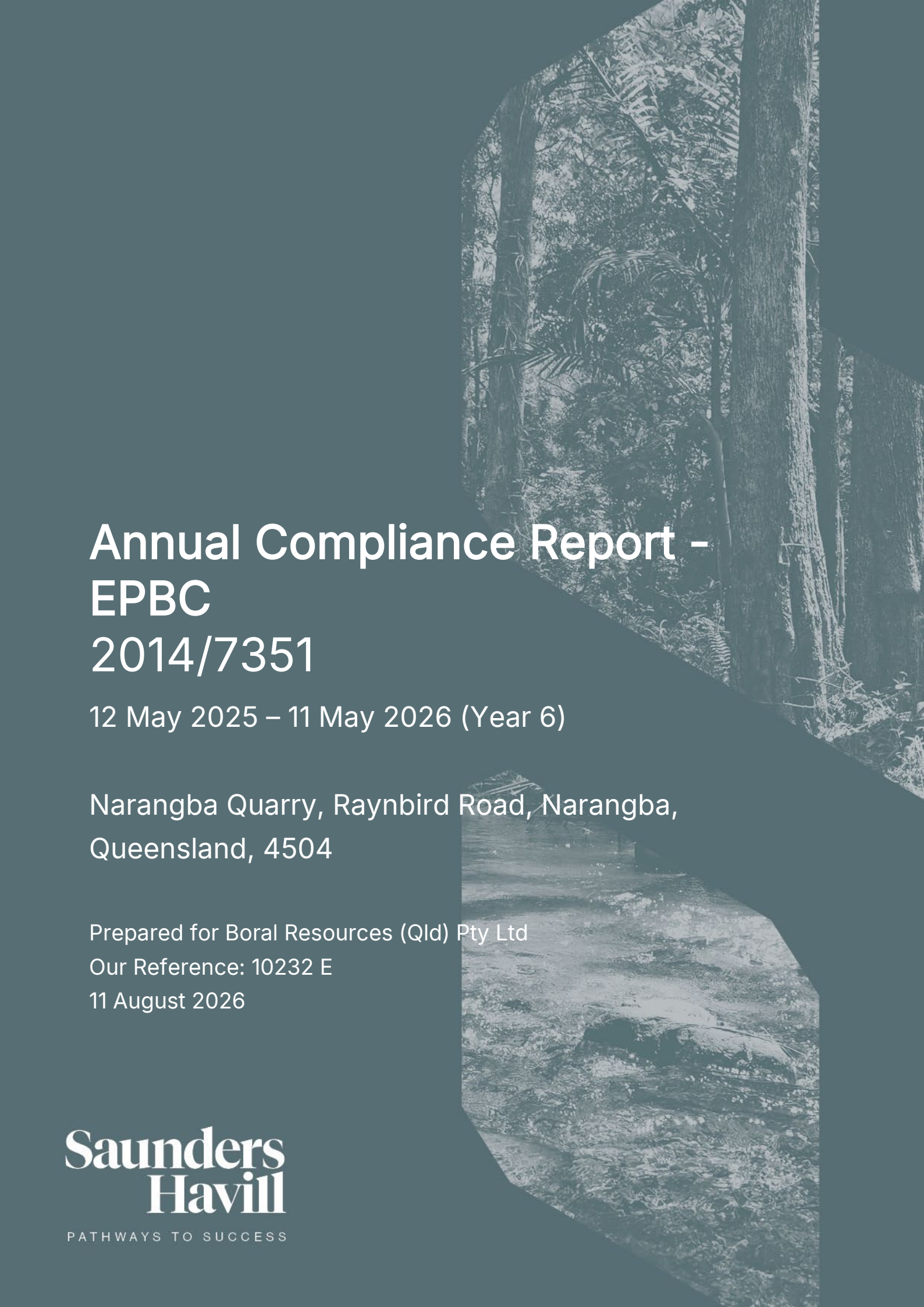


The background of the document features a dark, teal-toned photograph. The upper portion shows a dense forest with tall, slender trees and lush foliage. A narrow, light-colored path or streambed winds through the forest floor. The lower portion of the image shows a different scene, likely a quarry or a cleared area, with a large, dark, irregularly shaped rock or pile of material in the foreground. The overall composition is split diagonally, with the forest scene on the left and the quarry scene on the right.

Annual Compliance Report – EPBC 2014/7351

12 May 2025 – 11 May 2026 (Year 6)

Narangba Quarry, Raynbird Road, Narangba,
Queensland, 4504

Prepared for Boral Resources (Qld) Pty Ltd

Our Reference: 10232 E

11 August 2026

**Saunders
Havill**

PATHWAYS TO SUCCESS

Declaration of accuracy

In making this declaration, I am aware that sections 490 and 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed



Full name (please print)

Megan McKinney

Position (please print)

Principal Ecologist

Organisation (please print including ABN/ACN if applicable) Saunders Havill ABN 24 144 972 949

Date

11.08.2026



Document Control

Document: Annual Compliance Report 12 May 2025 – 11 May 2026, Narangba Quarry - Year 6 (EPBC 2014/7351), prepared by Saunders Havill Pty Ltd for Boral Resources (Qld) Pty Ltd, dated 11 August 2026.

Document Issue

Issue	Date	Prepared By	Checked By
Issue A	11/08/2026	KR/SK	MM

Prepared by

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Table of Contents

1. Introduction	1
1.1. Reporting Period	1
1.2. EPBC Approval	1
1.3. Site Context	2
1.4. Overview of Key Activities and Achievements	2
2. Current Status of the Project	6
2.1. Offset Area Legally Secured	6
2.2. Vegetation Clearing	6
2.3. Key Consultants and Roles	6
2.4. Year 6 Offset Reporting	7
3. EPBC Conditions and Compliance	31
4. Non-compliances	40
4.1. Weed Management	40
4.2. Fire Management	40
5. Appendices	42



Figures

Figure 1:	Site Context	4
Figure 2:	Site Aerial	5

Tables

Table 1:	Approval Details	1
Table 2:	Key Consultants and Roles	6
Table 3:	Offset Management Plan implementation	8
Table 4:	MHQA scores from Baseline to Year 5.	21
Table 5:	Compliance Audit of EPBC 2014/7351 Conditions for Narangba Quarry	31

Plans

Plan 1:	Stage 1 Clearing Extent – Year 6	22
Plan 2.1:	Offset Areas – Habitat Management Zones Map	23
Plan 3:	Offset Areas Field Survey Effort – Year 6	25
Plan 4:	Stage 1 – Weed Mapping Results – Year 6	26
Plan 5:	Stage 1 - Weed Management Locations – Year 6	27
Plan 6:	Stage 1 – Rehabilitation/Planting Locations – Year 6	28
Plan 7:	Offset Area - Vertebrate Pest Management Camera Locations – Year 6	29



Acronyms and Abbreviations

ACR	Annual Compliance Report
BMP	Bushfire Management Plan, prepared by Land and Environment Consultants.
DAWE	Department of Agriculture, Water and Environment (Cth – superseded by DCCEEW)
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Cth) (superseded by NEPA)
EPBC	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)
ha	hectares
KHMP	Koala Habitat Management Plan (EPBC 2014/7351), prepared by Saunders Havill Group, dated November 2020.
KMP	Koala Management Plan, prepared by Saunders Havill Group, dated October 2016.
km	kilometres
m	metres
CoMB	City of Moreton Bay
MNES	Matters of National Environmental Significance
NCA	<i>Nature Conservation Act 1992</i> (Qld)
NEPA	National Environmental Protection Agency
OMP	Offset Management Plan (EPBC 2014/7351), prepared by Saunders Havill Group, dated November 2019.
RE	Regional Ecosystem
TEC	Threatened Ecological Community (under the EPBC Act)
VMA	<i>Vegetation Management Act 1999</i> (Qld)
VPMP	Vertebrate Pest Management Plan (EPBC 2014/7351), prepared by Saunders Havill Group, dated April 2021.
WMP	Weed Management Plan (EPBC 2014/7351), prepared by Saunders Havill Group, dated April 2021.



1. Introduction

This Annual Compliance Report (ACR) Year 6 (12 May 2025 – 11 May 2026) has been prepared on behalf of Boral Resources (Qld) Pty Ltd (the Proponent) as per the EPBC approval granted on 19 August 2016 for the Narangba Quarry Expansion (the Project) located on Raynbird Road, Narangba, Queensland (EPBC 2014/7351).

In accordance with the approval granted on the 19 August 2016 under the *Environmental Protection and Biodiversity Act 1999* (EPBC Act), this ACR has been prepared in response to Condition 7 of the approval which states:

“Within three months of the anniversary of every 12-month anniversary of the commencement of the action, the approval holder must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in their conditions. ”

1.1. Reporting Period

This ACR details the status and compliance of the Project for the 12-month reporting period between the 12 May 2025 and 11 May 2026.

