	9.20%					

Layer	Start	End	Interval	Layer	Start	End	Interval
T1	0.0	8.3	8.3	T2	62.6	63.7	1.1
T1	11.3	19.9	8.6	T2	70.4	71.0	0.6
T1	43.4	47.8	4.4	T2	73.2	74.0	0.8
T1	51.1	57.4	6.3	T2	76.3	77.1	0.8
T1	77.1	88.1	11.0	T2	81.8	82.7	0.9
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0

Layer	Start	End	Interval	Layer	Start	End	Interval
Shrub	9.9	11.0	1.1	Shrub	42.6	43.0	0.4
Shrub	11.9	12.3	0.4	Shrub	44.0	44.5	0.5

S	15.6	16.8	1.2	**Shrub**	64.7	66.0	1.3
Shrub	36.8	37.9	1.1	**Shrub**	89.1	90.4	1.3
Shrub	38.4	39.0	0.6	**Shrub**	94.8	95.8	1.0
Shrub	41.1	41.4	0.3	**Shrub**			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Eucalyptus crebra	15
Corymbia tessellaris	2
Corymbia intermedia	2
Total	19

Part J: SAT Survey Results

SAT Survey ID				
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
1	*Eucalyptus crebra*	Narrow Leaved Ironbark	500	N
2	*Eucalyptus crebra*	Narrow Leaved Ironbark	330	N
3	*Eucalyptus crebra*	Narrow Leaved Ironbark	300	N
4	*Eucalyptus crebra*	Narrow Leaved Ironbark	270	N
5	*Corymbia intermedia*	Pink Bloodwood	370	N
6	*Corymbia intermedia*	Pink Bloodwood	690	N
7	*Eucalyptus crebra*	Narrow Leaved Ironbark	200	N
8	*Eucalyptus crebra*	Narrow Leaved Ironbark	400	N
9	*Eucalyptus crebra*	Narrow Leaved Ironbark	230	N
10	*Eucalyptus crebra*	Narrow Leaved Ironbark	670	N
11	*Eucalyptus crebra*	Narrow Leaved Ironbark	320	N
12	*Eucalyptus crebra*	Narrow Leaved Ironbark	310	N
13	*Eucalyptus crebra*	Narrow Leaved Ironbark	570	N
14	*Eucalyptus crebra*	Narrow Leaved Ironbark	250	N
15	*Eucalyptus crebra*	Narrow Leaved Ironbark	200	N
16	*Eucalyptus crebra*	Narrow Leaved Ironbark	340	N
17	*Eucalyptus crebra*	Narrow Leaved Ironbark	420	N
18	*Eucalyptus crebra*	Narrow Leaved Ironbark	370	N
19	*Eucalyptus crebra*	Narrow Leaved Ironbark	360	N
20	*Eucalyptus crebra*	Narrow Leaved Ironbark	230	N
21	*Eucalyptus crebra*	Narrow Leaved Ironbark	230	N
22	*Eucalyptus crebra*	Narrow Leaved Ironbark	410	N
23	*Corymbia tessellaris*	Moreton Bay Ash	280	N
24	*Eucalyptus crebra*	Narrow Leaved Ironbark	270	N
25	*Eucalyptus crebra*	Narrow Leaved Ironbark	220	N
26	*Eucalyptus crebra*	Narrow Leaved Ironbark	130	N
27	*Eucalyptus crebra*	Narrow Leaved Ironbark	390	N
28	*Eucalyptus crebra*	Narrow Leaved Ironbark	370	N
29	*Eucalyptus crebra*	Narrow Leaved Ironbark	280	N
30	*Eucalyptus crebra*	Narrow Leaved Ironbark	350	N
Total				0

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	2	Job Number / Property	9612 Mount Walker West Offset

Part B - Site Data

Recorders	AW, HC	Date	23/09/2025

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
AU4		12.8.17	12

Site description and Location (including details of discrete polygons within the assessment unit)
Remnant 12.8.17 open eucalypt woodland dominanted by *Eucalyptus crebra + Corymbia intermedia* , with *E. melanophloia* and *C. tessellaris* . Rocky outcrops atop the ridgeline with scattered *Lantana camara* . Plot bearing 37° NE.

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	7			EDL / Dom / R
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow Leaved Ironbark	EDL / Dom
Scientific Name	*Corymbia intermedia*	Common Name	Pink Bloodwood	EDL / Dom / R
Scientific Name	*Eucalyptus melanophloia*	Common Name	Silver Leaved Ironbark	EDL
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash	EDL
Scientific Name	*Alphitonia excelsa*	Common Name	Soap Tree	
Scientific Name	*Petalostigma pubescens*	Common Name	Quinine Bush	
Scientific Name	*Dodonaea viscosa*	Common Name	Hop Bush	
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	5		
Scientific Name	*Alphitonia excelsa*	Common Name	Soap Tree
Scientific Name	*Acacia salicina*	Common Name	Sally Wattle
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash
Scientific Name	*Erythrina vespertilio*	Common Name	Bat's Wing Coral Tree
Scientific Name	*Eucalyptus melanophloia*	Common Name	Silver Leaved Ironbark
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	3		
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name	*Aristida vagans*	Common Name	Threeawn Aristida
Scientific Name	*Entolasia stricta*	Common Name	Wiry Panic
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	9		
Scientific Name	*Glycine clandestina*	Common Name	Twining Glycine
Scientific Name	*Lomandra longifolia*	Common Name	Long Leaved Matrush
Scientific Name	*Cyperus gracilis*	Common Name	Slender Sedge
Scientific Name	*Dianella caerulea*	Common Name	Blue Flax Lily
Scientific Name	*Xanthorrhoea johnsonii*	Common Name	Johnson's grass tree
Scientific Name	*Eustrephus latifolius*	Common Name	Wombat Berry
Scientific Name	*Desmodium rhytidophyllum*	Common Name	Hairy Trefoil
Scientific Name	*Gompholobium sp.*	Common Name	Wedge Pea
Scientific Name	*Dendrophthoe vitellina*	Common Name	Yellow-flowered Mistletoe
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	18.00%		
Scientific Name	*Melinis repens*	Common Name	Red Natal Grass
Scientific Name	*Lantana camara*	Common Name	Lantana
Scientific Name	*Sporobolus pyramidalis / S. natalensis*	Common Name	Giant Rat's Tail Grass
Scientific Name	*Lantana montevidensis*	Common Name	Creeping Lantana
Scientific Name	*Sida cordifolia*	Common Name	Flannel Weed
Scientific Name	*Bidens pilosa*	Common Name	Cobbler's Pegs
Scientific Name	*Opuntia tomentosa*	Common Name	Velvet Tree Pear
Scientific Name	*Macroptilium atropurpureum*	Common Name	Siratro
Scientific Name	*Verbena bonariensis*	Common Name	Purple Top Verbena

Scientific Name	*Asclepias curassavica*	Common Name	Red-headed Cotton Bush
Scientific Name	*Gomphocarpus physocarpus*	Common Name	Balloon Cotton Bush
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)	125.00		
1	2.30	26	
2	1.10	27	
3	0.50	28	
4	4.50	29	
5	2.30	30	
6	1.00	31	
7	0.80	32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	20%	20%	40%	3%	15%	20%
Native other grass						
Native forbs and other species						
Native shrubs						
Non-native grass	0%	0%	5%	0%	0%	1%
Non native forbs and shrubs	20%	15%	10%	7%	2%	11%
Litter	60%	65%	35%	50%	45%	51%
Rock	0%	0%	10%	40%	25%	15%
Bare Ground	0%	0%	0%	0%	13%	3%
Cryptogram						
Total	100%	100%	100%	100%	100%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	380	Number of large eucalypt trees:	*Eucalyptus crebra* - 590, 400, 390, 390, 410 *Corymbia intermedia* - 420 *Eucalyptus melanophloia* - 500, 470
Non- Eucalypt Large tree DBH benchmark used:	NA	Number of large non eucalypt trees:	
Total number of large trees recorded:	8		
Total Number Large Trees per ha:	16		

Median Tree Canopy Height Measurements	Canopy:	16	Sub-canopy:	8	Emergent:	NA

Percentage of ecologically dominant layer species regenerating:	50

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	43.8%	Sub-canopy:	17.20%	Emergent:	
Shrub canopy cover %	5.50%					

Layer	Start	End	Interval	Layer	Start	End	Interval
T1	2.3	8.1	5.8	T2	1.3	2.7	1.4
T1	24.7	33.5	8.8	T2	3.5	5.1	1.6
T1	50.5	59.8	9.3	T2	9.0	10.6	1.6
T1	61.2	63.1	1.9	T2	12.6	16.9	4.3
T1	74.0	77.8	3.8	T2	19.4	20.7	1.3
T1	81.2	95.4	14.2	T2	27.5	25.1	-2.4
T1			0.0	T2	42.3	43.7	1.4
T1			0.0	T2	52.4	53.8	1.4
T1			0.0	T2	54.7	55.7	1.0
T1			0.0	T2	67.7	71.4	3.7
T1			0.0	T2	96.2	98.1	1.9
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0

Layer	Start	End	Interval	Layer	Start	End	Interval
Shrub	8.4	9.0	0.6	Shrub	57.2	59.2	2.0
Shrub	40.4	41.4	1.0	Shrub	94.0	94.7	0.7
Shrub	54.3	54.8	0.5	Shrub			0.0

Shrub	55.2	55.9	0.7	**Shrub**			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Corymbia intermedia	18
Eucalyptus crebra	12
Corymbia tessellaris	13
Eucalyptus melanophloia	14
Alphitonia excelsa	2
Petalostigma pubescens	1
Total	60

Part J: SAT Survey Results

SAT Survey ID				
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
1	*Corymbia tessellaris*	Moreton Bay Ash	170	N
2	*Eucalyptus crebra*	Narrow Leaved Ironbark	480	N
3	*Eucalyptus crebra*	Narrow Leaved Ironbark	400	N
4	*Corymbia intermedia*	Pink Bloodwood	180	N
5	*Eucalyptus crebra*	Narrow Leaved Ironbark	320	Y
6	*Eucalyptus crebra*	Narrow Leaved Ironbark	270	Y
7	*Corymbia intermedia*	Pink Bloodwood	260	N
8	*Corymbia intermedia*	Pink Bloodwood	260	N
9	*Corymbia intermedia*	Pink Bloodwood	190	N
10	*Eucalyptus melanophloia*	Silver Leaved Ironbark	170	N
11	*Corymbia intermedia*	Pink Bloodwood	200	N
12	*Eucalyptus melanophloia*	Silver Leaved Ironbark	300	N
13	*Eucalyptus crebra*	Narrow Leaved Ironbark	550	N
14	*Eucalyptus crebra*	Narrow Leaved Ironbark	400	N
15	*Eucalyptus crebra*	Narrow Leaved Ironbark	410	N
16	*Corymbia intermedia*	Pink Bloodwood	230	N
17	*Corymbia intermedia*	Pink Bloodwood	150	N
18	*Eucalyptus crebra*	Narrow Leaved Ironbark	270	N
19	*Corymbia intermedia*	Pink Bloodwood	240	N
20	*Corymbia intermedia*	Pink Bloodwood	270	N
21	*Corymbia intermedia*	Pink Bloodwood	180	N
22	*Corymbia intermedia*	Pink Bloodwood	250	N
23	*Corymbia intermedia*	Pink Bloodwood	350	N
24	*Corymbia intermedia*	Pink Bloodwood	260	N
25	*Eucalyptus melanophloia*	Silver Leaved Ironbark	270	N
26	*Eucalyptus melanophloia*	Silver Leaved Ironbark	270	N
27	*Eucalyptus melanophloia*	Silver Leaved Ironbark	130	N
28	*Eucalyptus melanophloia*	Silver Leaved Ironbark	330	N
29	*Corymbia intermedia*	Pink Bloodwood	290	N
30	*Corymbia intermedia*	Pink Bloodwood	140	N
Total				2

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	3	Job Number / Property	9612 Mount Walker West Offset

Part B - Site Data

Recorders	AW, HC	Date	23/09/2025

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
AU4		12.8.17	12

Site description and Location (including details of discrete polygons within the assessment unit)
Remnant 12.8.17 open eucalypt woodland dominated by *Eucalyptus crebra* with *Corymbia intermedia* and *E. tereticornis* . Moderate Lantana. Transect positioned on upper slope. Evidence of past logging/areas of patchy regrowth dominated by *C. tessellaris* . *E. tereticornis* and *E. mellidora* on lower slope. Plot bearing 83° E.

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	9			EDL / Dom / R
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow Leaved Ironbark	EDL / Dom / R
Scientific Name	*Eucalyptus tereticornis*	Common Name	Forest Red Gum	
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash	EDL / Dom / R
Scientific Name	*Exocarpos cupressiformis*	Common Name	Native Cherry	
Scientific Name	*Eucalyptus melliodora*	Common Name	Yellow Box	EDL
Scientific Name	*Eucalyptus melanophloia*	Common Name	Silver Leaved Ironbark	EDL / R
Scientific Name	*Corymbia intermedia*	Common Name	Pink Bloodwood	EDL
Scientific Name	*Alphitonia excelsa*	Common Name	Soap Tree	
Scientific Name	*Angophora subvelutina*	Common Name	Broad Leaved Apple	
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	5		
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow Leaved Ironbark
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash
Scientific Name	*Eucalyptus melanophloia*	Common Name	Silver Leaved Ironbark
Scientific Name	*Acacia salicina*	Common Name	Sally Wattle
Scientific Name	*Dodonaea viscosa*	Common Name	Hop Bush
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	5		
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name	*Panicum decompositum*	Common Name	Native Millet
Scientific Name	*Imperata cylindrica*	Common Name	Blady Grass
Scientific Name	*Entolasia stricta*	Common Name	Wiry Panic
Scientific Name	*Artistida vagans*	Common Name	Threeawn Aristida
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	9		
Scientific Name	*Einadia hastata*	Common Name	Fishweed
Scientific Name	*Dianella caerulea*	Common Name	Blue Flax Lily
Scientific Name	*Desmodium rhytidophyllum*	Common Name	Hairy Trefoil
Scientific Name	*Eustrephus latifolius*	Common Name	Wombat Berry
Scientific Name	*Gahnia aspera*	Common Name	Sawsedge
Scientific Name	*Wahlenbergia stricta*	Common Name	Australian Bluebell
Scientific Name	*Cyperus gracilis*	Common Name	Slender Sedge
Scientific Name	*Cheilanthes distans*	Common Name	Bristle Cloak Fern
Scientific Name	*Wahlenbergia gracilis*	Common Name	Small Flowered Bluebell
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	30.00%		
Scientific Name	*Lantana camara*	Common Name	Lantana
Scientific Name	*Bidens pilosa*	Common Name	Cobbler's Pegs
Scientific Name	*Melinis repens*	Common Name	Red Natal Grass
Scientific Name	*Lantana montevidensis*	Common Name	Creeping Lantana
Scientific Name	*Asclepias curassavica*	Common Name	Red-headed Cotton Bush
Scientific Name	*Sporobolus pyramidalis / S. natalensis*	Common Name	Giant Rat's Tail Grass
Scientific Name	*Verbena bonariensis*	Common Name	Purple Top Verbena
Scientific Name	*Sida rhombifolia*	Common Name	Common Sida
Scientific Name	*Senecio madagascariensis*	Common Name	Fireweed

Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)	125.00		
1	9.50	26	
2	0.60	27	
3	2.40	28	
4		29	
5		30	
6		31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	35%	35%	80%	7%	0%	31%
Native other grass						
Native forbs and other species						
Native shrubs	0%	0%	0%	0%	5%	1%
Non-native grass	35%	15%	10%	30%	45%	27%
Non native forbs and shrubs	20%	0%	3%	18%	20%	12%
Litter	10%	35%	7%	45%	30%	25%
Rock						
Bare Ground	0%	15%	0%	0%	0%	3%
Cryptogram						
Total	100%	100%	100%	100%	100%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	380	Number of large eucalypt trees:	*Eucalyptus crebra* - 480, 510, 560, 510, 420, 550, 400, 420, 500 *Corymbia intermedia* - 420
Non- Eucalypt Large tree DBH benchmark used:	NA	Number of large non eucalypt trees:	
Total number of large trees recorded:	10		
Total Number Large Trees per ha:	20		

Median Tree Canopy Height Measurements	Canopy:	20	Sub-canopy:	7	Emergent:	NA

Percentage of ecologically dominant layer species regenerating:	100

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	43.0%	Sub-canopy:	22.10%	Emergent:	
Shrub canopy cover %	5.00%					

Layer	Start	End	Interval	Layer	Start	End	Interval
T1	2.7	8.2	5.5	T2	4.3	5.9	1.6
T1	11.1	26.9	15.8	T2	16.4	19.8	3.4
T1	30.9	36.2	5.3	T2	27.6	28.3	0.7
T1	38.6	47.0	8.4	T2	60.2	62.8	2.6
T1	54.0	62.0	8.0	T2	65.9	67.3	1.4
T1			0.0	T2	72.9	74.8	1.9
T1			0.0	T2	77.3	79.8	2.5
T1			0.0	T2	85.5	86.7	1.2
T1			0.0	T2	89.0	94.4	5.4
T1			0.0	T2	96.5	97.0	0.5
T1			0.0	T2	97.6	98.5	0.9
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0

Layer	Start	End	Interval	Layer	Start	End	Interval
Shrub	7.1	7.8	0.7	Shrub	53.7	54.7	1.0
Shrub	12.5	13.2	0.7	Shrub	70.3	71.0	0.7
Shrub	41.3	42.0	0.7	Shrub	91.9	92.3	0.4

Shrub	50.5	51.0	0.5	**Shrub**	98.5	98.8	0.3

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Eucalyptus crebra	33
Eucalyptus melanophloia	6
Corymbia intermedia	2
Corymbia tessellaris	12
Angophora subvelutina	1
Eucalyptus tereticornis	1
Total	55