The ACR must be published on the Proponent's website and notification provided to the Department of the Environment and Energy (now the Department of Climate Change, Energy, the Environment and Water, DCCEEW) within 3 months of the 12-month anniversary of the commencement of the action (12 August).

1.2. EPBC Approval

Boral Resources (Qld) Pty Ltd, as the Proponent of the Project (EPBC Act Referral 2014/7351) was issued with an approval by the Department of the Environment and Energy (now NEPA) on the 19 August 2016, subject to conditions. A variation was made to this approval and approved by the delegate of the Minister on the 24 August 2018. This included the removal of condition 3 of the approval and substitute with conditions 3 and 3A (refer **Appendix A**). An additional variation to the approval was made on 10 August 2019, subsequently approved by the minister, which added Condition 3B (refer **Appendix A**).

Key details related to the EPBC 2014/7351 approval, including variation conditions, are provided in **Table 1** below.

Table 1: Approval Details

Commonwealth Reference	EPBC 2014/7351
Approval Holder	Boral Resources (Qld) Pty Ltd
ACN	009 671 809
Project Name on the Approval	Narangba Quarry Expansion, Raynbird Road, Narangba, Queensland
Approved Action	Fifty-six-hectare (56 ha) expansion of the existing Narangba Quarry, including clearing of 52 ha of vegetation. The quarry expansion site is located on Raynbird Road, 18 km south of Caboolture; as described in the referral received by the



	Department on 30 September 2014 [See EPBC Act referral 2014/7351].
Controlling Provision(s)	Listed threatened species and communities (sections 18 & 18A)
Approval Date	19 August 2016
Variation to Conditions of Approval Date	24 August 2018 10 August 2019
Expiry Date of the Approval	18 August 2076
Date of Commencement of the Action	12 May 2020
Address	Raynbird Road, Narangba
Local Government Area	Moreton Bay Regional Council (MBRC)

1.3. Site Context

Contextually, the Project is located in south-east Queensland, approximately 7.8 km north-west of Narangba Town Centre within the Moreton Bay Local Government Area. The Project is surrounded by rural and rural residential allotments and remnant vegetation (refer **Figure 1** for Site Context and **Figure 2** for Site Aerial).

1.4. Overview of Key Activities and Achievements

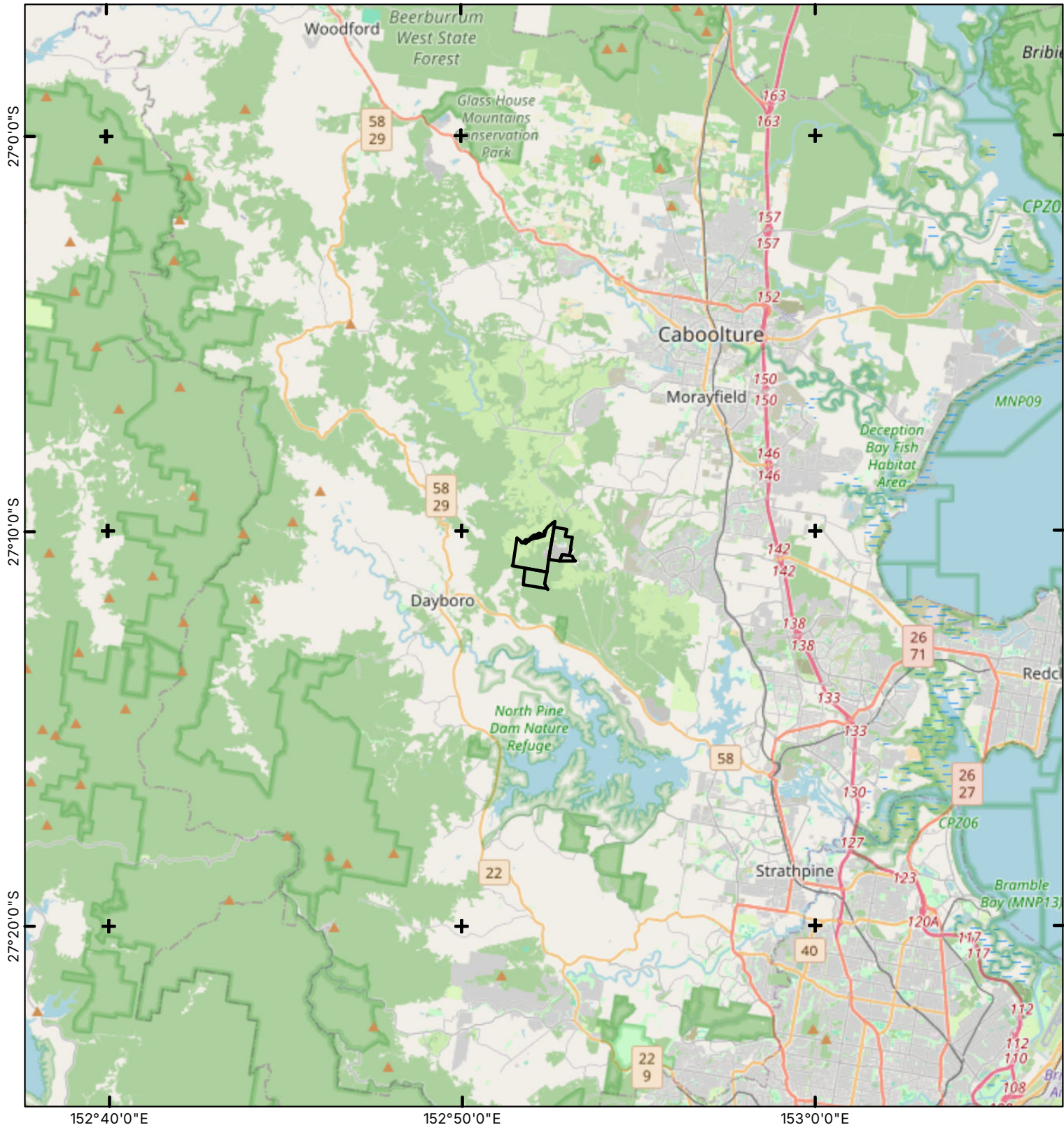
During Year 6 of compliance reporting, the following development and environmental management activities occurred:

- Clearing of 2.38 ha of Koala Habitat occurred during the Year 6 ACR reporting period. A total of 5.64 ha of MNES habitat has been cleared within the approval area since the commencement of the action (refer **Plan 1**).
- As per OMP-5 Koala habitat improvement, the habitat quality monitoring is to be completed annually for the first three years after commencement of the operation and then every five years ongoing. With this year being the sixth year of reporting, habitat quality monitoring within the offset area was not conducted by SH Ecologists. The next habitat quality monitoring to be conducted will be during the Year 10 field surveys with data to be reported within the Year 10 ACR.
- Annual weed mapping which targets Weeds of National Significant (WONS) was conducted by SH Ecologists across Stage 1 offset area.
- Annual Koala SAT surveys were conducted within the Stage 1 offset area.
- Motion detection sensor cameras were installed across all stages of the offset area by SH Ecologists.
- Vertebrate pest management activities were carried out across all stages of the offset area (Stage 1, 2, and 3) by Biodiversity Australia. These activities compromised camera trap monitoring between March and April 2026, followed by targeted trapping between April and May 2026.
- Management and removal of WONS within Stage 1 of offset area was conducted by Phoenix Environmental Services.



- Planting, monitoring and maintenance of Koala habitat tree plantings across the Stage 1 offset area as part of offset rehabilitation was conducted by Phoenix Environmental Services.
- Bushfire Management, including preparation of prescribed burn plans and assessments were completed by Fireland.
- Audit and review of OMP by consultants





LEGEND

 Boral land holdings

Figure 1

Site Context

FILE REFERENCE
10232 E Figure 1 ACR6 Site Context A

DATE
4/08/2026

NARANGBA QUARRY

0 2 4 6 8 km

COORDINATE SYSTEM SCALE (A4)
GDA 2020 MGA Z56 1:247,154



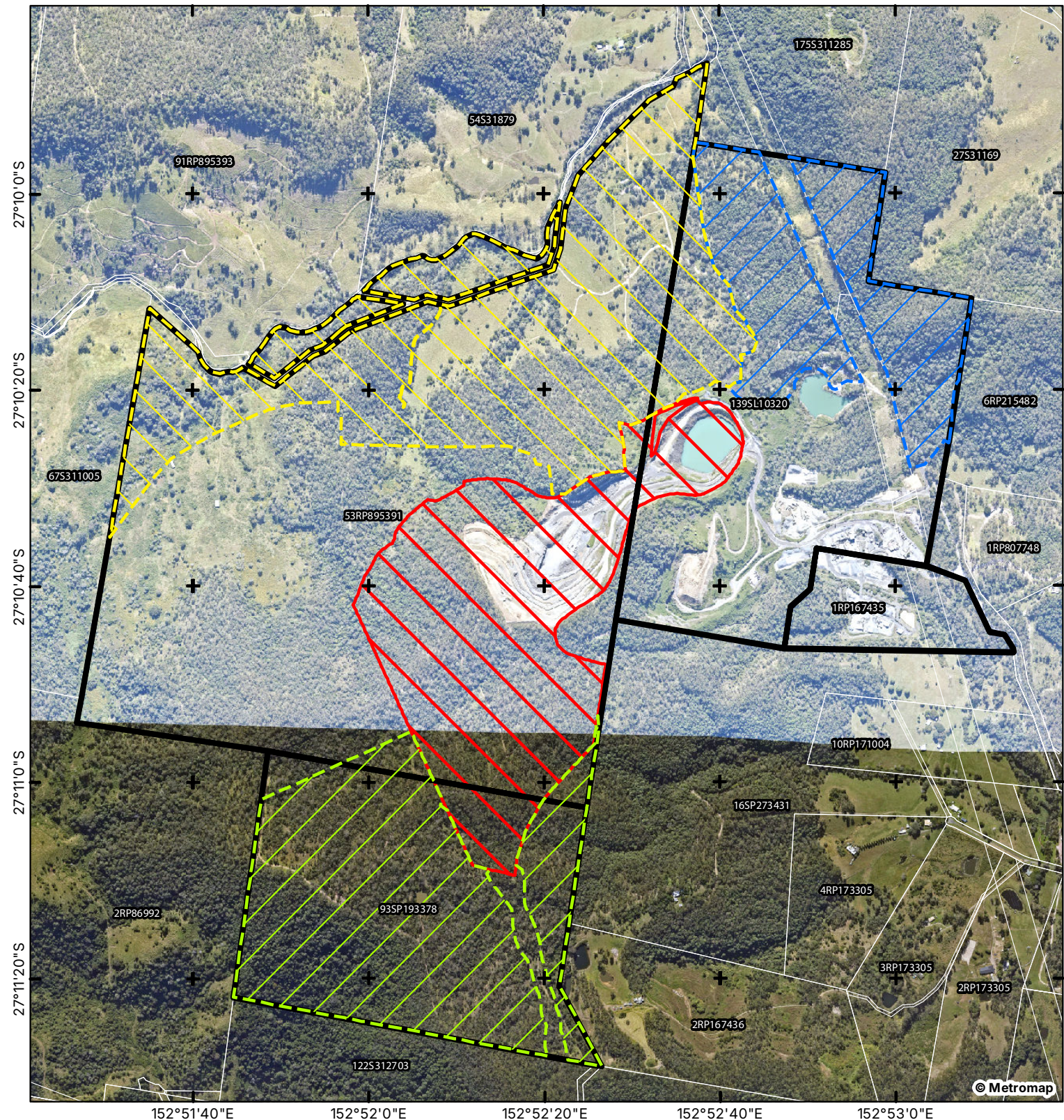
CLIENT



Saunders Havill

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LEGEND

- Qld DCDB
- Boral land holdings
- Impact site
- Offset Stages
 - Stage 1 [73.6 ha]
 - Stage 2 [41.1 ha]
 - Stage 3 [106.1 ha]

Figure 2

Site Aerial

FILE REFERENCE
10232 E Figure 2 ACR6 Site Aerial A
DATE
4/08/2026

NARANGBA QUARRY

0 200 400 600 m

COORDINATE SYSTEM SCALE (A4)
GDA 2020 MGA Z56 1:16,500



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2. Current Status of the Project

2.1. Offset Area Legally Secured

As required by Condition 3B of the EPBC Act approval, the offset land, which is located over parts of Lot 53 on RP895391, Lot 93 on SP193378, Lot 139 on SL10320 and Lot 1 on RP167435, Raynbird Road, Narangba, was legally secured via a Voluntary Declaration under the VMA by the Proponent on 24 February 2020 (refer **Appendix B**). The Chief Executive of the Queensland Department of Natural Resources, Mines and Energy (DNRME) (now Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development, DNRMMRRD)) declared the offset area in a Declared Area Map (DAM 2020/010206) as an area of high nature conservation value in accordance with section 19F (1) of the VMA. The offset area includes Stages 1 to 3 and is shown as Category A on a Property Map of Assessable Vegetation (PMAV) (PMAV 2020/010207) and is subject to management provisions of the Offset Management Plan EPBC 2014/7351, prepared by Saunders Havill, November 2019 (Offset Management Plan - OMP).

2.2. Vegetation Clearing

Vegetation clearing within the impact site commenced on the 12 May 2020, and the department was notified via email correspondence on the 4 June 2020. As per condition 5 of the EPBC Approval conditions the department was notified within 20 business days of the commencement of the action (refer **Appendix C**). The amount of Koala Habitat cleared in the current ACR reporting period was 2.38 ha. A total of 3.26 ha of clearing in previous ACR years has been reported, with the current clearing bringing the total amount of Koala Habitat cleared to 5.24 ha of Koala habitat was cleared during the Year 1 reporting period and was presented within the Year 1 ACR. Refer **Plan 1** for clearing extent area.

2.3. Key Consultants and Roles

Table 2 below is a list of the key staff and appointed contractors and their roles in the Project during Year 6.

Table 2: Key Consultants and Roles

Role	Appointed Contractor
Environment Manager	Boral - Carlo Delacruz
Site Supervisor	Boral – TBA
Environmental Consultant	Saunders Havill– Megan McKinney
Bush Regeneration Contractor	Phoenix Environmental Services
Bushfire Management Contractor	Fireland
Pest Management Contractor	Biodiversity Australia



2.4. Year 6 Offset Reporting

Management activities have been conducted across the site in accordance with the management actions outlined in the OMP. Pest, fire and components of weed management were conducted across the entire offset site while, rehabilitation planting and weed mapping were conducted for the Stage 1 offset area only, as per the approved OMP. Refer to **Plan 2.1** and **Plan 2.2** for delineated Habitat Management Zones Map. Contractor Reports are provided in **Appendix D**.

A review of the OMP commitments and implementation is provided in **Table 3**.



Table 3: Offset Management Plan implementation

No.	Commitment	Evidence / Comments / Status
OMP-1	Legally securing the offset area	The Proponent legally secured the offset via a Voluntary Declaration under the <i>Vegetation Management Act 1999</i> on the 24 February 2020 (refer Appendix B). In accordance with Condition 3B, the offset was legally secured prior to the official commencement of the action on the 12 May 2020.
	A Voluntary Declaration will be placed over the entire offset area to legally secure the conservation use on the land prior to the action commencing. Boral will continue to manage the offset area for the life of the approval. Legally securing the offset area is listed in the Conservation Advice as a Priority Management Action, under “habitat loss, disturbance and modification”. As required by the conditions of approval the Voluntary Declaration will be in place by 28 February 2020.	
OMP-2	WONS management	A Weed Management Plan (WMP) was produced by SH in the Year 1 reporting year to fulfil the requirements of the OMP (refer Appendix E). The purpose of the WMP is to ascertain baseline surveys of weed cover and weed species within the offset area. Specific management actions and timeframes have been developed for the control of weeds on-site as well as regular and annual monitoring.
	Management measures for the control of WONS, specifically Lantana will include: - Baseline weed mapping for WONS will be conducted and specific treatment techniques developed within six months of the commencement of each stage of clearing for the quarry extension. - All identified WONS will be treated within 12 months of the commencement of each stage of clearing for the quarry extension. - A suitably qualified bush regeneration contractor will be engaged to undertake the necessary weed control.	The SH Ecologists field survey effort for the Year 6 reporting period included remapping the extent of WONS across the Stage 1 offset area during 2025/2026. During these surveys WONS were identified and mapped, with the dominant weed being <i>Lantana camara</i> (Lantana) (refer Plan 4). In accordance with the OMP, management of weeds occurred within the habitat rehabilitation and remnant vegetation



No.	Commitment	Evidence / Comments / Status
	- Control of infestations will utilise techniques that avoid disturbance to surrounding areas. WONS, and other high-risk weeds, will be monitored annually until they are not observed, at which point monitoring will be carried out every 2 years until they are consistently identified at densities less than 10% of the baseline infestation. The monitoring will be undertaken during the same time of year, each year, to ensure that the timing is consistent and aligns with the baseline assessment. Completion criteria for the offset site are as follows: - WONS reduced to less than 10% of baseline levels.	portions of the Stage 1 offset area, in order to assist with natural regeneration of native vegetation conducted by Phoenix Environmental Services. Treated areas are shown on Plan 5. Management of WONS was not able to be completed across the entirety of the Stage 1 offset area. This was primarily due to recurring access and safety issues on the steeper slopes in the southern portion of the site. In addition, inclement weather reduced the window of suitable and safe conditions for potential works to be carried out. There continues to be safety and accessibility issues within the remnant portion in the south-western area of the site due to the lack of tracks and therefore some of this remnant vegetation area could not be treated for WONS. The current bush regeneration contractors, Phoenix Environmental Services, have continued weed management within focus areas, covering the majority of the Stage 1 offset area vegetation. SH Ecologists annually assess the weed presence and density across the Stage 1 offset area, this data is then used to inform the subsequent years weed management application within both the Remnant Vegetation Management and Habitat Rehabilitation Management areas. However, discussions with Boral for proposed spraying and manual removal within the southern portion of the offset site are ongoing, with several options being reviewed.