Part J: SAT Survey Results

SAT Survey ID				
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
1	*Eucalyptus crebra*	Narrow Leaved Ironbark	170	N
2	*Eucalyptus crebra*	Narrow Leaved Ironbark	120	N
3	*Eucalyptus crebra*	Narrow Leaved Ironbark	130	N
4	*Eucalyptus crebra*	Narrow Leaved Ironbark	100	N
5	*Corymbia tessellaris*	Moreton Bay Ash	150	N
6	*Eucalyptus melanophloia*	Silver Leaved Ironbark	170	N
7	*Corymbia tessellaris*	Moreton Bay Ash	100	N
8	*Corymbia intermedia*	Pink Bloodwood	400	N
9	*Eucalyptus melanophloia*	Silver Leaved Ironbark	430	N
10	*Corymbia tessellaris*	Moreton Bay Ash	520	N
11	*Eucalyptus melanophloia*	Silver Leaved Ironbark	150	N
12	*Corymbia intermedia*	Pink Bloodwood	220	N
13	*Corymbia tessellaris*	Moreton Bay Ash	100	N
14	*Eucalyptus crebra*	Narrow Leaved Ironbark	100	N
15	*Eucalyptus crebra*	Narrow Leaved Ironbark	630	N
16	*Eucalyptus crebra*	Narrow Leaved Ironbark	380	N
17	*Eucalyptus crebra*	Narrow Leaved Ironbark	190	N
18	*Eucalyptus melanophloia*	Silver Leaved Ironbark	170	N
19	*Eucalyptus crebra*	Narrow Leaved Ironbark	130	N
20	*Corymbia tessellaris*	Moreton Bay Ash	100	N
21	*Eucalyptus crebra*	Narrow Leaved Ironbark	650	N
22	*Corymbia tessellaris*	Moreton Bay Ash	120	N
23	*Eucalyptus crebra*	Narrow Leaved Ironbark	130	N
24	*Eucalyptus crebra*	Narrow Leaved Ironbark	160	N
25	*Eucalyptus melanophloia*	Silver Leaved Ironbark	130	N
26	*Eucalyptus crebra*	Narrow Leaved Ironbark	130	N
27	*Eucalyptus crebra*	Narrow Leaved Ironbark	100	N
28	*Eucalyptus crebra*	Narrow Leaved Ironbark	140	N
29	*Eucalyptus crebra*	Narrow Leaved Ironbark	140	N
30	*Eucalyptus melanophloia*	Silver Leaved Ironbark	130	N
Total				0

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	4	Job Number / Property	9612 Mount Walker West Offset

Part B - Site Data

Recorders	AW, HC	Date	23/09/2025

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
AU1		12.3.3	12

Site description and Location (including details of discrete polygons within the assessment unit)
Non remnant open grazing paddock ground-truthed pre-clear RE12.3.3. Dominated by pastoral grasses with herbaceous weeds - highly grazed. Limited native species.

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	0			EDL / Dom / R
Scientific Name	*Nil*	Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	0		
Scientific Name	*Nil*	Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	2		
Scientific Name	*Digitaria didactyla*	Common Name	Queensland Couch
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species			
Scientific Name	*Nil*	Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	65.00%		
Scientific Name	*Senecio madagascariensis*	Common Name	Fireweed
Scientific Name	*Gomphocarpus physocarpus*	Common Name	Balloon Cotton Bush
Scientific Name	*Dichanthium aristatum*	Common Name	Angleton Grass
Scientific Name	*Gnaphalium spp.*	Common Name	Cudweed
Scientific Name	*Verbena bonariensis*	Common Name	Purple Top Verbena
Scientific Name	*Medicago polymorpha*	Common Name	Bur Clover
Scientific Name	*Cirsium vulgare*	Common Name	Bull Thistle
Scientific Name		Common Name	
Scientific Name		Common Name	

Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)	0.00		
1	Nil	26	
2		27	
3		28	
4		29	
5		30	
6		31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	20%	50%	20%	10%	10%	22%
Native other grass						
Native forbs and other species						
Native shrubs						
Non-native grass	76%	50%	80%	90%	90%	77%
Non native forbs and shrubs	4%	0%	0%	0%	0%	1%
Litter	0%	0%	0%	0%	0%	
Rock						
Bare Ground						
Cryptogram						
Total	100%	100%	100%	100%	100%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	540	Number of large eucalypt trees:	Nil
Non- Eucalypt Large tree DBH benchmark used:	NA	Number of large non eucalypt trees:	
Total number of large trees recorded:	0		
Total Number Large Trees per ha:	0		

Median Tree Canopy Height Measurements	Canopy:	NA	Sub-canopy:	NA	Emergent:	NA

Percentage of ecologically dominant layer species regenerating:	0

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	0.0%	Sub-canopy:	0.00%	Emergent:	
Shrub canopy cover %	0.00%					

Layer	Start	End	Interval	Layer	Start	End	Interval
T1	0.0	0.0	0.0	T2	0.0	0.0	0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0

Layer	Start	End	Interval	Layer	Start	End	Interval
Shrub	0.0	0.0	0.0	Shrub			0.0
Shrub			0.0	Shrub			0.0
Shrub			0.0	Shrub			0.0

Shrub			0.0	**Shrub**			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
	Nil

Part J: SAT Survey Results

SAT Survey ID				
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
Nil				
Total				

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	5	Job Number / Property	9612 Mount Walker West Offset

Part B - Site Data

Recorders	AW, HC	Date	23/09/2025

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
AU1		12.3.3	12

Site description and Location (including details of discrete polygons within the assessment unit)
Non-remnant open grazing paddock ground-truthed pre-clear RE12.3.3. Dominated by pastoral grasses with herbaceous weeds. Plot bearing 160° S.

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	0			EDL / Dom / R
Scientific Name	*Nil*	Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	0		
Scientific Name	*Nil*	Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	1		
Scientific Name	*Digitaria didactyla*	Common Name	Queensland Couch
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	2		
Scientific Name	*Wahlenbergia stricta*	Common Name	Australian Bluebell
Scientific Name	*Evolvulus alsinoides*	Common Name	Dwarf Morning Glory
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	25.00%		
Scientific Name	*Senecio madagascariensis*	Common Name	Fireweed
Scientific Name	*Gomphocarpus physocarpus*	Common Name	Balloon Cotton Bush
Scientific Name	*Dichanthium aristatum*	Common Name	Angleton Grass
Scientific Name	*Verbena bonariensis*	Common Name	Purple Top Verbena
Scientific Name	*Macroptilium atropurpureum*	Common Name	Siratro
Scientific Name	*Medicago polymorpha*	Common Name	Bur Clover
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)			
1	Nil	26	
2		27	
3		28	
4		29	
5		30	
6		31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	80%	95%	100%	70%	78%	85%
Native other grass						
Native forbs and other species						
Native shrubs						
Non-native grass	10%	0%	0%	0%	0%	2%
Non native forbs and shrubs	10%	5%	0%	25%	20%	12%
Litter	0%	0%	0%	5%	2%	1%
Rock						
Bare Ground						
Cryptogram						
Total	100%	100%	100%	100%	100%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	540	Number of large eucalypt trees:	Nil
Non- Eucalypt Large tree DBH benchmark used:	NA	Number of large non eucalypt trees:	
Total number of large trees recorded:	0		
Total Number Large Trees per ha:	0		

Median Tree Canopy Height Measurements	Canopy:	NA	Sub-canopy:	NA	Emergent:	NA

Percentage of ecologically dominant layer species regenerating:	0

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	0.0%	Sub-canopy:	0.00%	Emergent:	
Shrub canopy cover %	0.00%					

Layer	Start	End	Interval	Layer	Start	End	Interval
T1	0.0	0.0	0.0	T2	0.0	0.0	0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0

Layer	Start	End	Interval	Layer	Start	End	Interval
Shrub	0.0	0.0	0.0	Shrub			0.0
Shrub			0.0	Shrub			0.0
Shrub			0.0	Shrub			0.0

Shrub			0.0	**Shrub**			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
	Nil

Part J: SAT Survey Results

SAT Survey ID				
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
Nil				
Total				

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	6	Job Number / Property	9612 Mount Walker West Offset

Part B - Site Data

Recorders	AW, HC	Date	23/09/2025

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
AU1		12.3.3	12

Site description and Location (including details of discrete polygons within the assessment unit)
Non-remnant open grazing paddock with scattered large trees (*Eucalyptus crebra*). Ground-truthed pre-clear RE12.3.3. Plot bearing 50° NE.

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	1			EDL / Dom / R
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow Leaved Ironbark	EDL / Dom / R
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	1		
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow Leaved Ironbark
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	3		
Scientific Name	*Digitaria didactyla*	Common Name	Queensland Couch
Scientific Name	*Entolasia stricta*	Common Name	Wiry Panic
Scientific Name	*Aristida vagans*	Common Name	Threeawn Aristida
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	2		
Scientific Name	*Wahlenbergia stricta*	Common Name	Australian Bluebell
Scientific Name	*Cyperus gracilis*	Common Name	Slender Sedge
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	35.00%		
Scientific Name	*Opuntia stricta*	Common Name	Common Pest Pear
Scientific Name	*Senecio madagascariensis*	Common Name	Fireweed
Scientific Name	*Sporobolus pyramidalis / S. natalensis*	Common Name	Giant Rat's Tail Grass
Scientific Name	*Gomphocarpus phsyocarpus*	Common Name	Balloon Cotton Bush
Scientific Name	*Hydrocotyle ranunculoides*	Common Name	Floating Pennywort
Scientific Name	*Dichanthium aristatum*	Common Name	Angleton Grass
Scientific Name	*Verbena bonariensis*	Common Name	Purple Top Verbena
Scientific Name		Common Name	
Scientific Name		Common Name	

Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)	85.00		
1	7.00	26	
2	1.00	27	
3	0.50	28	
4		29	
5		30	
6		31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	55%	60%	15%	65%	85%	56%
Native other grass						
Native forbs and other species						
Native shrubs						
Non-native grass	20%	25%	80%	15%	0%	28%
Non native forbs and shrubs	25%	15%	5%	20%	15%	16%
Litter	0%	0%	0%	0%	0%	
Rock						
Bare Ground						
Cryptogram						
Total	100%	100%	100%	100%	100%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	540	Number of large eucalypt trees:	*Eucalyptus crebra* - 650, 760, 760
Non- Eucalypt Large tree DBH benchmark used:	NA	Number of large non eucalypt trees:	
Total number of large trees recorded:	3		
Total Number Large Trees per ha:	6		

Median Tree Canopy Height Measurements	Canopy:	18	Sub-canopy:	NA	Emergent:	NA

Percentage of ecologically dominant layer species regenerating:	100

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	7.5%	Sub-canopy:	0.00%	Emergent:	
Shrub canopy cover %	0.00%					

Layer	Start	End	Interval	Layer	Start	End	Interval
T1	75.0	82.5	7.5	T2	0.0	0.0	0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0

Layer	Start	End	Interval	Layer	Start	End	Interval
Shrub	0.0	0.0	0.0	Shrub			0.0
Shrub			0.0	Shrub			0.0
Shrub			0.0	Shrub			0.0

Shrub			0.0	**Shrub**			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Eucalyptus crebra	4

Part J: SAT Survey Results

SAT Survey ID				
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
NA				
Total				

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	7	Job Number / Property	9612 Mount Walker West Offset

Part B - Site Data

Recorders	AW, LB	Date	26/09/2025

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
AU3		12.8.17	12

Site description and Location (including details of discrete polygons within the assessment unit)
Regrowth (Cat C) open eucalypt woodland dominated by *Eucalyptus crebra* with *E. tereticornis, Angophora subvelutina, E. melanopholia, Corymbia intermedia* and *E. melliodora* . Plot bearing 147° SE.

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	9			EDL / Dom / R
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow Leaved Ironbark	EDL / Dom / R
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash	EDL
Scientific Name	*Corymbia intermedia*	Common Name	Pink Bloodwood	EDL / Dom
Scientific Name	*Angophora subvelutina*	Common Name	Broad Leaved Apple	EDL / Dom / R
Scientific Name	*Eucalyptus tereticornis*	Common Name	Forest Red Gum	
Scientific Name	*Eucalyptus melliodora*	Common Name	Yellow Box	EDL
Scientific Name	*Eucalyptus melanopholia*	Common Name	Silver Leaved Ironbark	
Scientific Name	*Acacia melanoxylon*	Common Name	Australian Blackwood	
Scientific Name	*Jacksonia scocarpa*	Common Name	Dogwood	
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	5		
Scientific Name	*Acacia salicina*	Common Name	Sally Wattle
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash
Scientific Name	*Xanthorrhoea johnsonii*	Common Name	Johnson's grass tree
Scientific Name	*Acacia leiocalyx*	Common Name	Early Flowering Black Wattle
Scientific Name	*Acacia melanoxylon*	Common Name	Australian Blackwood
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	6		
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name	*Aristida vagans*	Common Name	Threeawn Aristida
Scientific Name	*Imperata cylindrica*	Common Name	Blady Grass
Scientific Name	*Panicum decompositum*	Common Name	Native Millet
Scientific Name	*Digitaria didactyla*	Common Name	Queensland Couch
Scientific Name	*Entolasia stricta*	Common Name	Wiry Panic
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	10		
Scientific Name	*Dianella caerulea*	Common Name	Blue Flax Lily
Scientific Name	*Glycine clandestina*	Common Name	Twining Glycine
Scientific Name	*Crotalaria montana*	Common Name	Narrow Leaved Rattlepod
Scientific Name	*Goodenia rotundifolia*	Common Name	Star Goodenia
Scientific Name	*Lomandra longifolia*	Common Name	Long Leaved Matrush
Scientific Name	*Cyperus gracilis*	Common Name	Slender Sedge
Scientific Name	*Desmodium rhytidophyllum*	Common Name	Hairy Trefoil
Scientific Name	*Eremophila debilis*	Common Name	Winter Apple
Scientific Name	*Chrysocephalum apiculatum*	Common Name	Yellow Buttons
Scientific Name	*Dichondra repens*	Common Name	Kidney Weed
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	15.00%		
Scientific Name	*Melinis repens*	Common Name	Red Natal Grass
Scientific Name	*Lantana camara*	Common Name	Lantana
Scientific Name	*Asclepias curassavica*	Common Name	Red-headed Cotton Bush
Scientific Name	*Senecio madagascariensis*	Common Name	Fireweed
Scientific Name	*Emilia sonchifolia*	Common Name	Emilia
Scientific Name	*Verbena bonariensis*	Common Name	Purple Top Verbena
Scientific Name	*Sporobolus pyramidalis / S. natalensis*	Common Name	Giant Rat's Tail Grass
Scientific Name	*Cirsium valgare*	Common Name	Bull Thistle
Scientific Name	*Bidens pilosa*	Common Name	Cobbler's Peg

Scientific Name	*Lantana montevidensis*	Common Name	Creeping Lantana
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)	92.00		
1	1.50	26	
2	1.00	27	
3	3.50	28	
4	2.00	29	
5	1.20	30	
6		31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	50%	35%	50%	5%	0%	28%
Native other grass						
Native forbs and other species	0%	10%	10%	10%	5%	7%
Native shrubs						
Non-native grass	25%	20%	15%	5%	10%	15%
Non native forbs and shrubs	10%	5%	10%	0%	5%	6%
Litter	15%	30%	15%	80%	80%	44%
Rock						
Bare Ground						
Cryptogram						
Total	100%	100%	100%	100%	100%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	380	Number of large eucalypt trees:	Angophora subvelutina - 520, 390, 380, *Eucalyptus crebra* - 440, 390, 480, 550, 410, 550
Non- Eucalypt Large tree DBH benchmark used:	NA	Number of large non eucalypt trees:	
Total number of large trees recorded:	9		
Total Number Large Trees per ha:	18		

Median Tree Canopy Height Measurements	Canopy:	12	Sub-canopy:	4	Emergent:	NA

Percentage of ecologically dominant layer species regenerating:	67

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	50.6%	Sub-canopy:	16.70%	Emergent:	
Shrub canopy cover %	0.60%					

Layer	Start	End	Interval	Layer	Start	End	Interval
T1	0.0	5.2	5.2	T2	0.0	1.8	1.8
T1	9.4	13.2	3.8	T2	3.1	5.0	1.9
T1	39.5	48.9	9.4	T2	6.6	7.7	1.1
T1	50.3	52.2	1.9	T2	8.3	12.3	4.0
T1	57.8	65.4	7.6	T2	28.3	30.5	2.2
T1	67.5	73.2	5.7	T2	73.0	74.5	1.5
T1	78.3	83.9	5.6	T2	76.8	77.8	1.0
T1	83.9	95.3	11.4	T2	84.5	85.7	1.2
T1			0.0	T2	98.0	100.0	2.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0

Layer	Start	End	Interval	Layer	Start	End	Interval
Shrub	85.8	86.4	0.6	Shrub			0.0
Shrub			0.0	Shrub			0.0
Shrub			0.0	Shrub			0.0

Shrub			0.0	**Shrub**			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Eucalyptus crebra	19
Corymbia tessellaris	7
Angophora subvelutina	15
Eucalyptus melanophloia	5
Corymbia intermedia	12
Eucalyptus melliodora	1
Eucalyptus tereticornis	1
Total	60

Part J: SAT Survey Results

SAT Survey ID				
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
1	*Angophora subvelutina*	Broad Leaved Apple	150	N
2	*Corymbia intermedia*	Pink Bloodwood	140	N
3	*Corymbia tessellaris*	Moreton Bay Ash	160	N
4	*Angophora subvelutina*	Broad Leaved Apple	170	N
5	*Angophora subvelutina*	Broad Leaved Apple	140	N
6	*Eucalyptus crebra*	Narrow Leaved Ironbark	200	N
7	*Angophora subvelutina*	Broad Leaved Apple	240	N
8	*Angophora subvelutina*	Broad Leaved Apple	170	N
9	*Corymbia intermedia*	Pink Bloodwood	390	N
10	*Angophora subvelutina*	Broad Leaved Apple	110	N
11	*Eucalyptus melliodora*	Yellow Box	150	N
12	*Corymbia tessellaris*	Moreton Bay Ash	110	N
13	*Angophora subvelutina*	Broad Leaved Apple	150	N
14	*Angophora subvelutina*	Broad Leaved Apple	140	N
15	*Angophora subvelutina*	Broad Leaved Apple	280	N
16	*Angophora subvelutina*	Broad Leaved Apple	200	N
17	*Angophora subvelutina*	Broad Leaved Apple	150	N
18	*Angophora subvelutina*	Broad Leaved Apple	190	Y
19	*Angophora subvelutina*	Broad Leaved Apple	400	N
20	*Eucalyptus crebra*	Narrow Leaved Ironbark	200	N
21	*Eucalyptus crebra*	Narrow Leaved Ironbark	300	N
22	*Eucalyptus crebra*	Narrow Leaved Ironbark	180	N
23	*Eucalyptus crebra*	Narrow Leaved Ironbark	100	N
24	*Corymbia intermedia*	Pink Bloodwood	380	N
25	*Corymbia intermedia*	Pink Bloodwood	210	N
26	*Corymbia intermedia*	Pink Bloodwood	140	N
27	*Corymbia intermedia*	Pink Bloodwood	160	N
28	*Corymbia intermedia*	Pink Bloodwood	100	N
29	*Corymbia tessellaris*	Moreton Bay Ash	110	N
30	*Corymbia tessellaris*	Moreton Bay Ash	120	N
Total				1

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	8	Job Number / Property	9612 Mount Walker West Offset

Part B - Site Data

Recorders	AW, LB	Date	26/09/2025

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
AU3		12.8.17	12

Site description and Location (including details of discrete polygons within the assessment unit)
Regrowth (Cat C) open eucalypt woodland dominated by *Eucalyptus crebra* and *Corymbia intermedia* with scattered *E. melanophloia, E. melliodora* and *E. tereticornis.* Adjoining drainage flow path and old vehicle access tracks. Low weed cover, high regrowth. Plot bearing 79° EE.