No.	Commitment	Evidence / Comments / Status
		The inability to complete WONS treatment across the entirety of the Stage 1 offset area is not a newly identified matter for the Year 6 reporting period. The matter has previously been disclosed to the Department through earlier ACRs and was further addressed through Boral's response to the Departments request for further information and subsequent Show Cause process. The response also recorded the Department's acknowledgement that steep and unstable terrain within parts of the offset area presents legitimate access and safety constraints, with no safe means of treating WONS in some locations. Accordingly, treatment has continued to be prioritised in safely accessible areas, while options for addressing the remaining infestations and refining the relevant management requirements continue to be reviewed. The continued presence of WONS within inaccessible portions of Stage 1 therefore reflects the previously reported access and safety constraints, rather than a newly arising issue during the current reporting period. Maintenance and monitoring of revegetation sites occurred regularly following planting, with the objective of any losses to be replanted. Two plantings were completed within the Stage 1 offset area during the 2021/2022 offset reporting period, being described as Plantation A and Plantation B. Details of these planting can be found in the associated ACR (Year 2). Since the installation of the two initial planting sites, two



No.	Commitment	Evidence / Comments / Status
		additional locations have been established to compensate for the loss of koala habitat vegetation in accordance with approval and aligning with the approved OMP and associated developed Koala Habitat Management Plan (KHMP). These additional plantings occurred within the Stage 1 offset area during the 2024/2025 reporting period, with an additional 600 trees planted (refer Plan 6). Management of the plantings from the 2024/2025 ACR period has been undertaken across the current ACR year, with the following actions being regularly completed to support survival of tree specimens: • addition of fertiliser tablets • repair and replacement of tree guards • watering across planting site The first five years of offset reporting found the habitat quality scores across the offset area remained stable from Baseline survey results, with indication of slight improvement in habitat quality (refer Table 4). In accordance with the monitoring schedule specified in the OMP, no MHQA transects were undertaken at the established transect locations during the Year 6 reporting period, as monitoring is required annually for the first three years and once every five years thereafter.



No.	Commitment	Evidence / Comments / Status
OMP-3	Feral and pest fauna species management	
	Management measures for the control of feral or unwanted domestic dogs across the offset area include: • Baseline pest monitoring including motion activated cameras and scat analysis to identify evidence of feral or unwanted dogs (and other pest species), and development 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 12 months of commencement of the action. • Where practical and appropriate, participate cooperatively in pest management planning and implementation with local land managers (government departments, local governments and utility providers) to ensure effective pest management in the locality of the offset area. • Install appropriate signage informing the area is under feral control.	Baseline monitoring of pest species across the offset site was conducted by SH Ecologists in 2020 which identified a number of pest species within the offset area including <i>Canis familiaris</i> (feral dog), <i>Sus scrofa</i> (feral pig) and <i>Vulpes vulpes</i> (red fox). The results of the baseline monitoring are detailed in the Vertebrate Pest Management Plan (VPMP) produced by SH (refer Appendix F). The VPMP outlines specific pest management measures and methods to be undertaken throughout the life of the offset. SH Ecologists annually install motion detection monitoring cameras to monitor presence of introduced fauna across the offset site during the compliance period (refer Plan 3). Year 6 surveys identified two (2) sightings of koala during the motion sensor camera trapping monitoring program (refer Photo set 1).
	As the management of feral and pest species can only be achieved at a landscape level, management will be carried out over the entire offset area within 12 months of commencing Stage 1 of the quarry extension. Pest animal management and monitoring will be undertaken in accordance with the <i>Biosecurity (Consequential Amendments and</i>	



No.	Commitment	Evidence / Comments / Status
	<i>Transitional Provisions) Act 2015 (Cwlth) and the Biosecurity Act 2014 (Qld), which, in general, require all reasonable and practical steps to prevent or minimise biosecurity risks; minimise the likelihood of causing a 'biosecurity event'; and the limitation of consequences if such an event is caused. The control of pest animals will be undertaken using legal methods, by suitably qualified pest management contractor(s). Pest animal control is to be undertaken in a humane manner.</i> Annual pest monitoring will be reported and outcomes of that monitoring included in the ACR. The annual pest management report is to provide detail on detected pests, control efforts, and total trapped/baited individuals during the given management period and identified trends of the population of pest animals within the offset area. Completion criteria for the offset site are as follows: • Dogs or evidence of dog presence are not detected on the offset area for a period of three years.	 Photo set 1: Koala observed within the offset site during Year 6 motion sensor camera trap monitoring. Pest management was undertaken by Biodiversity Australia across the entire offset area, primarily targeting wild dogs. The monitoring and management program takes place across ACR timeframes and are presented below for clarity. The initial vertebrate pest management program included the pre-control camera monitoring across the site from the 9th May to 26th May 2025, for eighteen (18) consecutive days, utilising eight (8) cameras (refer Plan 7). During the camera monitoring a total of eleven (11) wild dogs were observed across the



No.	Commitment	Evidence / Comments / Status
		entirety of the offset site. As well as five (5) red foxes and fourteen (14) feral pigs. The subsequent predator trapping program conducted onsite from 17th June until 27th June 2025. The soft jaw trapping resulted in the removal of one (1) red fox and two (2) wild dogs. The most recent pre-control camera monitoring program was undertaken from 31st of March 2026 until 27th April 2026 with a subsequent predator trapping program conducted onsite from 29th April 2026 through until 9th of May 2026. The camera program detected seven (7) wild dogs across the offset site, with red foxes, wild red deer and feral pigs also notably detected. Soft jaw trapping resulted in the removal of one (1) wild dog, one (1) red fox and (1) feral pig. The increase in prevalence of wild dogs triggered the need for further trapping events, which are scheduled within the Year 7 ACR period. Refer Appendix D for Vertebrate Pest Management Report prepared by Biodiversity Australia.
OMP-4	Bushfire Management Plan Management measures will be outlined in the Bushfire Management Plan (BMP) for the control of bushfire across the offset area but will include:	A Bushfire Management Plan was created for the site by Land and Environment Consultants (LEC) in accordance with OMP commitment 4 and details management measures that will be implemented across the site to reduce risk of bushfire. Refer Appendix G for Bushfire Management Plan (BMP).



No.	Commitment	Evidence / Comments / Status
	• Installation of firebreaks and fire trails. • Annual inspection and maintenance of firebreaks and access tracks required to achieve compliance with Offset Area Bushfire Management Plan. • Prescribed burning undertaken in consultation with, and under the guidance of the Queensland Rural Fire Brigade and in compliance with the <i>Fire and Emergency Services Act 1990</i>. • Use of domestic livestock or other methods to reduce fuel loads in the event that a fire risk professional (e.g. representative of Queensland Rural Fire Service) and a suitably qualified person deem that conditions are not suitable for an ecological burn and that grazing is appropriate to manage a high level of fire risk. Level of risk (and any need to repeat this grazing cycle) is to be re-assessed by the aforementioned professionals following the grazing event. As the management of bushfires can only be achieved at a landscape level management will be carried out over the entire offset area within 12 months of commencing Stage 1 of the quarry extension. Monitoring requirements will be informed by the bush fire management plan and include regular review of access tracks, fire breaks, fuel loads and outcomes of controlled burns or other management techniques such as use of livestock.	Prescribed burns have been conducted within the offset area in preceding years, the details of which can be found in the corresponding ACR. During the Year 6 reporting period, an inspection was conducted by Fireland consultants as well as the preparation of an operational prescribed burn plan (refer Appendix D). One prescribed operational burn was conducted during the Year 5 compliance reporting period, conducted during July 2024. This burn was prescribed as part of the offset Bushfire Management Plan (BMP) and earlier burn plan within Fire Management Unit (FMU) 12. This is further detailed within the Year 5 ACR, with additional details of operational burns conducted in earlier years are included within the associated ACR's. A prescribed burn plan was prepared on 18 July 2025 within the Year 6 ACR period, which includes the proposed burn timing of January to February 2026 within Fire Management Unit (FMU) 09 (refer Appendix D). During the Year 6 compliance reporting period, whilst the BMP details the recommended timeframes for FMU 9 to be burned within 2025 (within the ACR reporting period), operational burning within the offset site was not conducted. Fireland consultants reported that a combination of the proposed burn areas geographical position, aspect and vegetation composition in conjunction with the regions high rainfall during the suitable burn season, the opportunity for activity window was reduced.