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	4			EDL / Dom / R
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow Leaved Ironbark	EDL / Dom / R
Scientific Name	*Corymbia intermedia*	Common Name	Pink Bloodwood	EDL / Dom / R
Scientific Name	*Eucalyptus melanophloia*	Common Name	Silver Leaved Ironbark	EDL
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash	
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	6		
Scientific Name	*Eucalyptus melanophloia*	Common Name	Silver Leaved Ironbark
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash
Scientific Name	*Angophora subvelutina*	Common Name	Broad Leaved Apple
Scientific Name	*Exocarpus cupressiformis*	Common Name	Native Cherry
Scientific Name	*Jacksonia scocarpa*	Common Name	Dogwood
Scientific Name	*Corymbia intermedia*	Common Name	Pink Bloodwood
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	3		
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name	*Aristida vagans*	Common Name	Threeawn Speargrass
Scientific Name	*Entolasia stricta*	Common Name	Wiry Panic
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	10		
Scientific Name	*Xanthorrhoea johnsonii*	Common Name	Johnson's grass tree
Scientific Name	*Dianella caerulea*	Common Name	Blue Flax Lily
Scientific Name	*Glycine clandestina*	Common Name	Twining Glycine
Scientific Name	*Lomandra longifolia*	Common Name	Long Leaved Matrush
Scientific Name	*Chrysocephalum apiculatum*	Common Name	Yellow Buttons
Scientific Name	*Evolvulus alsinoides*	Common Name	Dwarf Morning Glory
Scientific Name	*Hypericum gramineum*	Common Name	Small St John's Wort
Scientific Name	*Wahlenbergia stricta*	Common Name	Australian Bluebell
Scientific Name	*Rostellularia abscendens*	Common Name	Narrow Leaved Pink Tongue
Scientific Name	*Dichrondra repens*	Common Name	Kidney Weed
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	3.00%		
Scientific Name	*Sida cordifolia*	Common Name	Flannel Weed
Scientific Name	*Melinis repens*	Common Name	Red Natal Grass
Scientific Name	*Sporobolus pyramidalis / S. natalensis*	Common Name	Giant Rat's Tail Grass
Scientific Name	*Lantana montevidensis*	Common Name	Creeping Lantana
Scientific Name	*Lantana camara*	Common Name	Lantana
Scientific Name	*Emilia sonchifolia*	Common Name	Emilia
Scientific Name	*Gomphocarpus physocarpus*	Common Name	Balloon Cotton Bush
Scientific Name	*Verbena bonariensis*	Common Name	Purple Top Verbena
Scientific Name	*Senecio madagascariensis*	Common Name	Fireweed

Scientific Name	*Cirsium valgare*	Common Name	Bull Thistle
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)	81.00		
1	2.50	26	
2	1.00	27	
3	0.50	28	
4	4.10	29	
5		30	
6		31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	20%	20%	55%	30%	15%	28%
Native other grass						
Native forbs and other species	0%	0%	0%	40%	0%	8%
Native shrubs	15%	0%	10%	0%	10%	7%
Non-native grass	0%	15%	10%	0%	5%	6%
Non native forbs and shrubs	0%	10%	5%	0%	5%	4%
Litter	65%	45%	20%	30%	65%	45%
Rock						
Bare Ground	0%	10%	0%	0%	0%	2%
Cryptogram						
Total	100%	100%	100%	100%	100%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	380	Number of large eucalypt trees:	*Eucalyptus crebra* - 440, 650, 610, 410, 480, 390, 540
Non- Eucalypt Large tree DBH benchmark used:	NA	Number of large non eucalypt trees:	
Total number of large trees recorded:	7		
Total Number Large Trees per ha:	14		

Median Tree Canopy Height Measurements	Canopy:	12	Sub-canopy:	5	Emergent:	NA

Percentage of ecologically dominant layer species regenerating:	100

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	41.3%	Sub-canopy:	15.30%	Emergent:	
Shrub canopy cover %	4.20%					

Layer	Start	End	Interval	Layer	Start	End	Interval
T1	2.2	8.5	6.3	T2	1.4	3.3	1.9
T1	14.1	16.5	2.4	T2	9.7	10.3	0.6
T1	32.0	35.5	3.5	T2	11.1	12.1	1.0
T1	39.7	47.0	7.3	T2	16.3	17.4	1.1
T1	51.3	63.4	12.1	T2	18.6	20.0	1.4
T1	66.8	69.2	2.4	T2	24.9	26.4	1.5
T1	69.8	71.5	1.7	T2	33.3	34.3	1.0
T1	73.6	79.2	5.6	T2	35.4	36.2	0.8
T1			0.0	T2	55.8	56.4	0.6
T1			0.0	T2	60.9	63.0	2.1
T1			0.0	T2	78.1	79.1	1.0
T1			0.0	T2	83.8	85.5	1.7
T1			0.0	T2	87.5	88.1	0.6
T1			0.0	T2			0.0
T1			0.0	T2			0.0

Layer	Start	End	Interval	Layer	Start	End	Interval
Shrub	6.8	7.1	0.3	Shrub	47.6	47.9	0.3
Shrub	12.7	13.3	0.6	Shrub	56.1	56.3	0.2
Shrub	15.1	15.5	0.4	Shrub	63.9	64.4	0.5

Shrub	23.0	23.2	0.2	**Shrub**	65.3	65.9	0.6
Shrub	37.7	38.0	0.3	**Shrub**	68.6	68.9	0.3
Shrub	45.9	46.1	0.2	**Shrub**	93.7	94.0	0.3

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Corymbia intermedia	41
Eucalyptus crebra	21
Eucalyptus melanophloia	3
Corymbia tessellaris	16
Angophora subvelutina	5
Total	86

Part J: SAT Survey Results

SAT Survey ID				
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
1	Angophora subvelutina	Broad Leaved Apple	200	N
2	Corymbia intermedia	Pink Bloodwood	190	N
3	Corymbia intermedia	Pink Bloodwood	260	N
4	Corymbia intermedia	Pink Bloodwood	160	N
5	Corymbia intermedia	Pink Bloodwood	200	N
6	Eucalyptus crebra	Narrow Leaved Ironbark	400	N
7	Corymbia tessellaris	Moreton Bay Ash	140	N
8	Corymbia tessellaris	Moreton Bay Ash	120	N
9	Corymbia tessellaris	Moreton Bay Ash	200	N
10	Corymbia tessellaris	Moreton Bay Ash	120	N
11	Corymbia tessellaris	Moreton Bay Ash	150	N
12	Corymbia tessellaris	Moreton Bay Ash	160	N
13	Corymbia intermedia	Pink Bloodwood	110	N
14	Corymbia intermedia	Pink Bloodwood	100	N
15	Corymbia intermedia	Pink Bloodwood	170	N
16	Corymbia intermedia	Pink Bloodwood	160	N
17	Corymbia intermedia	Pink Bloodwood	160	N
18	Corymbia intermedia	Pink Bloodwood	130	N
19	Corymbia intermedia	Pink Bloodwood	190	N
20	Corymbia intermedia	Pink Bloodwood	170	N
21	Corymbia intermedia	Pink Bloodwood	100	N
22	Corymbia intermedia	Pink Bloodwood	200	N
23	Corymbia intermedia	Pink Bloodwood	150	N
24	Corymbia intermedia	Pink Bloodwood	160	N
25	Corymbia intermedia	Pink Bloodwood	100	N
26	Corymbia intermedia	Pink Bloodwood	650	N
27	Corymbia intermedia	Pink Bloodwood	150	N
28	Corymbia intermedia	Pink Bloodwood	300	N
29	Eucalyptus melanophloia	Silver Leaved Ironbark	170	N
30	Eucalyptus crebra	Narrow Leaved Ironbark	700	N
Total				0

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	9	Job Number / Property	9612 Mount Walker West Offset

Part B - Site Data

Recorders	AW, LB	Date	26/09/2025

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
AU2		12.8.17	12

Site description and Location (including details of discrete polygons within the assessment unit)
Open grazing paddock (Cat X) with scattered large *Eucalyptus crebra* and regrowth of *Corymbia tessellaris* . Ground-truthed pre-clear RE12.8.17. Groundcover made up of native and exotic grasses and herbaceous weeds. Transect intersects a drainage gully. Plot bearing 343° N.

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	2			EDL / Dom / R
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow Leaved Ironbark	EDL
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash	
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	0		
Scientific Name	*nil*	Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	3		
Scientific Name	*Aristida vagans*	Common Name	Threeawn Artisida
Scientific Name	*Imperata cylindrica*	Common Name	Blady grass
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	2		
Scientific Name	*Wahlenbergia stricta*	Common Name	Australian Bluebell
Scientific Name	*Dichondra repens*	Common Name	Kidney Weed
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	20.00%		
Scientific Name	*Lantana camara*	Common Name	Lantana
Scientific Name	*Asclepias curassavica*	Common Name	Red-headed Cotton Bush
Scientific Name	*Senecio madagascariensis*	Common Name	Fireweed
Scientific Name	*Cirsium vulgare*	Common Name	Bull Thistle
Scientific Name	*Verbena bonariensis*	Common Name	Purple Top Verbena
Scientific Name	*Bidens pilosa*	Common Name	Cobbler's Peg
Scientific Name	*Gomphocarpus physocarpus*	Common Name	Balloon Cotton Bush
Scientific Name	*Sporobolus pyramidalis / S. natalensis*	Common Name	Giant Rat's Tail Grass
Scientific Name	*Dichanthium aristatum*	Common Name	Angleton Grass

Scientific Name	*Lantana montevidensis*	Common Name	Creeping Lantana
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)	85.00		
1	7.00	26	
2	1.50	27	
3		28	
4		29	
5		30	
6		31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	60%	30%	80%	60%	90%	64%
Native other grass						
Native forbs and other species						
Native shrubs						
Non-native grass	35%	45%	15%	35%	10%	28%
Non native forbs and shrubs	5%	25%	5%	5%	0%	8%
Litter	0%	0%	0%	0%	0%	
Rock						
Bare Ground						
Cryptogram						
Total	100%	100%	100%	100%	100%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	380	Number of large eucalypt trees:	*0*
Non- Eucalypt Large tree DBH benchmark used:	NA	Number of large non eucalypt trees:	
Total number of large trees recorded:	0		
Total Number Large Trees per ha:	0		

Median Tree Canopy Height Measurements	Canopy:	18	Sub-canopy:	3	Emergent:	NA

Percentage of ecologically dominant layer species regenerating:	0

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	0.0%	Sub-canopy:	0.00%	Emergent:	
Shrub canopy cover %	0.00%					

Layer	Start	End	Interval	Layer	Start	End	Interval
T1	0.0	0.0	0.0	T2	0.0	0.0	0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0

Layer	Start	End	Interval	Layer	Start	End	Interval
Shrub	0.0	0.0	0.0	Shrub			0.0
Shrub			0.0	Shrub			0.0
Shrub			0.0	Shrub			0.0

Shrub			0.0	**Shrub**			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Eucalyptus crebra	1
Corymbia tessellaris	2

Part J: SAT Survey Results

SAT Survey ID				
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
Nil				
Total				

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	10	Job Number / Property	9612 Mount Walker West Offset

Part B - Site Data

Recorders	AW, LB	Date	26/09/2025

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
AU2		12.8.17	12

Site description and Location (including details of discrete polygons within the assessment unit)
Open grazing paddock (Cat X) with scattered regrowth of *Eucalyptus melanophloia and Corymbia tessellaris* . Ground-truthed pre-clear RE12.8.17. Groundcover dominated by a mix of native and non-native grasses and herbaceous weeds. From 65m - 100m, the transect is dominated by exotic forbs. Plot bearing 0° N.

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	2			EDL / Dom / R
Scientific Name	*Eucalyptus melanophloia*	Common Name	Silver Leaved Ironbark	
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash	
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	0		
Scientific Name	*Nil*	Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	2		
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name	*Imperata cylindrica*	Common Name	Blady Grass
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	3		
Scientific Name	*Wahlenbergia stricta*	Common Name	Australian Bluebell
Scientific Name	*Evolvulus alsinoides*	Common Name	Dwarf Morning Glory
Scientific Name	*Dichondra repens*	Common Name	Kidney Weed
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	30.00%		
Scientific Name	*Senecio madagascariensis*	Common Name	Fireweed
Scientific Name	*Verbena bonariensis*	Common Name	Purple Top Verbena
Scientific Name	*Gomphocarpus physocarpus*	Common Name	Balloon Cotton Bush
Scientific Name	*Melinis repens*	Common Name	Red Natal Grass
Scientific Name	*Bidens pilosa*	Common Name	Cobbler's Pegs
Scientific Name	*Lantana montevidensis*	Common Name	Creeping Lantana
Scientific Name	*Cirsium vulgare*	Common Name	Bull Thistle
Scientific Name	*Sporobolus pyramidalis / S. natalensis*	Common Name	Giant Rat's Tail Grass
Scientific Name	*Asclepias curassavica*	Common Name	Red-headed Cotton Bush

Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)	30.00		
1	1.50	26	
2	1.50	27	
3		28	
4		29	
5		30	
6		31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	60%	80%	50%	60%	30%	56%
Native other grass						
Native forbs and other species						
Native shrubs						
Non-native grass	25%	10%	25%	25%	0%	17%
Non native forbs and shrubs	15%	10%	25%	15%	70%	27%
Litter	0%	0%	0%	0%	0%	
Rock						
Bare Ground						
Cryptogram						
Total	100%	100%	100%	100%	100%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	380	Number of large eucalypt trees:	0
Non- Eucalypt Large tree DBH benchmark used:	NA	Number of large non eucalypt trees:	
Total number of large trees recorded:	0		
Total Number Large Trees per ha:	0		

Median Tree Canopy Height Measurements	Canopy:	NA	Sub-canopy:	3	Emergent:	NA

Percentage of ecologically dominant layer species regenerating:	0

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	0.0%	Sub-canopy:	0.00%	Emergent:	
Shrub canopy cover %	0.00%					

Layer	Start	End	Interval	Layer	Start	End	Interval
T1	Nil		0.0	T2	Nil		0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0

Layer	Start	End	Interval	Layer	Start	End	Interval
Shrub	Nil		0.0	Shrub			0.0
Shrub			0.0	Shrub			0.0
Shrub			0.0	Shrub			0.0

Shrub			0.0	**Shrub**			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Nil	

Part J: SAT Survey Results

SAT Survey ID				
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
Nil				
Total				

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet

Part A - Administrative

Transect ID	11	Job Number / Property	9612 Mount Walker West Offset

Part B - Site Data

Recorders	AW, LB	Date	26/09/2025

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
AU2		12.8.17	12

Site description and Location (including details of discrete polygons within the assessment unit)
Open grazing paddock (Cat X). Highly grazed with minimal tree cover. Ground-truthed pre-clear RE12.8.17. Mixed native and non-native grasses. Plot bearing 308° NW.