No.	Commitment	Evidence / Comments / Status
		Maintenance (dozing) of all accessible fire trails (where grading was required) was conducted by Boral in accordance with the management measures of the BMP. Firebreaks and access tracks as shown on Figure 4.1 of the BMP will be further maintained throughout the next reporting year (2026/2027). In accordance with the BMP, prescribed burn plans will be subsequently formulated for relevant fire management units. As such, during the Year 6 ACR period, the following applied: • Inspection and maintenance of firebreaks and access tracks in areas across the offset site to achieve compliance with the BMP was undertaken. • No prescribed burning was able to be undertaken given weather conditions within South-east Qld did not allow a suitable window to burn under required permits in association with the Queensland Rural Fire Service. • no use of domestic livestock was utilised for fire management purposes. It is noted that the BMP is to undergo a formal review and update in the latter part of 2026 to provide updated recommendations and a contemporary recommended strategy, as per the review timeline within the BMP.



No.	Commitment	Evidence / Comments / Status
OMP-5	Koala habitat improvement	A Koala Habitat Management Plan (KHMP) (Rehabilitation Plan) was developed in Year 1 reporting period for the Stage 1 offset area which details strategies that will be implemented in order to achieve the Koala habitat rehabilitation aims set out in the OMP (refer Appendix H).
	Management measures for each zone are detailed as:	
	<u>Remnant vegetation</u> • Stop activities reducing habitat values, specifically selective logging and grazing. • Assisted natural regeneration practices where removed weeds leave open areas – replanting with locally endemic species. • Maintain and manage the land for the life of the offset, including direct monitoring of Koala usage.	The management zones relevant to the Stage 1 offset area include 'Remnant Vegetation' and 'Habitat Rehabilitation.' In accordance with the OMP, management of WONS, namely Lantana, occurred within the habitat rehabilitation and remnant vegetation portions of Stage 1, assisting with natural regeneration of native vegetation. Management of WONS was not able to be completed across the entirety of the Stage 1 'Remnant Vegetation' management area due to continued safety concerns in accessibility and current issues with addressing these concerns without degrading the structural integrity of the steep slope, by developing access tracks in strategic locations across it. This constrained the ability to safely complete weed treatment within all remnant areas onsite. At present, continued planning to provide safe, effective access to these areas during dry weather, to allow personnel to carry weed treatment equipment and successfully treat weeds in the area, while maintaining the integrity of the landform, is ongoing.
	<u>Habitat rehabilitation</u> • Assisted regeneration, seeding, or planting of endemic canopy tree species specifically selected to provide Koala habitat. • Removal of impediments to Koala movement such as old fences. • Maintain and manage the land for the life of the offset, including direct monitoring of Koala usage. <u>Habitat revegetation</u>	As per the performance criteria, habitat quality monitoring is to be completed annually for the first three years and then every five years ongoing. As the reporting period is the sixth year of



No.	Commitment	Evidence / Comments / Status
	- Implementation of rehabilitation techniques that aim to promote the regeneration of native vegetation and improve habitat values: - Where natural regeneration is ineffective, implementation soil amelioration and seeding with native endemic seeds, - Where natural regeneration and / or seeding is ineffective, planting of endemic trees and shrubs specifically selected to provide Koala habitat. - Management of the revegetated areas to ensure habitat density requirements are achieved. - Removal of impediments to Koala movement such as old fences. - Protecting revegetated areas from cattle and horses through the implementation of fauna friendly fencing. - Maintain and manage the land for the life of the offset, including direct monitoring of Koala usage. Performance criteria for the offset are as follows: - Rehabilitation plans for each stage of offset delivery developed within 6 months of the commencement of the corresponding clearing stage.	compliance monitoring since the commencement of the action, habitat quality monitoring was not conducted across the Stage 1 offset area. A comparison of MHQA scores for the Stage 1 offset area from Baseline to Year 5 have been included within this ACR. This includes Transect 1 within the 'Remnant Vegetation' management area and Transect 3 and 4 within the 'Habitat Rehabilitation' management area. During the Year 5 ACR reporting period (2024/2025), Transect 1 within the 'Remnant Vegetation' management area (mapped as RE12.11.3a) achieved a rounded score of 6/10, representing an increase in score from 5.88 recorded at baseline surveys (2019) to 6.26/10. Transect 3 & 4 within 'Habitat Rehabilitation Area' (RE12.11.18) achieved a rounded score of 6/10, representing an increase in habitat quality score from 6.33 recorded at baseline (2019) to 6.5/10 (refer Table 4). As a result, both the 'Remnant Vegetation Management Area' and the 'Habitat Rehabilitation' management area saw a minor increase in habitat quality from baseline studies conducted in 2019, confirming Koala habitat quality has been maintained through Year 5 in accordance with the requirements of the OMP. As extensive management (weed management, plantings, prescribed fire management) in accordance with the OMP and individual management plans, has been continued through the Year 6 reporting period, the habitat quality is expected to be maintained or steadily increased as per previous results. MHQA surveys are scheduled for Year 10.



No.	Commitment	Evidence / Comments / Status
	- Natural regeneration, seeding or planting to commence within 12 months of the commencement of the corresponding quarry clearing stage. - Planted areas will have a 90% plant survival rate after 12 months of planting being carried out. - Areas allowed to regenerate will display signs of native vegetation regrowth at rates expected for those species. - Habitat quality monitoring will be completed annually for the first three years after commencement of the operation and every five years ongoing. - Habitat quality will be maintained at the current values (7/10 for remnant areas and 6/10 for rehabilitation and revegetation areas) and display signs of improvement within 5 years of the commencement of improvement works. Completion criteria for the offset site are as follows: - Offset zones reach the habitat quality scores identified in the Amended Offsets Strategy (values below): - Remnant areas improve from a habitat quality score of 7/10 to 8/10. - Rehabilitation and revegetation areas improve from a habitat quality score of 6/10 to 8/10. - Koala habitat quality will be assessed using the modified habitat quality assessment method	Additional plantings were input into the Stage 1 offset area during the Year 3 ACR period. An area within the south-west corner of the offset was identified as being suitable for rehabilitation plantings, with 200 specimens of mixed species, representative of the Regional Ecosystem, being planted in March 2023. Maintenance and monitoring of this revegetation site are ongoing and any losses will be replanted. Several rehabilitation locations were planted with tubestock during the Year 5 ACR monitoring period. The Year 6 ACR period saw rehabilitation plantings within several locations within the offset area undergo regular maintenance and checks. Maintenance included regular site visits whereby drilling, planting, addition of fertiliser tablets, replacement of guards and watering was undertaken (refer Plan 6 for locations of rehabilitation planting locations which underwent active management). Feral deer and cattle, which entered the offset area from neighbouring properties, damaged plantings in some of the planting areas, with mostly superficial leaf damage occurring to some specimens. Replanting and ongoing monitoring and management will take place in the upcoming months, in the lead up to summer, when conditions will be favourable. An additional planting location was initiated in May 2026 (refer Plan 6 for 2026 planting location) with 200 tubestock planted and undergoing maintenance in the months post-May.



No.	Commitment	Evidence / Comments / Status
	detailed in the Amended Offsets Strategy. Any alternate methodology would require prior agreement between Boral and DAWE. • Koala habitat quality remains at target values or better for two consecutive five-year monitoring events.	As reduction of WONS (specifically lantana) is identified as a core requirement of rehabilitation, providing suitable conditions for assisted natural regeneration, this technique was utilised to maximise opportunities for native vegetation to regrow, at this stage of the offset. In addition, two (2) instances of Koala were recorded as part of the annual camera trap monitoring conducted by SH during this reporting year.