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	2			EDL / Dom / R
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow Leaved Ironbark	EDL
Scientific Name	*Eucalyptus melanophloia*	Common Name	Silver Leaved Ironbark	
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	1		
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	2		
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name	*Digitaria didactyla*	Common Name	Queensland Couch
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	2		
Scientific Name	*Evolvulus alsinoides*	Common Name	Dwarf Morning Glory
Scientific Name	*Dichondra repens*	Common Name	Kidney Weed
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	10.00%		
Scientific Name	*Sporobolus pyramidalis / S. natalensis*	Common Name	Giant Rat's Tail Grass
Scientific Name	*Senecio madagascariensis*	Common Name	Fireweed
Scientific Name	*Gomphocarpus physocarpus*	Common Name	Balloon Cotton Bush
Scientific Name	*Asclepias curassavica*	Common Name	Red-headed Cotton Bush
Scientific Name	*Melinis repens*	Common Name	Red Natal Grass
Scientific Name	*Dichanthium aristatum*	Common Name	Angleton Grass
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)	21.00		
1	1.10	26	
2	1.00	27	
3		28	
4		29	
5		30	
6		31	
7		32	
8		33	

9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	70%	95%	90%	90%	75%	84%
Native other grass						
Native forbs and other species						
Native shrubs						
Non-native grass	20%	0%	0%	5%	0%	5%
Non native forbs and shrubs	0%	0%	5%	0%	25%	6%
Litter	10%	0%	0%	0%	0%	2%
Rock	0%	5%	5%	5%	0%	3%
Bare Ground						
Cryptogram						
Total	100%	100%	100%	100%	100%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	380	Number of large eucalypt trees:	0
Non- Eucalypt Large tree DBH benchmark used:	NA	Number of large non eucalypt trees:	
Total number of large trees recorded:	0		
Total Number Large Trees per ha:	0		

Median Tree Canopy Height Measurements	Canopy:	18	Sub-canopy:	6	Emergent:	NA

Percentage of ecologically dominant layer species regenerating:	0

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	0.0%	Sub-canopy:	4.70%	Emergent:	
Shrub canopy cover %	0.00%					

Layer	Start	End	Interval	Layer	Start	End	Interval
T1	Nil		0.0	T2	74.3	79.0	4.7
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0

Layer	Start	End	Interval	Layer	Start	End	Interval
Shrub	Nil		0.0	Shrub			0.0
Shrub			0.0	Shrub			0.0
Shrub			0.0	Shrub			0.0
Shrub			0.0	Shrub			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Eucalyptus melanophloia	1
Eucalyptus crebra	1

Part J: SAT Survey Results

SAT Survey ID				
Tree Number	Scientific Name	Common Name	DBH	Scat (Y/N)
Nil				

Total				

Attach Landscape Photos Here

North

South

East

West

Habitat Quality Assessment Unit Score Sheet			

Part A - Administrative

Transect ID	12	Job Number / Property	9612 Mount Walker West Offset

Part B - Site Data

Recorders	AR,TM	Date	30/09/2025

Assessment Unit:	Assessment Unit Area (ha)	RE	Bioregion Number
AU2		12.8.17	12

Site description and Location (including details of discrete polygons within the assessment unit)
Open grazing paddock (Cat X). Highly grazed with minimal tree cover. Ground-truthed pre-clear RE12.8.17. Mixed native and non-native grasses.

Part C - Native Species Richness: (*list species below)

Tree species richness:				
Total number of species	2			EDL / Dom / R
Scientific Name	*Eucalyptus crebra*	Common Name	Narrow Leaved Ironbark	
Scientific Name	*Corymbia tessellaris*	Common Name	Moreton Bay Ash	
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		
Scientific Name		Common Name		

Shrub species richness:			
Total number of species	0		
Scientific Name	*Nil*	Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Grass species richness:			
Total number of species	3		
Scientific Name	*Heteropogon contortus*	Common Name	Black Spear Grass
Scientific Name	*Entolasia stricta*	Common Name	Wiry Panic
Scientific Name	*Imperata cylindrica*	Common Name	Blady Grass
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Forbs and others (non grass ground) species richness:			
Total number of species	2		
Scientific Name	*Dichondra repens*	Common Name	Kidney Weed
Scientific Name	*Polymeria calycina*	Common Name	Slender Bindweed
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part D - Non-Native Plant Cover: (*list species below)

Total percentage cover within plot	30.00%		
Scientific Name	*Heliotropium amplexicaule*	Common Name	Blue Heliotrope
Scientific Name	*Celtis sinensis*	Common Name	Chinese Elm
Scientific Name	*Gomphocarpus physocarpus*	Common Name	Balloon Cotton Bush
Scientific Name	*Cirsium vulgare*	Common Name	Bull Thistle
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	
Scientific Name		Common Name	

Part E - Coarse Woody Debris: (*list lengths of individual logs in meters)

Total Length of Course Woody Debris (Meters per hectare)			
1	Nil	26	
2		27	
3		28	
4		29	
5		30	
6		31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Part F - Native perennial grass cover, organic litter: (*provide percentage cover within each quadrat, and provide average cover)

Ground Cover	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5	Average
Native perennial grass cover	5%	30%	25%	50%	75%	37%
Native other grass						
Native forbs and other species						
Native shrubs						
Non-native grass	80%	20%	15%	25%	15%	31%
Non native forbs and shrubs	15%	50%	60%	25%	10%	32%
Litter	0%	0%	0%	0%	0%	
Rock						
Bare Ground						
Cryptogram						
Total	100%	100%	100%	100%	100%	100%

Part G- Number of large trees , tree canopy height, recruitment of woody perennial species:

Eucalypt Large tree DBH benchmark used :	380	Number of large eucalypt trees:	0
Non- Eucalypt Large tree DBH benchmark used:	NA	Number of large non eucalypt trees:	
Total number of large trees recorded:	0		
Total Number Large Trees per ha:	0		

Median Tree Canopy Height Measurements	Canopy:	0	Sub-canopy:	5	Emergent:	NA

Percentage of ecologically dominant layer species regenerating:	0

Part H - Tree canopy cover, Shrub canopy cover

Tree canopy cover %	Canopy:	0.0%	Sub-canopy:	0.00%	Emergent:	
Shrub canopy cover %	0.00%					

Layer	Start	End	Interval	Layer	Start	End	Interval
T1	0.0	0.0	0.0	T2	0.0	0.0	0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0
T1			0.0	T2			0.0

Layer	Start	End	Interval	Layer	Start	End	Interval
Shrub	0.0	0.0	0.0	Shrub			0.0
Shrub			0.0	Shrub			0.0
Shrub			0.0	Shrub			0.0

Shrub			0.0	**Shrub**			0.0

Note: Only assess Emergent (E) or Subcanopy (S) layers if the benchmark document stipulates that layers are present *If trees are in the same layer and continuous along the transect you can group them

Part I: GHFF Stem Count

Species Name	Stem Count
Eucalyptus crebra	1

Part J: SAT Survey Results

SAT Survey ID				
Tree Number	**Scientific Name**	**Common Name**	**DBH**	**Scat (Y/N)**
Nil				
Total				

Attach Landscape Photos Here

North

South

East

West

Appendix G

Baseline Weed Data

Weed Management Zone 1 - Transect 5

Date: 30.09.2025

Start location (0 m): −27.7769, 152.4812
End location (100 m): −27.7764, 152.4820

Description: The vegetated area was dominated by native *Heteropogon contortus* (Black Speargrass), with minor weeds present, primarily comprising other non-native species and very limited WONS.

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
0.00	0.60	0.60	*Heteropogon contortus*	Black Speargrass	Native
0.60	0.70	0.10	*Verbena bonariensis*	Purple-top Verbena	Other Weeds
0.70	4.10	3.40	*Melinis repens*	Red Natal Grass	Other Weeds
4.10	7.80	3.70	*Heteropogon contortus*	Black Speargrass	Native
7.80	8.20	0.40	*Vicia sativa*	Common Vetch	Other Weeds
8.20	10.70	2.50	*Heteropogon contortus*	Black Speargrass	Native
10.70	10.90	0.20	*Gomphocarpus physocarpus*	Balloon Cotton Bush	Other Weeds
10.90	11.70	0.80	*Heteropogon contortus*	Black Speargrass	Native
11.70	11.90	0.20	*Asclepias curassavica*	Red-headed Cotton Bush	Other Weeds
11.90	13.40	1.50	*Heteropogon contortus*	Black Speargrass	Native
13.40	13.60	0.20	*Vicia sativa*	Common Vetch	Other Weeds
13.60	19.80	6.20	*Heteropogon contortus* *Aristida vagans*	Mixed Native Grass	Native
19.80	20.00	0.20	*Vicia sativa*	Common Vetch	Other Weeds
20.00	21.60	1.60	*Melinis repens*	Red Natal Grass	Other Weeds
21.60	22.70	1.10	*Heteropogon contortus*	Black Speargrass	Native
22.70	24.40	1.70	*Melinis repens*	Red Natal Grass	Other Weeds
24.40	26.20	1.80	*Heteropogon contortus*	Black Speargrass	Native
26.20	26.40	0.20	*Asclepias curassavica*	Red-headed Cotton Bush	Other Weeds
26.40	27.00	0.60	*Heteropogon contortus*	Black Speargrass	Native
27.00	27.40	0.40	*Vicia sativa*	Common Vetch	Other Weeds
27.40	28.50	1.10	*Heteropogon contortus*	Black Speargrass	Native
28.50	28.80	0.30	*Cirsium vulgare*	Spear Thistle	Other Weeds
28.80	30.70	1.90	*Heteropogon contortus*	Black Speargrass	Native

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
30.70	31.00	0.30	*Verbena bonariensis*	Purple-top Verbena	Other Weeds
31.00	35.40	4.40	*Heteropogon contortus*	Black Speargrass	Native
35.40	35.80	0.40	*Melinis repens*	Red Natal Grass	Other Weeds
35.80	37.80	2.00	*Heteropogon contortus*	Black Speargrass	Native
37.80	38.20	0.40	*Senecio madagascariensis*	Fireweed	WONS
38.20	40.30	2.10	*Heteropogon contortus*	Black Speargrass	Native
40.30	40.60	0.30	*Senecio madagascariensis*	Fireweed	WONS
40.60	41.10	0.50	*Vicia sativa*	Common vetch	Other Weeds
41.10	47.30	6.20	*Heteropogon contortus*	Black Speargrass	Native
47.30	47.50	0.20	*Verbena bonariensis*	Purple-top Verbena	Other Weeds
47.50	54.90	7.40	*Heteropogon contortus*	Black Speargrass	Native
54.90	55.20	0.30	*Gomphocarpus physocarpus*	Balloon Cotton Bush	Other Weeds
55.20	57.20	2.00	*Heteropogon contortus*	Black Speargrass	Native
57.20	57.70	0.50	*Sporobolus pyramidalis*	Giant Rat's Tail Grass	Other Weeds
57.70	63.00	5.30	*Heteropogon contortus*	Black Speargrass	Native
63.00	63.40	0.40	*Gomphocarpus physocarpus*	Balloon Cotton Bush	Other Weeds
63.40	65.20	1.80	*Heteropogon contortus*	Black Speargrass	Native
65.20	65.60	0.40	*Senecio madagascariensis*	Fireweed	WONS
65.60	69.80	4.20	*Heteropogon contortus*	Black Speargrass	Native
69.80	71.30	1.50	*Vicia sativa*	Common Vetch	Other Weeds
71.30	73.40	2.10	*Heteropogon contortus*	Black Speargrass	Native
73.40	73.70	0.30	*Senecio madagascariensis*	Fireweed	WONS
73.70	83.60	9.90	*Heteropogon contortus*	Black Speargrass	Native
83.60	84.00	0.40	*Vicia sativa*	Common Vetch	Other Weeds
84.00	98.00	14.00	*Heteropogon contortus*	Black Speargrass	Native
98.00	98.20	0.20	*Senecio madagascariensis*	Fireweed	WONS
98.20	100.00	1.80	*Heteropogon contortus*	Black Speargrass	Native
Total Native Coverage (m):					85.00
Total bare ground coverage (m):					0.00

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
Total WONS Coverage (m):					1.60
Total other weeds Coverage (m):					13.40

Transect 5 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Weed Management Zone 1 - Transect 7

Date: 01.10.2025

Start location (0 m): −27.7742, 152.4937
End location (100 m): −27.7738, 152.4946

Description: Cleared paddock area with high density of pasture weeds. Native grasses dominated by *Digitaria didactyla* (Queensland Couch) with some *Senecio madagascariensis* (Fireweed).

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
0.00	91.00	91.00	*Digitaria didactyla*	Queensland Couch	Native
91.10	91.60	0.50	*Senecio madagascariensis*	Fireweed	WONS
91.60	96.50	4.90	*Digitaria didactyla*	Queensland Couch	Native
96.50	97.00	0.50	*Senecio madagascariensis*	Fireweed	WONS
97.00	100.00	3.00	*Digitaria didactyla*	Queensland Couch	Native
Total Native Coverage (m):					**98.90**
Total bare ground coverage (m):					0.00
Total WONS Coverage (m):					1.00
Total other weeds Coverage (m):					0.00

Transect 7 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Weed Management Zone 1 - Transect 11

Date: 02.10.2025

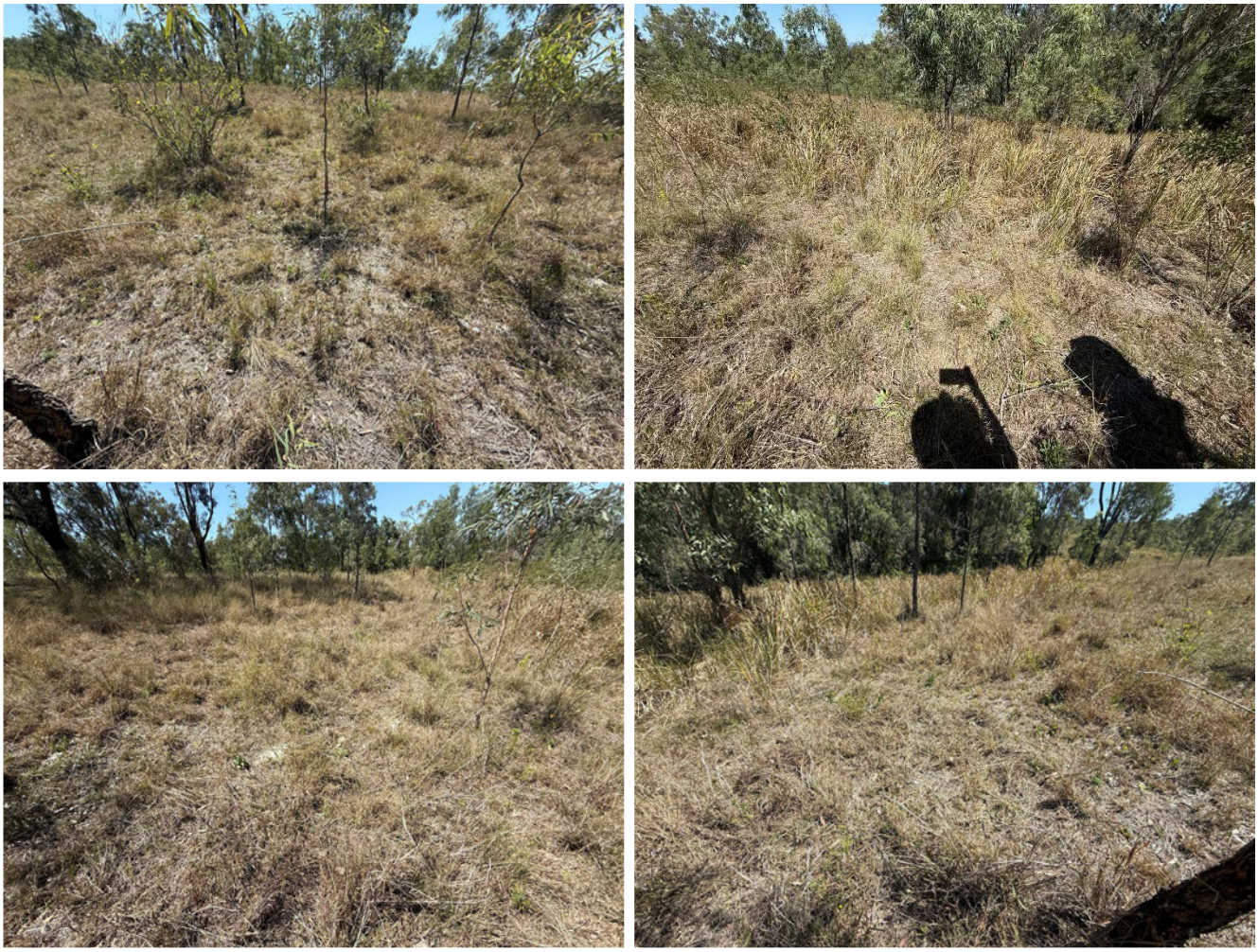
Start location (0 m): −27.7829, 152.4796
End location (100 m): −27.7838, 152.4800

Description: Native vegetation dominated the hilltop, with minor WONS and other weeds present among scattered trees and regenerating eucalypts.