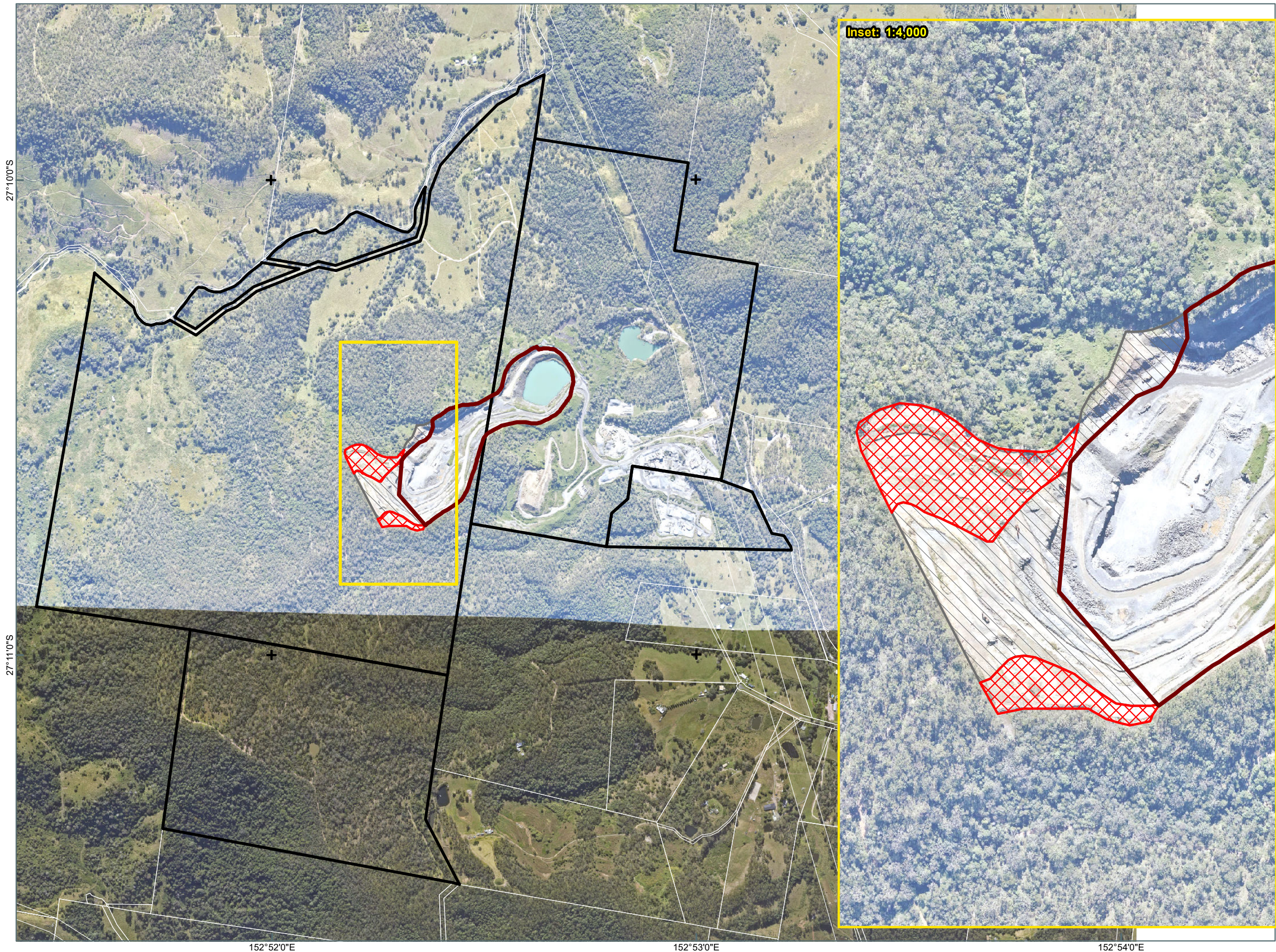


Table 4: MHQA scores from Baseline to Year 5.

Biocondition Score	Baseline (2019)	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 5 (2024)	Comment
Remnant Vegetation Management Area / RE12.11.3a – Transect 1						
Site condition	1.7	1.9	1.88	1.95	2.01	Minor increase in score from Baseline to Year 5.
Site context	2.1	2.1	2.25	2.25	2.25	
Species stocking rate	2.0	2.0	2.0	2.0	2.0	
Total	5.88	6.05	6.13	6.20	6.26	
Total Rounded	6	6	6	6	6	
Habitat Rehabilitation Area / RE12.11.18 - Transect 3 & 4						
Site condition	2.2	2.4	2.13	2.22	2.25	Increase in score from Baseline to Year 5
Site context	2.1	2.1	2.25	2.25	2.25	
Species stocking rate	2.0	2.0	2.0	2.0	2.0	
Total	6.33	6.54	6.38	6.47	6.50	
Total Rounded	6	7	6	6	7	



01. STAGE 1 CLEARING EXTENT (YEAR 6)



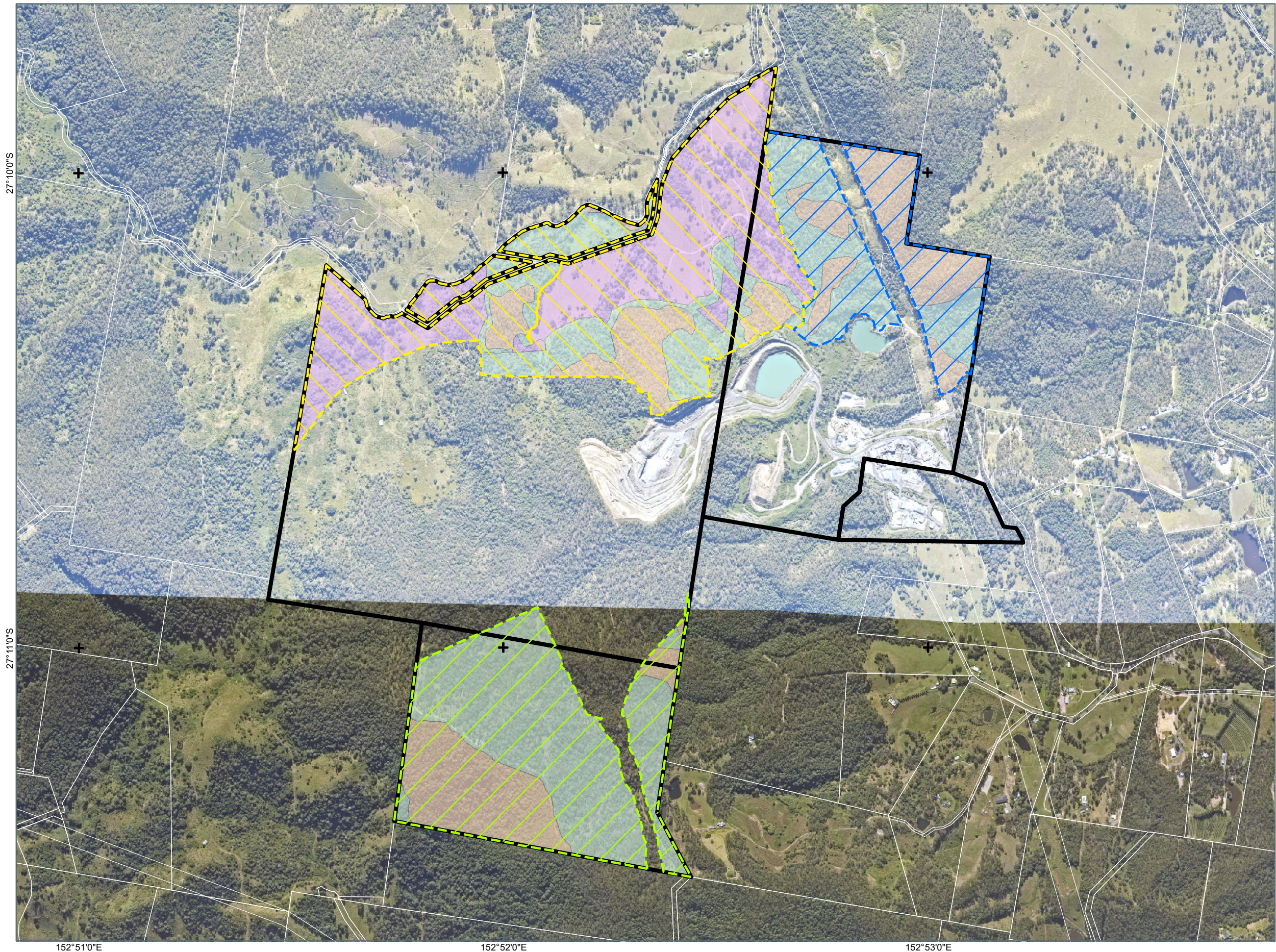
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- LEGEND**
- Boral landholdings
 - Existing quarry/cleared area
 - Previously reported clearing extents [3.26 ha]
 - Clearing extent during Year 6 reporting period [2.38 ha]



02.1 OFFSET AREA - HABITAT MANAGEMENT ZONES



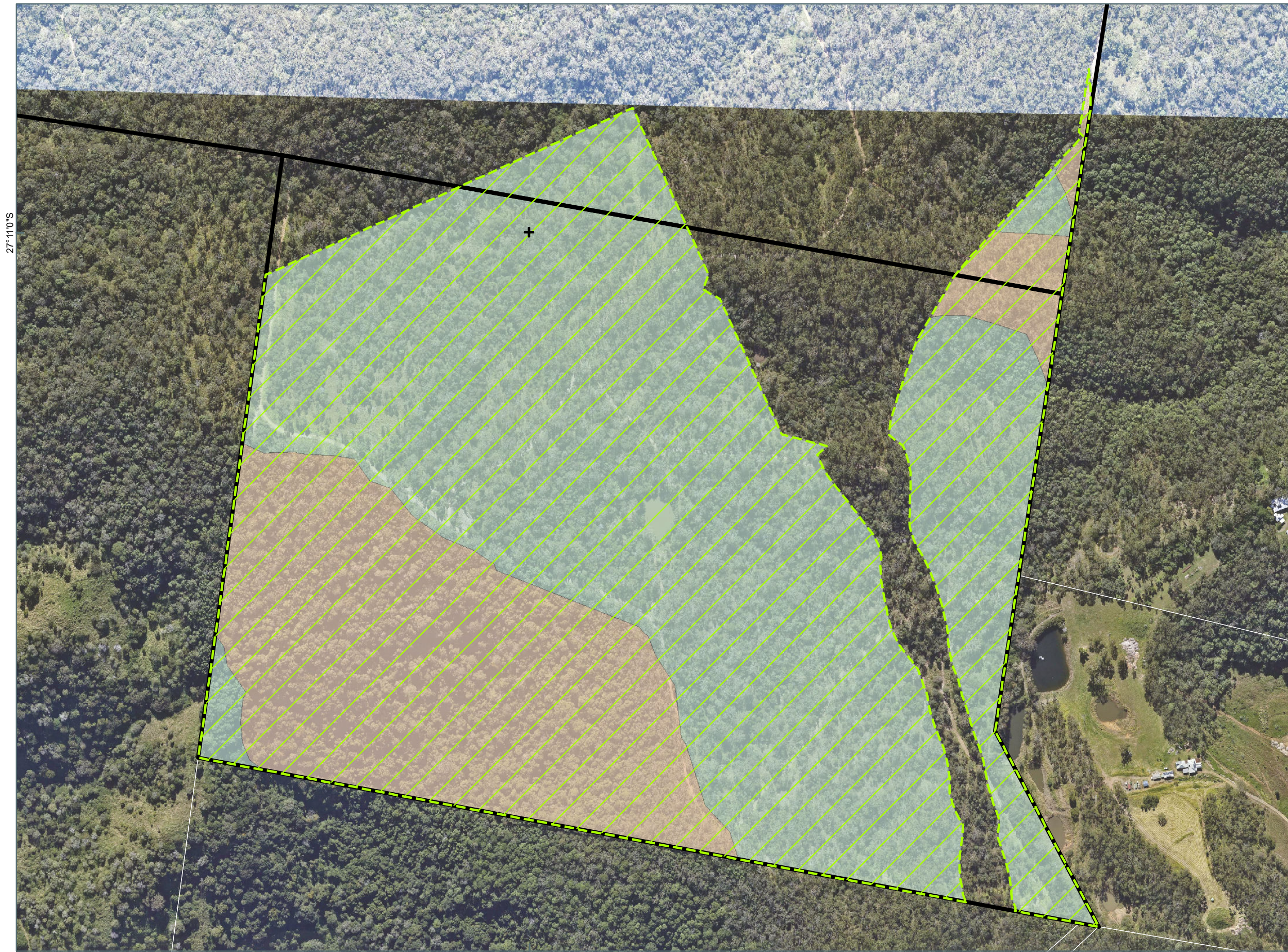
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- LEGEND**
- Boral landholdings
 - Offset staging**
 - Stage 1 [73.6 ha]
 - Stage 2 [41.1 ha]
 - Stage 3 [106.1 ha]
 - Habitat Management Zones**
 - Remnant Vegetation
 - Management Areas (57.9 ha)
 - Habitat Rehabilitation Areas (101.9 ha)
 - Habitat Revegetation Areas (62.7 ha)



02.2 OFFSET AREA - HABITAT MANAGEMENT ZONES (STAGE 1)



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LEGEND

Boral landholdings

Offset staging

Stage 1 [73.6 ha]

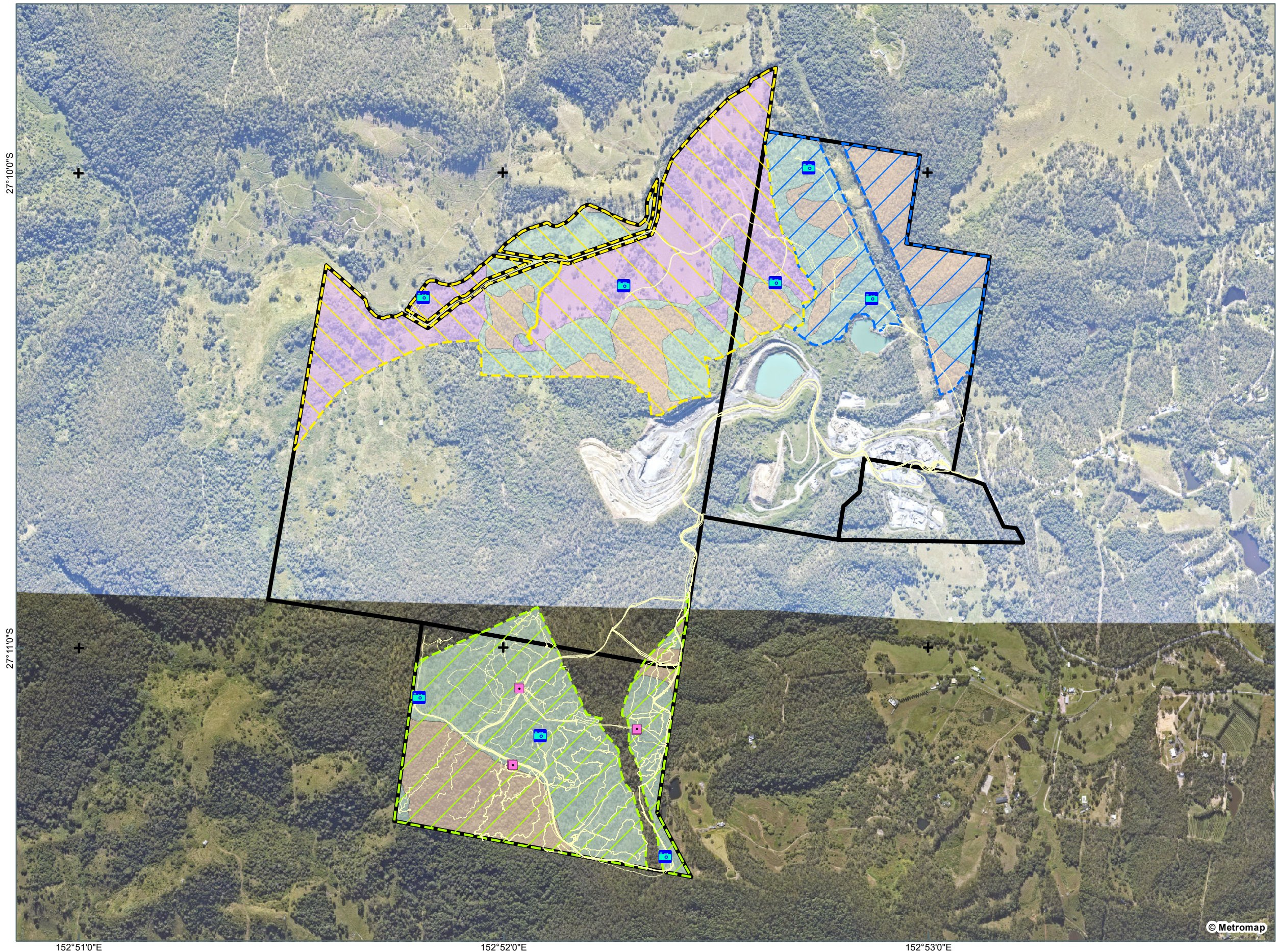
Habitat Management Zones

Remnant Vegetation Management Areas (57.9 ha)

Habitat Rehabilitation Areas (101.9 ha)