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
0.00	0.30	0.30	*Digitaria didactyla* *Entolasia stricta*	Mixed Native Grass	Native
0.30	0.40	0.10	*Lantana camara*	Lantana	WONS
0.40	0.50	0.10	*Melinis repens*	Red Natal Grass	Other Weeds
0.50	0.65	0.15	*Hypochaeris glabra*	Annual Flatweed	Other Weeds
0.65	0.90	0.25	*Digitaria didactyla* *Entolasia stricta*	Mixed Native Grass	Native
0.90	2.90	2.00	*Melinis repens*	Red Natal Grass	Other Weeds
2.90	3.10	0.20	*Senecio madagascariensis*	Fireweed	WONS
3.10	5.60	2.50	*Melinis repens*	Red Natal Grass	Other Weeds
5.60	6.30	0.70	*Themeda triandra*	Kangaroo Grass	Native
6.30	7.40	1.10	*Melinis repens*	Red Natal Grass	Other Weeds
7.40	8.60	1.20	*Imperata cylindrica*	Blady Grass	Native
8.60	9.10	0.50	*Melinis repens*	Red Natal Grass	Other Weeds
9.10	9.90	0.80	*Hypochaeris glabra*	Annual Flatweed	Other Weeds
9.90	10.60	0.70	*Digitaria didactyla* *Entolasia stricta* *Chrysocephalum apiculatum*	Mixed Native Grass & Forbs	Native
10.60	10.75	0.15	*Emilia sonchifolia*	Emilia	Other Weeds
10.75	11.55	0.80	*Melinis repens*	Red Natal Grass	Other Weeds
11.55	13.70	2.15	*Imperata cylindrica*	Blady Grass	Native
13.70	13.85	0.15	*Gomphocarpus physocarpus*	Balloon Cotton Bush	Other Weeds
13.85	33.80	19.95	*Digitaria didactyla* *Imperata cylindrica*	Mixed Native Grass	Native

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
33.80	34.50	0.70	*Gomphocarpus physocarpus*	Balloon Cotton Bush	Other Weeds
34.50	36.50	2.00	*Aristida vagans* *Imperata cylindrica*	Mixed Native Grass	Native
36.50	36.75	0.25	*Gomphocarpus physocarpus*	Balloon Cotton Bush	Other Weeds
36.75	45.00	8.25	*Imperata cylindrica*	Blady Grass	Native
45.00	45.50	0.50	*Onopordum acanthium*	Scotch Thistle	Other Weeds
45.50	48.30	2.80	*Imperata cylindrica*	Blady Grass	Native
48.30	49.50	1.20	*Senecio madagascariensis*	Fireweed	WONS
49.50	52.50	3.00	*Digitaria didactyla*	Queensland Couch	Native
52.50	52.95	0.45	*Lantana camara* *Senecio madagascariensis*	Lantana & Fireweed	WONS
52.95	53.25	0.30	*Entolasia stricta*	Wiry Panic	Native
53.25	53.40	0.15	*Hypochaeris glabra*	Annual Flatweed	Other Weeds
53.40	54.10	0.70	*Bidens pilosa*	Cobbler's Pegs	Other Weeds
54.10	55.10	1.00	*Lantana camara*	Lantana	WONS
55.10	56.30	1.20	*Digitaria didactyla*	Queensland Couch	Native
56.30	56.55	0.25	*Melinis repens*	Red Natal Grass	Other Weeds
56.55	57.70	1.15	*Digitaria didactyla*	Queensland Couch	Native
57.70	57.90	0.20	*Senecio madagascariensis*	Fireweed	WONS
57.90	58.70	0.80	*Digitaria didactyla*	Queensland Couch	Native
58.70	60.80	2.10	*Melinis repens*	Red Natal Grass	Other Weeds
60.80	61.00	0.20	*Bidens pilosa*	Cobbler's Pegs	Other Weeds
61.00	64.30	3.30	*Digitaria didactyla*	Queensland Couch	Native
64.30	65.00	0.70	*Melinis repens*	Red Natal Grass	Other Weeds
65.00	73.30	8.30	*Digitaria didactyla*	Queensland Couch	Native
73.30	73.50	0.20	*Senecio madagascariensis*	Fireweed	WONS
73.50	76.60	3.10	*Digitaria didactyla*	Queensland Couch	Native
76.60	80.90	4.30	*Melinis repens*	Red Natal Grass	Other Weeds
80.90	82.80	1.90	*Lantana camara*	Lantana	WONS

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
82.80	84.70	1.90	*Digitaria didactyla* *Entolasia stricta*	Mixed Native Grass	Native
84.70	86.10	1.40	*Melinis repens*	Red Natal Grass	Other Weeds
86.10	87.40	1.30	*Dianella caerulea*	Blue Flax-lily	Native
87.40	88.90	1.50	*Entolasia stricta*	Wiry Panic	Native
88.90	90.10	1.20	*Melinis repens*	Red Natal Grass	Other Weeds
90.10	92.50	2.40	*Digitaria didactyla*	Queensland Couch	Native
92.50	95.00	2.50	*Melinis repens*	Red Natal Grass	Other Weeds
95.00	95.70	0.70	*Senecio madagascariensis*	Fireweed	WONS
95.70	95.90	0.20	*Axonopus compressus*	Broad-Leaved Carpet Grass	Other Weeds
95.90	96.30	0.40	*Digitaria didactyla*	Queensland Couch	Native
96.30	96.50	0.20	*Senecio madagascariensis*	Fireweed	WONS
96.50	97.80	1.30	*Themeda triandra* *Digitaria didactyla*	Mixed Native Grass	Native
97.80	100.00	2.20	*Lantana camara*	Lantana	WONS
Total Native Coverage (m):					**68.25**
Total bare ground coverage (m):					0.00
Total WONS Coverage (m):					8.35
Total other weeds Coverage (m):					23.40



Transect 11 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Weed Management Zone 1 - Transect 12

Date: 02.10.2025

Start location (0 m): −27.7739, 152.4854
End location (100 m): −27.7740, 152.4864

Description: Cleared paddock was mostly covered by native vegetation, with minor weed presence dominated by *Senecio madagascariensis* (Fireweed).

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
0.00	0.70	0.70	*Stachytarpheta jamaicensis*	Jamaica Snakeweed	Other Weeds
0.70	2.00	1.30	*Entolasia stricta*	Wiry Panic	Native
2.00	2.30	0.30	*Melinis repens*	Red Natal Grass	Native
2.30	3.40	1.10	*Stachytarpheta jamaicensis*	Jamaica Snakeweed	Other Weeds
3.40	7.40	4.00	*Digitaria didactyla* *Aristida vagans*	Mixed Native Grass	Native
7.40	8.00	0.60	*Senecio madagascariensis*	Fireweed	WONS
8.00	14.50	6.50	*Digitaria didactyla* *Aristida vagans*	Mixed Native Grass	Native
14.50	15.60	1.10	*Senecio madagascariensis*	Fireweed	WONS
15.60	15.90	0.30	*Entolasia stricta*	Wiry Panic	Native
15.90	16.10	0.20	*Onopordum acanthium*	Scotch Thistle	Other Weeds
16.10	19.50	3.40	*Entolasia stricta*	Wiry Panic	Native
19.50	20.00	0.50	*Senecio madagascariensis*	Fireweed	WONS
20.00	20.30	0.30	*Aristida vagans*	Threeawn Speargrass	Native
20.30	20.45	0.15	*Bidens pilosa*	Cobbler's Pegs	Other Weeds
20.45	23.10	2.65	*Gomphocarpus physocarpus*	Balloon Cotton Bush	Other Weeds
23.10	35.50	12.40	*Entolasia stricta* *Digitaria didactyla* *Themeda triandra*	Mixed Native Grass	Native
35.50	35.95	0.45	*Senecio madagascariensis*	Fireweed	WONS

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
35.95	38.80	2.85	*Themeda triandra* *Entolasia stricta*	Mixed Native Grass	Native
38.80	38.90	0.10	*Hypochaeris glabra*	Annual Flatweed	Other Weeds
38.90	46.40	7.50	*Digitaria didactyla*	Queensland Couch	Native
46.40	46.50	0.10	*Senecio madagascariensis*	Fireweed	WONS
46.50	51.50	5.00	*Entolasia stricta* *Digitaria didactyla* *Themeda triandra*	Mixed Native Grass	Native
51.50	51.65	0.15	*Senecio madagascariensis*	Fireweed	WONS
51.65	67.10	15.45	*Digitaria didactyla* *Aristida vagans*	Mixed Native Grass	Native
67.10	67.30	0.20	*Stachytarpheta jamaicensis*	Jamaica Snakeweed	Other Weeds
67.30	68.10	0.80	*Entolasia stricta*	Wiry Panic	Native
68.10	68.30	0.20	*Senecio madagascariensis*	Fireweed	WONS
68.30	72.70	4.40	*Entolasia stricta* *Digitaria didactyla* *Themeda triandra*	Mixed Native Grass	Native
72.70	72.90	0.20	*Axonopus compressus*	Broad-Leaved Carpet Grass	Other Weeds
72.90	73.90	1.00	*Entolasia stricta* *Themeda triandra*	Mixed Native Grass	Native
73.90	74.35	0.45	*Senecio madagascariensis*	Fireweed	WONS
74.35	88.00	13.65	*Entolasia stricta* *Digitaria didactyla* *Themeda triandra*	Mixed Native Grass	Native
88.00	88.30	0.30	*Senecio madagascariensis*	Fireweed	WONS
88.30	91.50	3.20	*Entolasia stricta* *Digitaria didactyla* *Themeda triandra*	Mixed Native Grass	Native
91.50	92.00	0.50	*Senecio madagascariensis*	Fireweed	WONS
92.00	94.70	2.70	*Entolasia stricta* *Digitaria didactyla* *Themeda triandra*	Mixed Native Grass	Native

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
94.70	95.00	0.30	*Gomphocarpus physocarpus*	Balloon Cotton Bush	Other Weeds
95.00	98.50	3.50	*Entolasia stricta* *Digitaria didactyla* *Themeda triandra*	Mixed Native Grass	Native
98.50	99.80	1.30	*Melinis repens*	Red Natal Grass	Other Weeds
99.80	100.00	0.20	*Entolasia stricta* *Digitaria didactyla* *Themeda triandra*	Mixed Native Grass	Native
Total Native Coverage (m):					**88.75**
Total bare ground coverage (m):					0.00
Total WONS Coverage (m):					4.35
Total other weeds Coverage (m):					6.90

Transect 12 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Weed Management Zone 1 - Transect 13

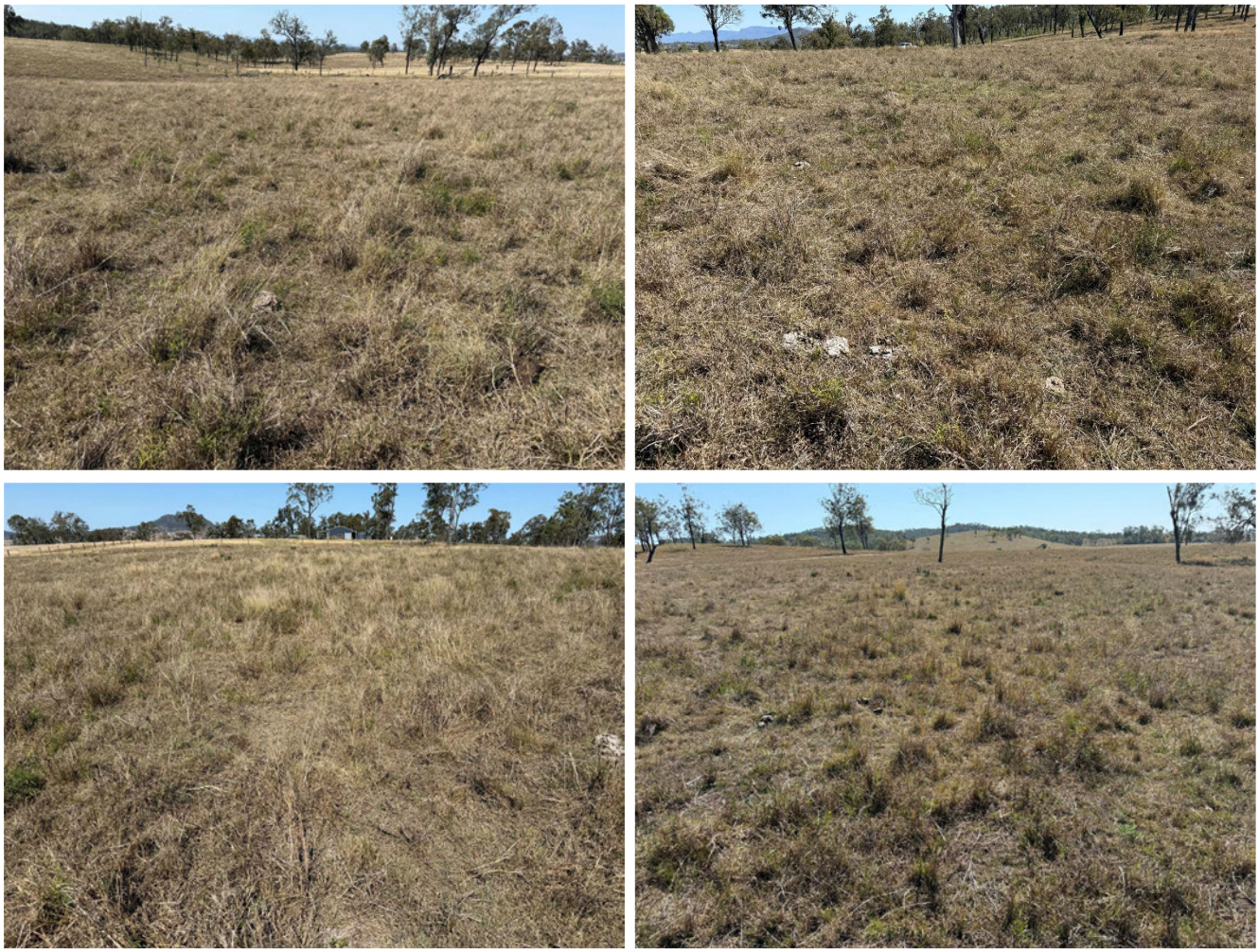
Date: 02.10.2025

Start location (0 m): – 27.7809, 152.4940
End location (100 m): –27.7800, 152.4943

Description: Cleared paddock dominated by native grasses, primarily *Digitaria didactyla* (Queensland Couch). Weed cover along the transect was low (15.3%) and dominated by *Senecio madagascariensis* (Fireweed)

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
0.00	1.30	1.30	*Digitaria didactyla*	Queensland Couch	Native
1.30	3.40	2.10	*Senecio madagascariensis*	Fireweed	WONS
3.40	4.30	0.90	*Digitaria didactyla*	Queensland Couch	Native
4.30	6.70	2.40	*Digitaria didactyla*	Queensland Couch	Native
6.70	6.90	0.20	*Chloris virgata*	Feathertop Rhodes Grass	Other Weeds
6.90	7.00	0.10	*Digitaria didactyla*	Queensland Couch	Native
7.00	7.15	0.15	*Senecio madagascariensis*	Fireweed	WONS
7.15	8.50	1.35	*Digitaria didactyla* *Themedia triandra*	Mixed Native Grass	Native
8.50	8.65	0.15	*Senecio madagascariensis*	Fireweed	WONS
8.65	9.10	0.45	*Digitaria didactyla*	Queensland Couch	Native
9.10	9.25	0.15	*Senecio madagascariensis*	Fireweed	WONS
9.25	10.80	1.55	*Digitaria didactyla*	Queensland Couch	Native
10.80	10.98	0.18	*Senecio madagascariensis*	Fireweed	WONS
10.98	12.70	1.72	*Digitaria didactyla*	Queensland Couch	Native
12.70	12.85	0.15	*Juncus usitatus*	Common Rush	Native
12.85	18.90	6.05	*Digitaria didactyla*	Queensland Couch	Native
18.90	19.10	0.20	*Juncus usitatus*	Common Rush	Native
19.10	20.40	1.30	*Digitaria didactyla*	Queensland Couch	Native
20.40	20.65	0.25	*Juncus usitatus*	Common Rush	Native
20.65	20.95	0.30	*Senecio madagascariensis*	Fireweed	WONS
20.95	22.20	1.25	*Digitaria didactyla*	Queensland Couch	Native
22.20	23.00	0.80	*Senecio madagascariensis*	Fireweed	WONS
23.00	23.40	0.40	*Juncus usitatus*	Common Rush	Native

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
23.40	25.20	1.80	*Senecio madagascariensis*	Fireweed	WONS
25.20	26.90	1.70	*Digitaria didactyla*	Queensland Couch	Native
26.90	27.85	0.95	*Senecio madagascariensis*	Fireweed	WONS
27.85	39.20	11.35	*Digitaria didactyla*	Queensland Couch	Native
39.20	41.70	2.50	*Senecio madagascariensis*	Fireweed	WONS
41.70	45.40	3.70	*Digitaria didactyla*	Queensland Couch	Native
45.40	45.70	0.30	*Senecio madagascariensis*	Fireweed	WONS
45.70	57.80	12.10	*Entolasia stricta*	Wiry Panic	Native
57.80	58.40	0.60	*Senecio madagascariensis*	Fireweed	WONS
58.40	67.90	9.50	*Digitaria didactyla*	Queensland Couch	Native
67.90	68.10	0.20	*Senecio madagascariensis*	Fireweed	WONS
68.10	72.20	4.10	*Gomphocarpus physocarpus*	Balloon Cotton Bush	Other Weeds
72.20	83.60	11.40	*Digitaria didactyla*	Queensland Couch	Native
83.60	83.95	0.35	*Senecio madagascariensis*	Fireweed	WONS
83.95	94.00	10.05	*Digitaria didactyla*	Queensland Couch	Native
94.00	94.20	0.20	*Gomphrena celosioides*	Gomphrena Weed	Other Weeds
94.20	100.00	5.80	*Digitaria didactyla*	Queensland Couch	Native
Total Native Coverage (m):					84.97
Total bare ground coverage (m):					0.00
Total WONS Coverage (m):					10.53
Total other weeds Coverage (m):					4.50



Transect 13 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Weed Management Zone 2 - Transect 6

Date: 01.10.2025

Start location (0 m): −27.7732, 152.4961
End location (100 m): −27.7729, 152.4950

Description: Mature eucalypts with cleared understory for grazing. Largely dominated by mixed native grasses with only 2.3% weed cover across the entire transect.

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
0.00	1.60	1.60	*Entolasia stricta* *Heteropogon contortus*	Mixed Native Grass	Native
1.60	1.70	0.10	*Achyranthes aspera*	Devil's Horsewhip	Other Weeds
1.70	13.00	11.30	*Entolasia stricta* *Heteropogon contortus*	Mixed Native Grass	Native
13.00	14.70	1.70	-	Litter	Litter
14.70	22.00	7.30	*Eragrostis brownii* *Entolasia stricta* *Heteropogon contortus*	Mixed Native Grass	Native
22.00	22.10	0.10	*Asclepias curassavica*	Red-headed Cotton Bush	Other Weeds
22.10	26.50	4.40	*Eragrostis brownii* *Entolasia stricta* *Heteropogon contortus*	Mixed Native Grass	Native
26.50	26.70	0.20	*Senecio madagascariensis*	Fireweed	WONS
26.70	32.70	6.00	*Eragrostis brownii* *Entolasia stricta* *Heteropogon contortus*	Mixed Native Grass	Native
32.70	32.90	0.20	*Senecio madagascariensis*	Fireweed	WONS
32.90	33.80	0.90	*Eragrostis brownii* *Entolasia stricta* *Heteropogon contortus*	Mixed Native Grass	Native
33.80	34.00	0.20	*Senecio madagascariensis*	Fireweed	WONS
34.00	44.30	10.30	*Eragrostis brownii* *Entolasia stricta* *Heteropogon contortus*	Mixed Native Grass	Native
44.30	44.60	0.30	*Senecio madagascariensis*	Fireweed	WONS

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
44.60	55.10	10.50	*Eragrostis brownii* *Entolasia stricta* *Heteropogon contortus*	Mixed Native Grass	Native
55.10	55.30	0.20	*Dianella caerulea*	Blue Flax-lily	Native
55.30	59.60	4.30	*Eragrostis brownii* *Entolasia stricta* *Heteropogon contortus* *Themeda triandra*	Mixed Native Grass	Native
59.60	59.90	0.30	*Senecio madagascariensis*	Fireweed	WONS
59.90	74.30	14.40	*Eragrostis brownii* *Entolasia stricta* *Heteropogon contortus* *Themeda triandra*	Mixed Native Grass	Native
74.30	74.60	0.30	*Senecio madagascariensis*	Fireweed	WONS
74.60	89.60	15.00	*Eragrostis brownii* *Entolasia stricta* *Heteropogon contortus* *Themeda triandra*	Mixed Native Grass	Native
89.60	90.00	0.40	*Senecio madagascariensis*	Fireweed	WONS
90.00	92.90	2.90	*Eragrostis brownii* *Entolasia stricta* *Heteropogon contortus* *Themeda triandra*	Mixed Native Grass	Native
92.90	93.10	0.20	*Asclepias curassavica*	Red-headed Cotton Bush	Other Weeds
93.10	100.00	6.90	*Eragrostis brownii* *Entolasia stricta* *Heteropogon contortus* *Themeda triandra*	Mixed Native Grass	Native
Total Native Coverage (m):					96.00
Total bare ground/litter coverage (m):					1.70
Total WONS Coverage (m):					1.90
Total other weeds Coverage (m):					0.40

Transect 6 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Weed Management Zone 2 - Transect 8

Date: 01.10.2025

Start location (0 m): −27.7728, 152.4903
End location (100 m): −27.7729, 152.4913

Description: Cleared understory dominated by native grasses, primarily *Digitaria didactyla* (Queensland Couch), *Entolasia stricta* (Wiry Panic) and *Themeda triandra* (Kangaroo Grass). Very low weed cover (4.50%)

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
0.00	2.80	2.80	*Entolasia stricta* *Digitaria didactyla* *Themeda triandra*	Mixed Native Grass	Native
2.80	3.70	0.90	*Senecio madagascariensis*	Fireweed	WONS
3.70	11.00	7.30	*Entolasia stricta* *Digitaria didactyla* *Themeda triandra*	Mixed Native Grass	Native
11.00	11.20	0.20	*Senecio madagascariensis*	Fireweed	WONS
11.20	21.60	10.40	*Entolasia stricta* *Digitaria didactyla* *Themeda triandra*	Mixed Native Grass	Native
21.60	21.80	0.20	*Senecio madagascariensis*	Fireweed	WONS
21.80	28.70	6.90	*Entolasia stricta* *Digitaria didactyla* *Themeda triandra*	Mixed Native Grass	Native
28.70	28.90	0.20	*Senecio madagascariensis*	Fireweed	WONS
28.90	34.20	5.30	*Entolasia stricta* *Digitaria didactyla* *Themeda triandra*	Mixed Native Grass	Native
34.20	34.50	0.30	*Senecio madagascariensis*	Fireweed	WONS
34.50	35.20	0.70	*Entolasia stricta* *Digitaria didactyla* *Themeda triandra*	Mixed Native Grass	Native
35.20	35.50	0.30	*Senecio madagascariensis*	Fireweed	WONS
35.50	37.20	1.70	*Entolasia stricta* *Digitaria didactyla* *Themeda triandra*	Mixed Native Grass	Native
37.20	38.20	1.00	*Senecio madagascariensis*	Fireweed	WONS

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
38.20	38.80	0.60	*Entolasia stricta* *Digitaria didactyla* *Themeda triandra*	Mixed Native Grass	Native
38.80	39.90	1.10	*Senecio madagascariensis*	Fireweed	WONS
39.90	40.50	0.60	*Entolasia stricta* *Digitaria didactyla* *Themeda triandra*	Mixed Native Grass	Native
40.50	40.80	0.30	*Senecio madagascariensis*	Fireweed	WONS
40.80	100.00	59.20	*Entolasia stricta* *Digitaria didactyla* *Themeda triandra*	Mixed Native Grass	Native
Total Native Coverage (m):					95.50
Total bare ground coverage (m):					0.00
Total WONS Coverage (m):					4.50
Total other weeds Coverage (m):					0.00

Transect 8 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Weed Management Zone 2 - Transect 9

Date: 02.10.2025

Start location (0 m): −27.7819, 152.4917
End location (100 m): −27.7814, 152.4926

Description: Cleared paddock dominated by native grasses, primarily *Entolasia stricta* (Wiry Panic). Low presence of weed mostly including *Senecio madagascariensis* (Fireweed).

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
0.00	0.20	0.20	*Axonopus compressus*	Broad-Leaved Carpet Grass	Other Weeds
0.20	0.30	0.10	*Melinis repens*	Red Natal Grass	Other Weeds
0.30	0.60	0.30	*Entolasia stricta*	Wiry Panic	Native
0.60	0.90	0.30	*Senecio madagascariensis*	Fireweed	WONS
0.90	2.50	1.60	*Entolasia stricta*	Wiry Panic	Native
2.50	2.90	0.40	*Senecio madagascariensis*	Fireweed	WONS
2.90	4.60	1.70	*Entolasia stricta*	Wiry Panic	Native
4.60	5.20	0.60	*Senecio madagascariensis*	Fireweed	WONS
5.20	5.50	0.30	*Entolasia stricta*	Wiry Panic	Native
5.50	5.90	0.40	*Senecio madagascariensis*	Fireweed	WONS
5.90	7.90	2.00	*Entolasia stricta*	Wiry Panic	Native
7.90	8.10	0.20	*Senecio madagascariensis*	Fireweed	WONS
8.10	11.40	3.30	*Entolasia stricta*	Wiry Panic	Native
11.40	12.25	0.85	*Senecio madagascariensis*	Fireweed	WONS
12.25	15.40	3.15	*Entolasia stricta*	Wiry Panic	Native
15.40	16.70	1.30	*Senecio madagascariensis*	Fireweed	WONS
16.70	17.40	0.70	*Entolasia stricta*	Wiry Panic	Native
17.40	17.80	0.40	*Senecio madagascariensis*	Fireweed	WONS
17.80	25.20	7.40	*Entolasia stricta*	Wiry Panic	Native
25.20	25.70	0.50	*Senecio madagascariensis*	Fireweed	WONS
25.70	26.90	1.20	*Entolasia stricta*	Wiry Panic	Native
26.90	27.40	0.50	*Senecio madagascariensis*	Fireweed	WONS
27.40	31.60	4.20	*Entolasia stricta*	Wiry Panic	Native

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
31.60	32.40	0.80	*Themeda triandra*	Kangaroo Grass	Native
32.40	32.70	0.30	*Senecio madagascariensis*	Fireweed	WONS
32.70	33.10	0.40	*Imperata cylindrica*	Blady Grass	Native
33.10	33.70	0.60	*Senecio madagascariensis*	Fireweed	WONS
33.70	36.20	2.50	*Imperata cylindrica*	Blady Grass	Native
36.20	38.20	2.00	*Entolasia stricta*	Wiry Panic	Native
38.20	38.70	0.50	*Senecio madagascariensis*	Fireweed	WONS
38.70	42.90	4.20	*Entolasia stricta*	Wiry Panic	Native
42.90	43.05	0.15	*Senecio madagascariensis*	Fireweed	WONS
43.05	50.00	6.95	*Entolasia stricta* *Digitaria didactyla*	Mixed Native Grass	Native
50.00	55.70	5.70	*Entolasia stricta* *Digitaria didactyla* *Heteropogon contortus*	Mixed Native Grass	Native
55.70	57.60	1.90	*Senecio madagascariensis*	Fireweed	WONS
57.60	74.80	17.20	*Imperata cylindrica* *Entolasia stricta*	Mixed Native Grass	Native
74.80	75.00	0.20	*Senecio madagascariensis*	Fireweed	WONS
75.00	85.20	10.20	*Entolasia stricta*	Wiry Panic	Native
85.20	85.30	0.10	*Senecio madagascariensis*	Fireweed	WONS
85.30	95.60	10.30	*Entolasia stricta* *Heteropogon contortus*	Mixed Native Grass	Native
95.60	95.80	0.20	*Melinis repens*	Red Natal Grass	Other Weeds
95.80	100.00	4.20	*Entolasia stricta* *Digitaria didactyla* *Heteropogon contortus*	Mixed Native Grass	Native
Total Native Coverage (m):					90.30
Total bare ground coverage (m):					0.00
Total WONS Coverage (m):					9.20
Total other weeds Coverage (m):					0.50

Transect 9 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Weed Management Zone 2 - Transect 10

Date: 02.10.2025

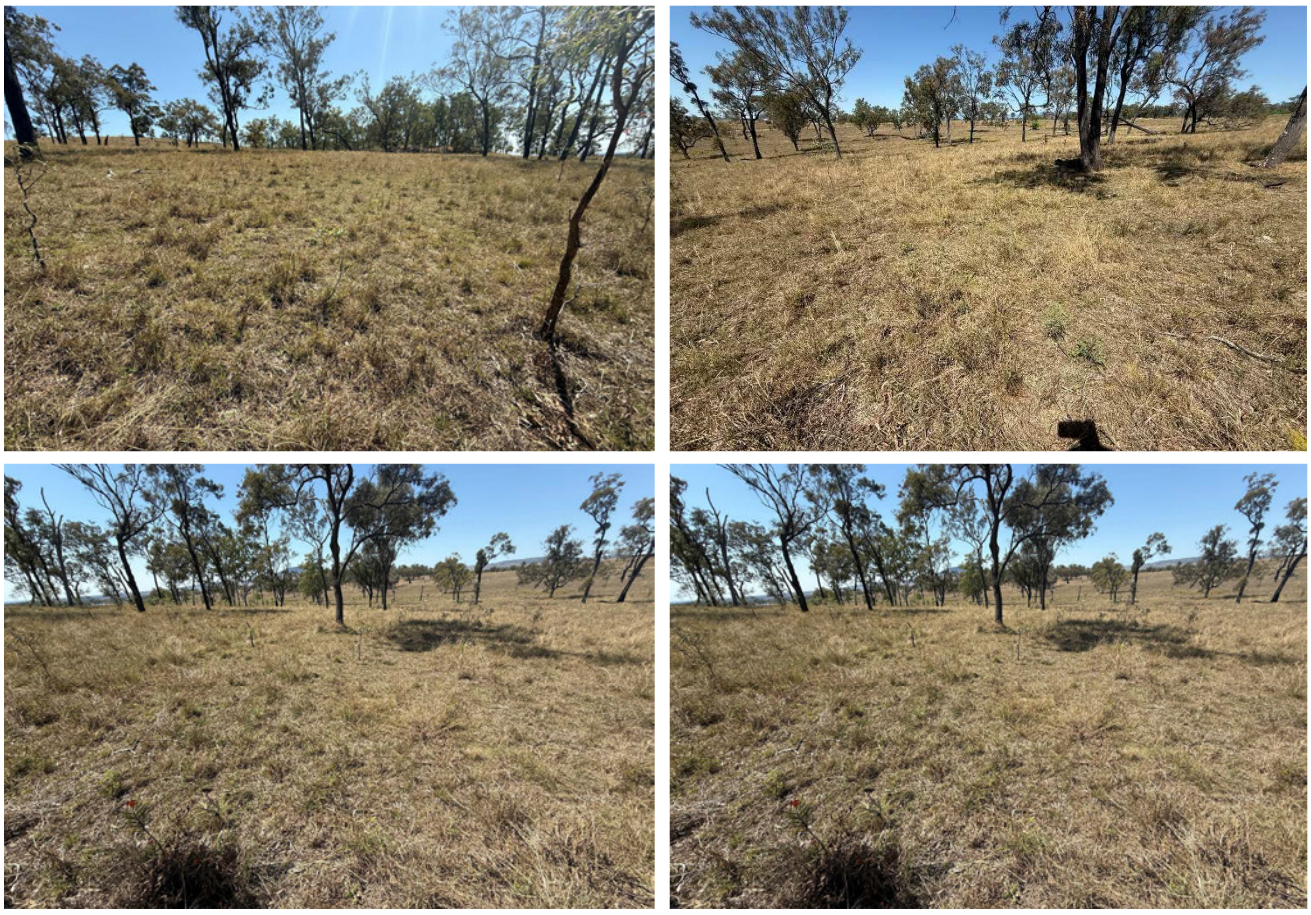
Start location (0 m): −27.7805, 152.4842
End location (100 m): −27.7797, 152.4847

Description: Cleared paddock dominated by native grasses, primarily *Digitaria didactyla* (Queensland Couch) and *Entolasia stricta* (Wiry Panic). Relatively high diversity of weed species, however occupying only 11.3% of transect.

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
0.00	0.10	0.10	*Senecio madagascariensis*	Fireweed	WONS
0.10	1.20	1.10	*Entolasia stricta*	Wiry Panic	Native
1.20	1.90	0.70	*Senecio madagascariensis*	Fireweed	WONS
1.90	3.70	1.80	*Entolasia stricta*	Wiry Panic	Native
3.70	4.20	0.50	*Stachytarpheta jamaicensis*	Jamaica Snakeweed	Other Weeds
4.20	6.50	2.30	*Entolasia stricta* *Digitaria didactyla*	Mixed Native Grass	Native
6.50	6.80	0.30	*Melinis repens*	Red Natal Grass	Other Weeds
6.80	6.90	0.10	*Asclepias curassavica*	Red-headed Cotton Bush	Other Weeds
6.90	7.30	0.40	*Entolasia stricta* *Digitaria didactyla*	Mixed Native Grass	Native
7.30	7.70	0.40	*Senecio madagascariensis*	Fireweed	WONS
7.70	8.30	0.60	*Entolasia stricta* *Digitaria didactyla*	Mixed Native Grass	Native
8.30	8.50	0.20	*Lantana camara*	Lantana	WONS
8.50	11.10	2.60	*Entolasia stricta*	Wiry Panic	Native
11.10	11.30	0.20	*Senecio madagascariensis*	Fireweed	WONS
11.30	12.30	1.00	*Digitaria didactyla*	Queensland Couch	Native
12.30	12.70	0.40	*Senecio madagascariensis*	Fireweed	WONS
12.70	27.50	14.80	*Entolasia stricta* *Digitaria didactyla*	Mixed Native Grass	Native
27.50	27.80	0.30	*Senecio madagascariensis*	Fireweed	WONS
27.80	33.90	6.10	*Entolasia stricta* *Digitaria didactyla*	Mixed Native Grass	Native
33.90	34.20	0.30	*Melinis repens*	Red Natal Grass	Other Weeds

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
34.20	37.30	3.10	*Entolasia stricta* *Digitaria didactyla*	Mixed Native Grass	Native
37.30	37.60	0.30	*Senecio madagascariensis*	Fireweed	WONS
37.60	46.70	9.10	*Entolasia stricta* *Digitaria didactyla*	Mixed Native Grass	Native
46.70	47.00	0.30	*Hypochaeris albiflora*	White Flatweed	Other Weeds
47.00	56.30	9.30	*Entolasia stricta* *Digitaria didactyla*	Mixed Native Grass	Native
56.30	56.60	0.30	*Stachytarpheta jamaicensis*	Jamaica Snakeweed	Other Weeds
56.60	64.80	8.20	*Entolasia stricta* *Digitaria didactyla*	Mixed Native Grass	Native
64.80	65.15	0.35	*Senecio madagascariensis*	Fireweed	WONS
65.15	71.40	6.25	*Entolasia stricta* *Digitaria didactyla*	Mixed Native Grass	Native
71.40	72.05	0.65	*Senecio madagascariensis*	Fireweed	WONS
72.05	74.00	1.95	*Entolasia stricta* *Digitaria didactyla*	Mixed Native Grass	Native
74.00	74.15	0.15	*Melinis repens*	Red Natal Grass	Other Weeds
74.15	76.90	2.75	*Entolasia stricta* *Digitaria didactyla*	Mixed Native Grass	Native
76.90	77.90	1.00	*Senecio madagascariensis*	Fireweed	WONS
77.90	78.30	0.40	*Entolasia stricta* *Digitaria didactyla*	Mixed Native Grass	Native
78.30	80.00	1.70	*Senecio madagascariensis*	Fireweed	WONS
80.00	80.40	0.40	*Entolasia stricta* *Digitaria didactyla*	Mixed Native Grass	Native
80.40	82.30	1.90	*Senecio madagascariensis*	Fireweed	WONS
82.30	83.00	0.70	*Entolasia stricta* *Digitaria didactyla*	Mixed Native Grass	Native
83.00	83.40	0.40	*Senecio madagascariensis*	Fireweed	WONS
83.40	84.10	0.70	*Entolasia stricta* *Digitaria didactyla*	Mixed Native Grass	Native
84.10	84.25	0.15	*Gomphocarpus physocarpus*	Balloon Cotton Bush	Other Weeds

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
84.25	84.65	0.40	*Entolasia stricta* *Digitaria didactyla*	Mixed Native Grass	Native
84.65	84.95	0.30	*Senecio madagascariensis*	Fireweed	WONS
84.95	92.70	7.75	*Entolasia stricta* *Digitaria didactyla*	Mixed Native Grass	Native
92.70	93.00	0.30	*Senecio madagascariensis*	Fireweed	WONS
93.00	100.00	7.00	*Entolasia stricta* *Digitaria didactyla*	Mixed Native Grass	Native
Total Native Coverage (m):					88.70
Total bare ground coverage (m):					0.00
Total WONS Coverage (m):					9.20
Total other weeds Coverage (m):					2.10



Transect 10 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Weed Management Zone 3 - Transect 1

Date: 02.10.2025

Start location (0 m): −27.7833, 152.4768
End location (100 m): −27.7831, 152.4758

Description: Dominated by *Lantana camara* (Lantana) encompassing 68.9% and smothering native species, with only native *Imperata cylindrica* (Blady grass) present intermittently. Additional weed species include *Celtis sinensis* (Chinese Elm) and *Cirsium vulgare* (Spear Thistle)

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
0.00	0.80	0.80	*Heteropogon contortus*	Black Speargrass	Native
0.80	0.90	0.10	*Cirsium vulgare*	Spear Thistle	Other Weeds
0.90	1.90	1.00	*Lantana camara*	Lantana	WONS
1.90	3.90	2.00	*Imperata cylindrica*	Blady Grass	Native
3.90	11.50	7.60	*Lantana camara*	Lantana	WONS
11.50	13.00	1.50	*Imperata cylindrica*	Blady Grass	Native
13.00	16.40	3.40	*Lantana camara*	Lantana	WONS
16.40	17.80	1.40	*Imperata cylindrica*	Blady Grass	Native
17.80	29.40	11.60	*Lantana camara*	Lantana	WONS
29.40	31.00	1.60	*Imperata cylindrica*	Blady Grass	Native
31.00	34.90	3.90	*Maclura cochinchinensis*	Cockspur Vine	Native
34.90	46.60	11.70	*Lantana camara*	Lantana	WONS
46.60	53.10	6.50	*Melinis repens*	Red Natal Grass	Other Weeds
53.10	59.90	6.80	*Imperata cylindrica*	Blady Grass	Native
59.90	77.40	17.50	*Lantana camara*	Lantana	WONS
77.40	80.90	3.50	*Celtis sinensis*	Chinese Elm	Other Weeds
80.90	97.00	16.10	*Lantana camara*	Lantana	WONS
97.00	100.00	3.00	*Imperata cylindrica*	Blady Grass	Native
Total Native Coverage (m):					21.00
Total bare ground coverage (m):					0.00
Total WONS Coverage (m):					68.90
Total other weeds Coverage (m):					10.10

Transect 1 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Weed Management Zone 3 - Transect 2

Date: 02.10.2025

Start location (0 m): −27.7791, 152.4743
End location (100 m): −27.7799, 152.4744

Description: Vegetated area consisting of mature and regrowth eucalyptus tree species. Ground layer dominated by native grass *Heteropogon contortus* (Black Speargrass) with some *Lantana camara* (Lantana) present.

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
0.00	1.70	1.70	*Melinis repens*	Red Natal Grass	Other Weeds
1.70	12.10	10.40	*Heteropogon contortus*	Black Speargrass	Native
12.10	13.40	1.30	*Melinis repens*	Red Natal Grass	Other Weeds
13.40	26.70	13.30	*Heteropogon contortus*	Black Speargrass	Native
26.70	30.20	3.50	*Melinis repens*	Red Natal Grass	Other Weeds
30.20	35.00	4.80	*Heteropogon contortus*	Black Speargrass	Native
35.00	38.00	3.00	*Melinis repens*	Red Natal Grass	Other Weeds
38.00	45.80	7.80	*Heteropogon contortus* *Aristida vagans*	Mixed Native Grass	Native
45.80	48.30	2.50	*Lantana camara*	Lantana	WONS
48.30	61.70	13.40	*Heteropogon contortus*	Black Speargrass	Native
61.70	61.80	0.10	*Asclepias curassavica*	Red-headed Cotton Bush	Other Weeds
61.80	63.10	1.30	*Melinis repens*	Red Natal Grass	Other Weeds
63.10	89.00	25.90	*Imperata cylindrica* *Heteropogon contortus* *Themeda triandra*	Mixed Native Grass	Native
89.00	90.30	1.30	*Lantana camara*	Lantana	WONS
90.30	94.30	4.00	*Heteropogon contortus* *Themeda triandra*	Mixed Native Grass	Native
94.30	95.90	1.60	*Lantana camara*	Lantana	WONS
95.90	98.40	2.50	*Melinis repens*	Red Natal Grass	Other Weeds
98.40	100.00	1.60	*Lantana camara*	Lantana	WONS
Total Native Coverage (m):					79.60
Total bare ground coverage (m):					0.00
Total WONS Coverage (m):					7.00

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
Total other weeds Coverage (m):					13.40

Transect 2 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Weed Management Zone 3 - Transect 3

Date: 02.10.2025

Start location (0 m): −27.7764, 152.4764
End location (100 m): −27.7755, 152.4766

Description: Vegetated area comprised of mature and regrowth eucalyptus, with the ground layer dominated by native *Heteropogon contortus* (Black Speargrass) with some *Lantana camara* (Lantana).

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
0.00	3.40	3.40	*Heteropogon contortus*	Black Speargrass	Native
3.40	4.60	1.20	-	Litter	Litter
4.60	6.10	1.50	*Melinis repens*	Red Natal Grass	Other Weeds
6.10	8.50	2.40	*Lantana camara*	Lantana	WONS
8.50	12.00	3.50	*Heteropogon contortus*	Black Speargrass	Native
12.00	13.90	1.90	*Melinis repens*	Red Natal Grass	Other Weeds
13.90	17.60	3.70	*Heteropogon contortus*	Black Speargrass	Native
17.60	20.70	3.10	-	Litter	Litter
20.70	27.30	6.60	*Lantana camara*	Lantana	WONS
27.30	33.90	6.60	*Heteropogon contortus*	Black Speargrass	Native
33.90	35.50	1.60	*Lantana camara*	Lantana	WONS
35.50	36.20	0.70	-	Litter	Litter
36.20	37.00	0.80	*Melinis repens*	Red Natal Grass	Other Weeds
37.00	41.50	4.50	*Heteropogon contortus*	Black Speargrass	Native
41.50	47.90	6.40	*Lantana camara*	Lantana	WONS
47.90	49.40	1.50	-	Litter	Litter
49.40	53.00	3.60	*Lantana camara*	Lantana	WONS
53.00	56.30	3.30	*Heteropogon contortus*	Black Speargrass	Native
56.30	59.40	3.10	*Lantana camara*	Lantana	WONS
59.40	84.90	25.50	*Heteropogon contortus*	Black Speargrass	Native
84.90	85.20	0.30	*Opuntia tomentosa*	Velvet Tree Pear	WONS
85.20	100.00	14.80	*Heteropogon contortus*	Black Speargrass	Native
Total Native Coverage (m):					65.30
Total bare ground/litter coverage (m):					6.50

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
Total WONS Coverage (m):					24.00
Total other weeds Coverage (m):					4.20

Transect 3 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Weed Management Zone 3 - Transect 4

Date: 30.09.2025

Start location (0 m): −27.7801, 152.4775
End location (100 m): −27.7807, 152.4781

Description: Mature and regrowth eucalyptus formed the canopy, while the ground layer was largely *Imperata cylindrica* (Blady Grass) with occasional *Lantana camara* (Lantana).

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
0.00	2.00	2.00	*Imperata cylindrica*	Blady Grass	Native
2.00	4.50	2.50	*Lantana camara*	Lantana	WONS
4.50	5.60	1.10	*Imperata cylindrica*	Blady Grass	Native
5.60	14.30	8.70	*Lantana camara*	Lantana	WONS
14.30	37.70	23.40	*Imperata cylindrica*	Blady Grass	Native
37.70	46.10	8.40	*Lantana camara*	Lantana	WONS
46.10	85.90	39.80	*Imperata cylindrica* *Themeda triandra*	Mixed Native Grass	Native
85.90	86.80	0.90	*Dianella caerulea*	Blue Flax-lily	Native
86.80	97.00	10.20	*Imperata cylindrica* *Themeda triandra*	Mixed Native Grass	Native
97.00	100.00	3.00	*Lantana camara*	Lantana	WONS
Total Native Coverage (m):					77.40
Total bare ground/litter coverage (m):					0.00
Total WONS Coverage (m):					22.60
Total other weeds Coverage (m):					0.00

Transect 4 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Weed Management Zone 5 - Transect 14

Date: 08.10.2025

Start location (0 m): −27.7830, 152.4740
End location (100 m): −27.7827, 152.4749

Description: The area was largely dominated by weeds, particularly WONS such as Lantana (*Lantana camara)*, with limited native ground cover species.

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
0.00	1.90	1.90	-	Litter	Litter
1.90	4.50	2.60	*Lantana camara*	Lantana	WONS
4.50	5.10	0.60	*Lantana montevidensis*	Creeping Lantana	Other Weeds
5.10	6.60	1.50	-	Litter	Litter
6.60	7.10	0.50	*Digitaria didactyla*	Queensland Couch	Native
7.10	8.40	1.30	-	Bareground	Bare
8.40	11.00	2.60	*Lantana camara*	Lantana	WONS
11.00	11.90	0.90	*Lomandra multiflora*	Many Flowered Mat Rush	Native
11.90	15.00	3.10	*Lantana camara*	Lantana	WONS
15.00	15.30	0.30	*Stachytarpheta jamaicensis*	Jamaica Snakeweed	Other Weeds
15.30	20.40	5.10	*Lantana camara*	Lantana	WONS
20.40	21.20	0.80	*Lomandra multiflora*	Many Flowered Mat Rush	Native
21.20	33.60	12.40	*Lantana camara*	Lantana	WONS
33.60	36.00	2.40	*Opuntia tomentosa*	Velvet Tree Pear	WONS
36.00	39.40	3.40	*Lantana camara*	Lantana	WONS
39.40	41.70	2.30	*Lantana montevidensis*	Creeping Lantana	Other Weeds
41.70	50.00	8.30	*Lantana camara*	Lantana	WONS
50.00	51.50	1.50	*Heteropogon contortus*	Black Speargrass	Native
51.50	51.80	0.30	*Gomphocarpus physocarpus*	Balloon Cotton Bush	Other Weeds
51.80	52.10	0.30	*Heteropogon contortus* *Digitaria didactyla*	Mixed Native Grass	Native
52.10	58.30	6.20	*Lantana camara*	Lantana	WONS
58.30	59.00	0.70	*Digitaria didactyla*	Queensland Couch	Native
59.00	62.10	3.10	*Lantana camara*	Lantana	WONS
62.10	63.60	1.50	*Digitaria didactyla*	Queensland Couch	Native

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
63.60	63.80	0.20	*Verbena bonariensis*	Purple-top Verbena	Other Weeds
63.80	64.20	0.40	*Digitaria didactyla*	Queensland Couch	Native
64.20	64.40	0.20	*Gomphocarpus physocarpus*	Balloon Cotton Bush	Other Weeds
64.40	65.80	1.40	*Melinis repens*	Red Natal Grass	Other Weeds
65.80	66.00	0.20	*Gomphocarpus physocarpus*	Balloon Cotton Bush	Other Weeds
66.00	68.10	2.10	*Lantana camara*	Lantana	WONS
68.10	70.50	2.40	*Digitaria didactyla*	Queensland Couch	Native
70.50	89.20	18.70	*Lantana camara*	Lantana	WONS
89.20	90.80	1.60	*Lantana montevidensis*	Creeping Lantana	Other Weeds
90.80	91.00	0.20	*Digitaria didactyla*	Queensland Couch	Native
91.00	95.00	4.00	*Lantana camara*	Lantana	WONS
95.00	96.70	1.70	*Gomphocarpus physocarpus*	Balloon Cotton Bush	Other Weeds
96.70	98.20	1.50	*Digitaria didactyla*	Queensland Couch	Native
98.20	98.80	0.60	*Melinis repens*	Red Natal Grass	Other Weeds
98.80	100.00	1.20	*Heteropogon contortus* *Digitaria didactyla*	Mixed Native Grass	Native
Total Native Coverage (m):					11.90
Total bare ground coverage (m):					4.70
Total WONS Coverage (m):					74.00
Total other weeds Coverage (m):					9.40

Transect 14 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Weed Management Zone 5 - Transect 15

Date: 08.10.2025

Start location (0 m): −27.7742, 152.4764
End location (100 m): −27.7747, 152.4756

Description: The transect was located on a mild slope face and was dominated by *Lantana camara* (Lantana), with a substantial component of native vegetation and other weeds also present.

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
0.00	3.20	3.20	*Heteropogon contortus* *Digitaria didactyla*	Mixed Native Grass	Native
3.20	7.80	4.60	*Lantana camara*	Lantana	WONS
7.80	8.80	1.00	*Heteropogon contortus* *Digitaria didactyla*	Mixed Native Grass	Native
8.80	8.90	0.10	*Melinis repens*	Red Natal Grass	Other Weeds
8.90	10.70	1.80	*Lantana camara*	Lantana	WONS
10.70	11.10	0.40	*Dianella caerulea*	Blue Flax-lily	Native
11.10	11.30	0.20	*Lantana camara*	Lantana	WONS
11.30	11.50	0.20	*Melinis repens*	Red Natal Grass	Other Weeds
11.50	12.10	0.60	*Digitaria didactyla*	Queensland Couch	Native
12.10	12.90	0.80	*Lantana camara*	Lantana	WONS
12.90	13.30	0.40	*Hypochaeris glabra*	Annual Flatweed	Other Weeds
13.30	22.20	8.90	*Imperata cylindrica*	Blady Grass	Native
22.20	22.70	0.50	*Lantana camara*	Lantana	WONS
22.70	23.40	0.70	*Imperata cylindrica*	Blady Grass	Native
23.40	33.90	10.50	*Lantana camara*	Lantana	WONS
33.90	34.60	0.70	*Melinis repens*	Red Natal Grass	Other Weeds
34.60	34.70	0.10	*Verbena bonariensis*	Purple-top Verbena	Other Weeds
34.70	35.20	0.50	*Gomphocarpus physocarpus*	Balloon Cotton Bush	Other Weeds
35.20	35.40	0.20	*Hypochaeris glabra*	Annual Flatweed	Other Weeds
35.40	36.20	0.80	-	Bareground	Bare
36.20	36.80	0.60	*Lantana camara*	Lantana	WONS
36.80	38.40	1.60	*Digitaria didactyla*	Queensland Couch	Native
38.40	38.60	0.20	*Onopordum acanthium*	Scotch Thistle	Other Weeds

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
38.60	39.90	1.30	*Hypochaeris glabra*	Annual Flatweed	Other Weeds
39.90	40.50	0.60	-	Bareground	Bare
40.50	46.40	5.90	*Lantana camara*	Lantana	WONS
46.40	47.30	0.90	*Heteropogon contortus*	Black Speargrass	Native
47.30	47.50	0.20	*Hypochaeris glabra*	Annual Flatweed	Other Weeds
47.50	51.50	4.00	*Heteropogon contortus* *Digitaria didactyla*	Mixed Native Grass	Native
51.50	63.50	12.00	*Lantana camara*	Lantana	WONS
63.50	64.20	0.70	*Dianella caerulea*	Blue Flax-lily	Native
64.20	64.60	0.40	*Melinis repens*	Red Natal Grass	Other Weeds
64.60	66.50	1.90	-	Bareground	Bare
66.50	66.80	0.30	*Stachytarpheta jamaicensis*	Jamaica Snakeweed	Other Weeds
66.80	67.30	0.50	*Heteropogon contortus*	Black Speargrass	Native
67.30	68.00	0.70	-	Litter	Litter
68.00	69.30	1.30	*Sporobolus pyramidalis*	Giant Rat's Tail Grass	Other Weeds
69.30	74.40	5.10	*Lantana camara*	Lantana	WONS
74.40	74.80	0.40	-	Bareground	Bare
74.80	75.30	0.50	*Dianella caerulea*	Blue Flax-lily	Native
75.30	75.60	0.30	-	Bareground	Bare
75.60	75.90	0.30	*Sporobolus pyramidalis*	Giant Rat's Tail Grass	Other Weeds
75.90	78.90	3.00	*Lantana camara*	Lantana	WONS
78.90	84.40	5.50	*Heteropogon contortus* *Digitaria didactyla*	Mixed Native Grass	Native
84.40	84.90	0.50	*Lantana camara*	Lantana	WONS
84.90	91.60	6.70	*Sporobolus pyramidalis*	Giant Rat's Tail Grass	Other Weeds
91.60	92.60	1.00	*Heteropogon contortus*	Black Speargrass	Native
92.60	92.90	0.30	*Dianella caerulea*	Blue Flax-lily	Native
92.90	94.10	1.20	*Digitaria didactyla*	Queensland Couch	Native
94.10	96.60	2.50	*Lantana camara*	Lantana	WONS
96.60	100.00	3.40	*Heteropogon contortus* *Digitaria didactyla*	Mixed Native Grass	Native
Total Native Coverage (m):					34.40

Start (m)	End (m)	Interval (m)	Scientific Name	Common Name	Type
Total bare ground coverage (m):					4.70
Total WONS Coverage (m):					48.00
Total other weeds Coverage (m):					12.90

Transect 15 – Photos North (top-left), South (top-right), East (bottom-left) and West (bottom-right) from the centre point (50 metres) of the ground cover line.

Appendix H

Risk Assessment

Risk Assessment for Mount Walker West Offset Area

A qualitative risk assessment which considers the risks of achieving the objectives and outcomes for the offset area is presented in the table below. The risk assessment is completed in accordance with the EPBC Act Environmental Management Plan Guidelines (2014) and characterises risk as low, medium, high or severe, as derived from the likelihood (highly likely, likely, possible, unlikely, rare) and consequence (minor, moderate, high, major and critical) risk matrix.

The risk analysis assesses the risk of failure to achieve the OAMP management objectives. It is necessary to re-evaluate and modify the risk analysis and contingency measures throughout the period of EPBC Act approval, particularly if any unforeseen risks emerge or any negative outcomes identified are greater than expected. During the first five (5) years of monitoring and Annual Compliance Reporting, the Land Manager and/or The Proponent will review management commitments in this offset management framework, and if the review results in the need to revise the framework it will be revised and submitted for approval. It is noted that events are only addressed once in the risk assessment under the most relevant management objective, however, some events are likely to impact on multiple management objectives.

Note, potential impacts from the occurrence of cyclones have been included within the risk analysis table. Cyclones, if to occur proximal to the offset area, are likely to result in indirect impacts only, including increased rainfall and wind events. Whilst the pathway of and occurrence of cyclones can change easily, becoming difficult to determine, an assessment of the potential associated risks has been completed. According to BoM (2019), cyclones have not traversed inland SEQ for at least the last 20 years, with the exception of Cyclone Debbie in 2017. While the risk of cyclones occurring south of 25°S has increased in more recent years, it is unlikely a formed cyclone would occur at the offset area location, nor proximal to the offset area. This is due to a range of factors, including surrounding changes in topography, modified urban environment and lack of warm open water to provide continued energy generation[1].

[1] Bureau of Meteorology 2019, *Past Tropical Cyclones*, BoM, Australian Government, accessed at http://www.bom.gov.au/cyclone/tropical-cyclone-knowledge-centre/history/past-tropical-cyclones/

Risk Rating Tabel (DAWE, 2022)

		Consequence				
		Minor	Moderate	High	Major	Critical
Likelihood	Highly Likely	Medium	High	High	Severe	Severe
	Likely	Low	Medium	High	High	Severe
	Possible	Low	Medium	Medium	High	Severe
	Unlikely	Low	Low	Medium	High	High
	Rare	Low	Low	Low	Medium	High

Likelihood and consequence

Qualitative measure of likelihood (how likely is it that this event/circumstances will occur after management actions have been put in place/are being implemented)	
Highly likely	Is expected to occur in most circumstances
Likely	Will probably occur during the life of the project
Possible	Might occur during the life of the project
Unlikely	Could occur but considered unlikely or doubtful
Rare	May occur in exceptional circumstances
Qualitative measure of consequences (what will be the consequence/result if the issue does occur)	
Minor	Minor risk of failure to achieve the plan's objectives. Results in short term delays to achieving plan objectives, implementing low cost, well characterised corrective actions.
Moderate	Moderate risk of failure to achieve the plan's objectives. Results in short term delays to achieving plan objectives, implementing well characterised, high cost/effort corrective actions.
High	High risk of failure to achieve the plan's objectives. Results in medium-long term delays to achieving plan objectives, implementing uncertain, high cost/effort corrective actions.

■ Offset Area Management Plan (EPBC 2019/8575)

Major	The plan's objectives are unlikely to be achieved, with significant legislative, technical, ecological and/or administrative barriers to attainment that have no evidenced mitigation strategies.
Critical	The plan's objectives are unable to be achieved, with no evidenced mitigation strategies.

Risk assessment and management

Management objective/desired outcome	Event or circumstance	Relevant management actions/measures	Residual risk			Trigger detection and monitoring activity/ies	Feasible/effective corrective actions
			L	C	RL		
To legally secure approved offset properties for conservation.	Failure to legally secure approved offset area. Legislative reform prejudices proposed tenure arrangements for offset properties.	Management action 1: • Legally secure the offset area via a suitable method including a voluntary declaration under the *Vegetation Management Act 1999* and covenant under the *Land Act 1994* or *Land Titles Act 1994* if required.	R	Mod	Low	Clearing of the impact area cannot occur without legally securing the offset area.	N/A
Non-native vertebrate pest management	Failure to reduce the threat of introduced non-native invertebrate predators.	Management Action 2: • Conduct baseline surveys and determine relative abundance index. • Implement predator control program. • Conduct follow-up monitoring and implement further control.	U	Mod	Low	Monitoring of the presence of introduced predators through the use of remote motion-activated cameras; Survey the site to record the presence / absence of signs of introduced predator (sightings, killings and/or scats and tracks).	• Should the introduced predator control measures not result in a maintenance of low introduced predator numbers (compared to baseline survey), introduced predator program to be expanded/adapted to improve outcomes. • Any incidence of injury/mortality resulting from introduced predator attack will initiate supplementary monitoring and control measures. In the event that an offset species is found injured, transport immediately to a local vet, or suitably qualified and experienced wildlife carer.

Management objective/desired outcome	Event or circumstance	Relevant management actions/measures	Residual risk			Trigger detection and monitoring activity/ies	Feasible/effective corrective actions
			L	C	RL		
WONS management	Failure to control WONS.	Management Action 3: • Develop and implement a weed strategy, with a particular focus on weeds listed with particularly ability to impact on movement and structural vegetation composition (predominantly *Lantana camara and* Fireweed), and under the *Biosecurity Act 2014*, to reduce weed cover to target thresholds. • Undertake weed management in accordance with the OMP.	U	Mod	Low	Annual (photo monitoring and mapping of weed infestations) and 5-year Targeted transects and MHQA) surveys of non-native plant cover to ensure reduction across offset area. Surveys in-line with weed management strategy. Repeated surveys of baseline data including 5 yearly habitat monitoring data as part of the framework.	If weed survey indicates weed cover is not reduced since previous survey, weed control program to be expanded/ adapted to improve outcomes.
High intensity fire	A high intensity uncontrolled fire occurs within the offset area which causes loss of habitat.	Management Action 4: Actions as directed by the local authority which may include prescribed burning or other techniques undertaken in consultation with the Queensland Rural Fire Brigade and controlled grazing to manage fuel loads.	P	M	Med	Annual monitoring requirements to review access tracks, fire breaks, fuel loads and outcomes of controlled burns or other management techniques such as use of livestock.	If a wildfire occurs in the offset area, the following actions will be undertaken: • Implement fire control • Repair any fire breaks and access tracks. • Stay informed through the Rural Fire Service. • Assess damage caused by the wildfire and monitor for natural regeneration. • Monitoring to occur 3-6 months post event or after the next wet

Management objective/desired outcome	Event or circumstance	Relevant management actions/measures	Residual risk			Trigger detection and monitoring activity/ies	Feasible/effective corrective actions
			L	C	RL		
							weather event (whichever is sooner). • Where natural regeneration is failing to thrive, assist natural regeneration through direct seeding and planting
Achieve performance targets and completion criteria for habitat	Land Manager-approval holder agreements fail to adequately address management commitments in the OAMP.	Management Action 1-5: • The offset area has been legally secured for conservation purposes. The development of this framework outlines specific management actions to achieve performance criteria.	U	Mod	Low	Scheduled monitoring/surveys and Annual Compliance Reports	• Review Offset Management Framework • Implement adaptive management and corrective actions
	The offset area fails to naturally regenerate.	Management Action 3: • Remove incompatible land uses. • WONS management (refer Management Action 3). • Sufficient rest period.	U	Mod	Low	After a sufficient rest period the repeat MHQA will indicate progress towards performance criteria.	• infill planting/ revegetation to be implemented after sufficient rest period.

Management objective/desired outcome	Event or circumstance	Relevant management actions/measures	Residual risk			Trigger detection and monitoring activity/ies	Feasible/effective corrective actions
			L	C	RL		
	Failure to increase habitat for offset species.	Management Action 1: • legally secure offset area and remove incompatible land uses. Management Action 3: • Reduce the extent of weed as per criteria; and • Implement infill planting if required.	U	Mod	Low	Annual surveys (photo monitoring & audit of revegetation works) of revegetation area to ensure plant survival. Repeated surveys of baseline data including 5 yearly MHQA habitat monitoring data and annual observational data as part of the AOMP.	If MHQA transects indicate habitat less than performance indicators, implement infill planting in weed control areas. Should plant stock fail supplementary planting, direct seeding, weed control, fertiliser, amelioration or other management actions necessary to stimulate tree growth.
	If infill planting is required and there is high plant stock failure.	Management Action 3: • Adhere to planting method and watering schedule.	U	Mod	Low	Annual plant stock audit (first 5 years). Planting and monitoring event schedules by the qualified bush regenerator.	If there is a high rate of plant stock failure adaptive management and corrective actions will be implemented and may include, additional supplementary planting, direct seeding, weed control, fertiliser, water spike, mulching, tree guards, etc.

Attachment A17

Cultural Heritage Plan, June 2004

QUEENSLAND GOVERNMENT
Environmental Protection Agency

288 Edward Street • Brisbane, Queensland • PO Box 2771 • BRISBANE GPO QLD 4001 • AUSTRALIA
Telephone (07) 3225 8443 • Facsimile (07) 3225 8723 • www.env.qld.gov.au

Enquiries Robert Neal
Telephone (07) 3225 8426
Your reference
Our reference 961RC256

25 June 1999

Chief Executive Officer
Ipswich City Council
PO Box 191
IPSWICH QLD 4305

Attention Mr Michael McMahon (A/Team Co-ordinator - Springfield)

Dear Mr McMahon

RE: Cultural Heritage Conservation Plan for the Springfield Development

I refer to your letter of 4 June 1999 requesting advice on the cultural heritage assessment and conservation plan for the Springfield Development. The following documents were supplied to this office and have been reviewed to develop an appropriate cultural heritage conservation plan for Springfield.

1. Alfredson, Gillian 1999. A Review of an Aboriginal Cultural Heritage Assessment and Clearance of the Springfield Development, Ipswich, Queensland. Unpublished Report. Chapel Hill: Alfredson Consulting Pty Ltd.
2. Satterthwait, Leonn 1998. An Aboriginal Cultural Heritage Assessment and Clearance of the Springfield Development, Ipswich, Queensland. Unpublished Report. Ipswich: The Ugarapul Tribal Aboriginal Corporation.
3. Correspondence from Dr Leonn Satterthwait, University of Queensland to Keilor Fox and McGhie dated 16 October 1998, 17 August 1998, 2 August 1998, 27 July 1998, 20 July 1998, 12 July 1998, and 5 July 1998,
4. Davies, SJ and A Stewart-Zerba 1994. A Cultural Heritage Assessment of the Proposed Camira Bypass Road and Rail Corridors from Richlands to Keidges Road, Redbank Plains, Moreton Shire, SEQ. St Lucia: UQASU Report No.233
5. Alfredson, Gillian 1991. Report on an Archaeological Inspection of a Proposed Integrated Development at Camira. Unpublished Report. Chapel Hill: Alfredson Consulting Pty Ltd.
6. Springfield Development Control Plan. Ipswich: Ipswich City Council. January 1997.
7. Springfield Master Concept Plan, Keilor Fox and McGhie. January 1999.

100% recycled paper

Collectively, the above documentation provides a detailed record of the initiation, conduct, and results of a comprehensive investigation and assessment of the cultural heritage values of the Springfield Development.

Satterthwait (1998) identified 481 artefact find locations giving a find location density of 18 locations per square kilometre. On the basis of artifact density and proximity, Satterthwait identified 32 distinct areas within the Springfield Development area which may be described as archaeological sites. Satterthwait recommended the in situ protection of 63% (N= 20); collection 22% (N= 7); collection/protection for 14% (N=4); and no further action with respect to 3% (N= 1) which was previously disturbed.

Alfredson (1999) provides a peer review of Satterthwait's reports.

The cultural resource management plans developed by Satterthwait (1998) and reviewed by Alfredson (1999) were assessed by the Southern Region Cultural Heritage Program. Field inspection was also undertaken. The appropriate cultural heritage conservation plan for the Springfield Development was determined on these bases.

The thrust of the Environmental Protection Agency's heritage conservation planning in this instance is 'to ensure a good representative sample of the artefacts found on the Springfield Development are retained on-site'.

The following sites are considered to be adequately protected within proposed land allocations of the Master Concept Plan (January 1999): A, B, D, E, G, J, M, Q, U, X, Y, AA, DD, EE, GG.

The above sites are considered to be adequately protected within proposed land allocations of the Master Concept Plan (January 1999). To clarify, the areas of those sites that lie within the 'open space' or 'conservation' allocations as shown in the Master Concept Plan (January 1999) are considered to provide an adequate and appropriate representative sample of the known/identified archaeological heritage resources. The parts of the above sites which occur in zoning's other than 'open space' do not warrant protection or collection and should not pose constraint to development of the local area.

Some sites do not warrant protection or collection and should not pose constraint to development of the local area, as follows: C, F, G, I, K, O, R, S, T, W, Z, BB, CC, FF, and HH.

In some cases the proposed conservation area as shown in the Master Concept Plan is inadequate should be extended to provide additional protection for sites L, N and V.

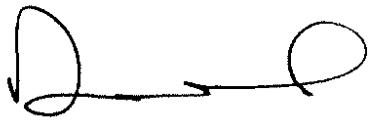
Site P should be systematically collected in accordance with the recommendations of Satterthwait (1998) and Alfredson (1999). The financial responsibilities for this exercise lie with the Springfield Land Corporation.

Site H lies outside the Springfield Development.

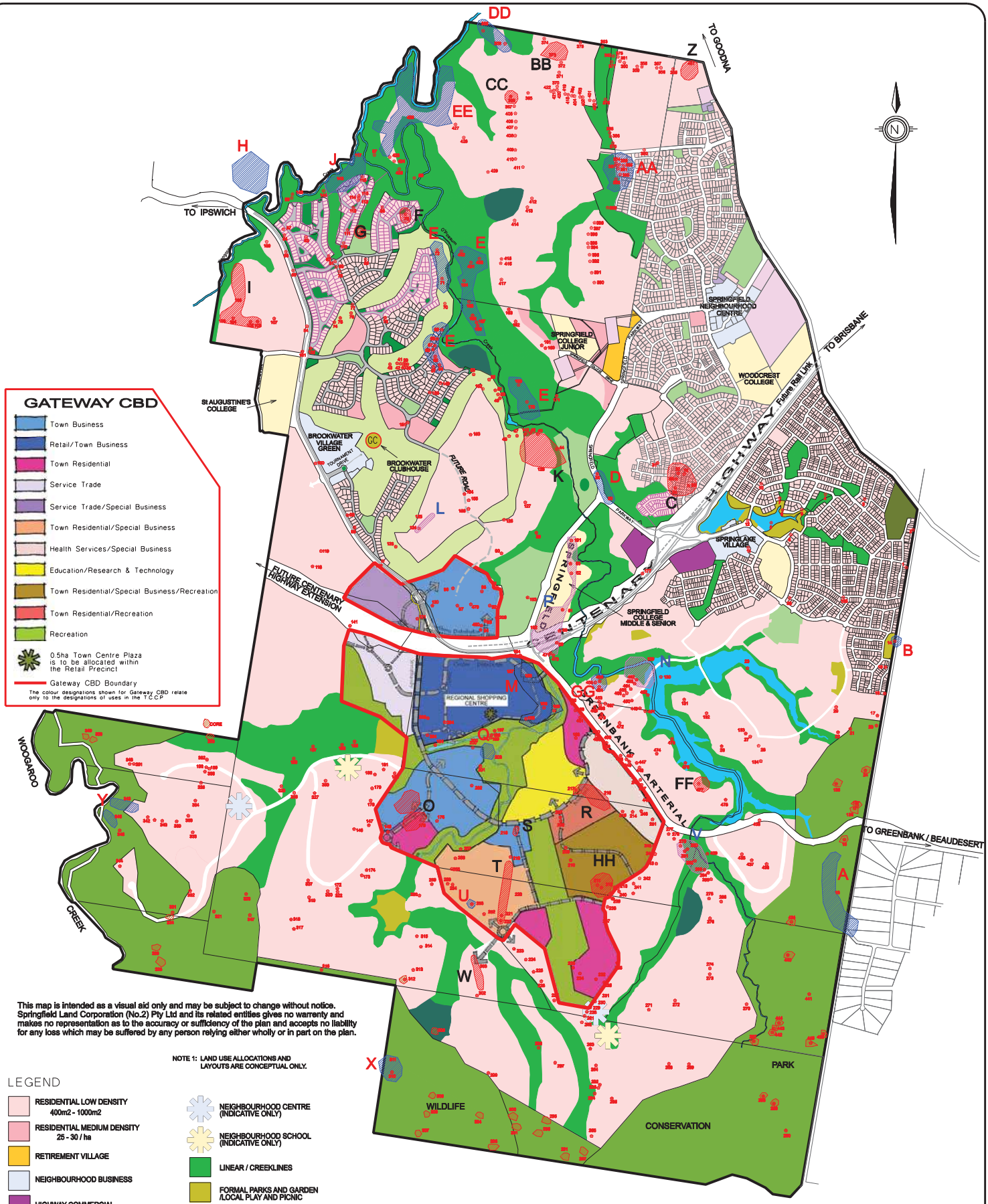
Should any Aboriginal, archaeological or historic sites, item or places may be identified, located or exposed during the course of the development, please cease operations and contact the Regional Manager (Cultural Heritage) on (07) 3225 8443.

The above cultural heritage conservation plan collates and summarises the information previously supplied to Keilor Fox & McGhie in our correspondence dated 1 June 1999, 9 June 1999 and 16 June 1999.

Yours sincerely



Robert Neal
Regional Manager - Cultural Heritage
Southern Region
Environmental Protection Agency



This map is intended as a visual aid only and may be subject to change without notice. Springfield Land Corporation (No.2) Pty Ltd and its related entities gives no warranty and makes no representation as to the accuracy or sufficiency of the plan and accepts no liability for any loss which may be suffered by any person relying either wholly or in part on the plan.

CONCEPT PLAN CULTURAL HERITAGE ARTIFACTS

JUNE (2004)

Prepared By-

KEILAR FOX McGHIE

SURVEYING • TOWN PLANNING • MAPPING • LAND DEVELOPMENT

SPRINGFIELD LAND CORPORATION

CAD FILE: 02951719 PLAN No: IK 0295-17-062 SCALE 1:12,000 @ A1 (11/10/04)