03. OFFSET AREA - FIELD SURVEY EFFORT (YEAR 6)



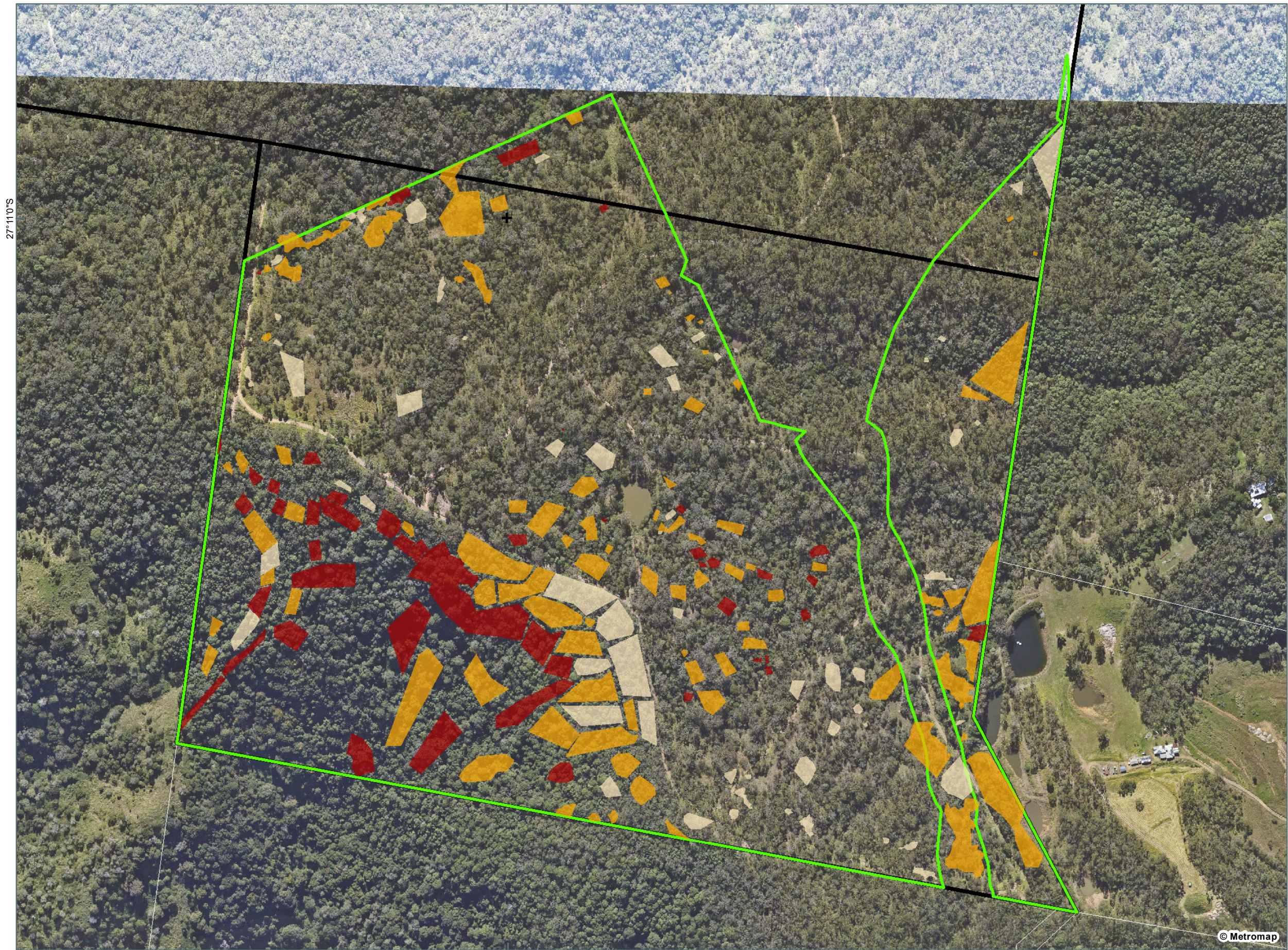
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- LEGEND**
- Boral landholdings
 - Offset staging**
 - Stage 1 [73.6 ha]
 - Stage 2 [41.1 ha]
 - Stage 3 [106.1 ha]
 - Habitat Management Zones**
 - Remnant Vegetation
 - Management Areas (57.9 ha)
 - Habitat Rehabilitation Areas (101.9 ha)
 - Habitat Revegetation Areas (62.7 ha)
 - Field Survey Effort**
 - Motion Detection Camera
 - SAT Survey
 - GPS Track Log



04. STAGE 1 - WEED MAPPING RESULTS (YEAR 6)



Notes:
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LEGEND

□ Qld DCDB

▭ Boral landholdings

Offset staging

▭ Stage 1 [73.6 ha]

Lantana weed mapping results

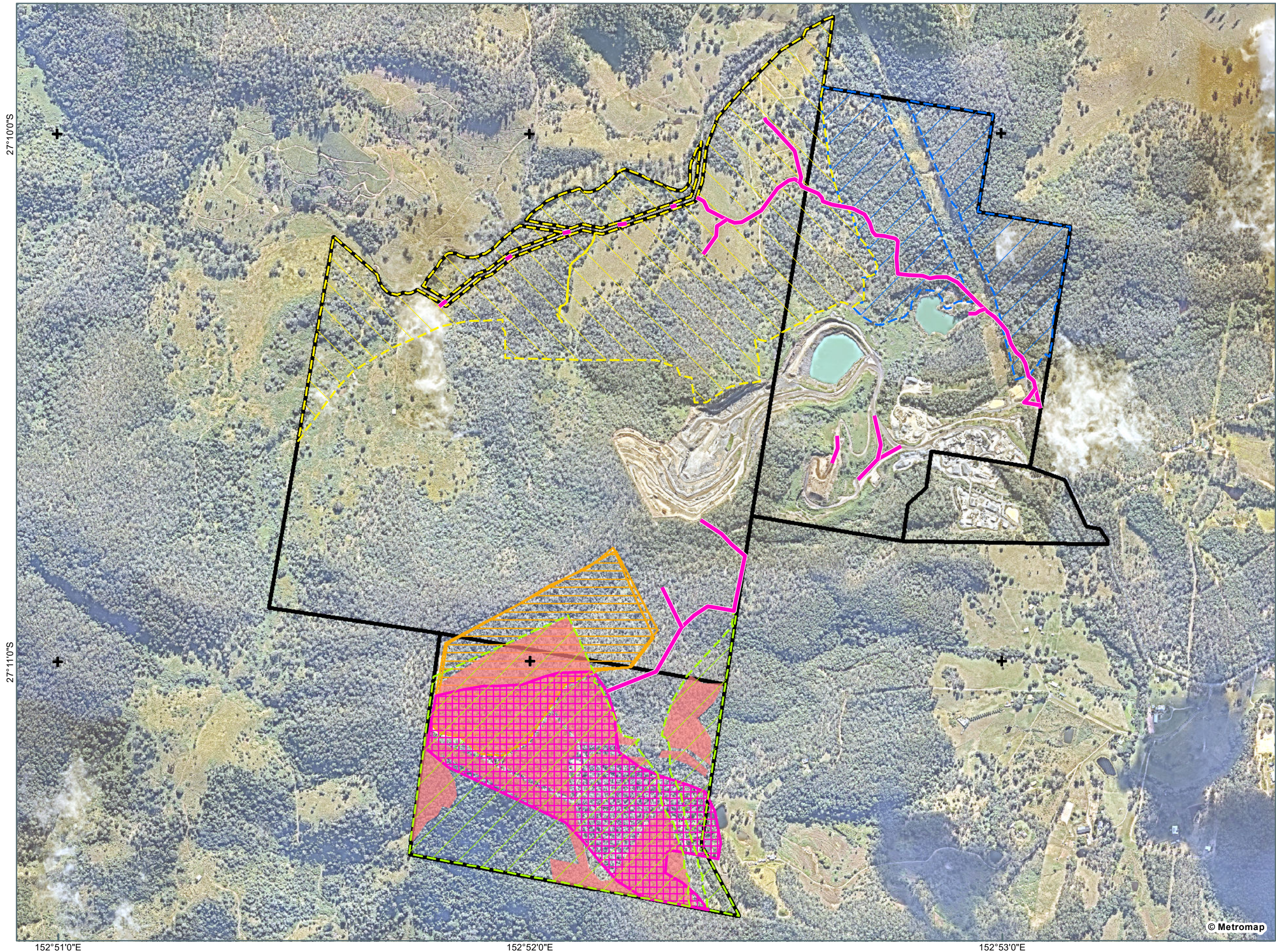
▭ High Density [3.34 ha]

▭ Medium Density [6.66 ha]

▭ Low Density [2.65 ha]



05. OFFSET AREA - WEED MANAGEMENT LOCATIONS (YEAR 6)



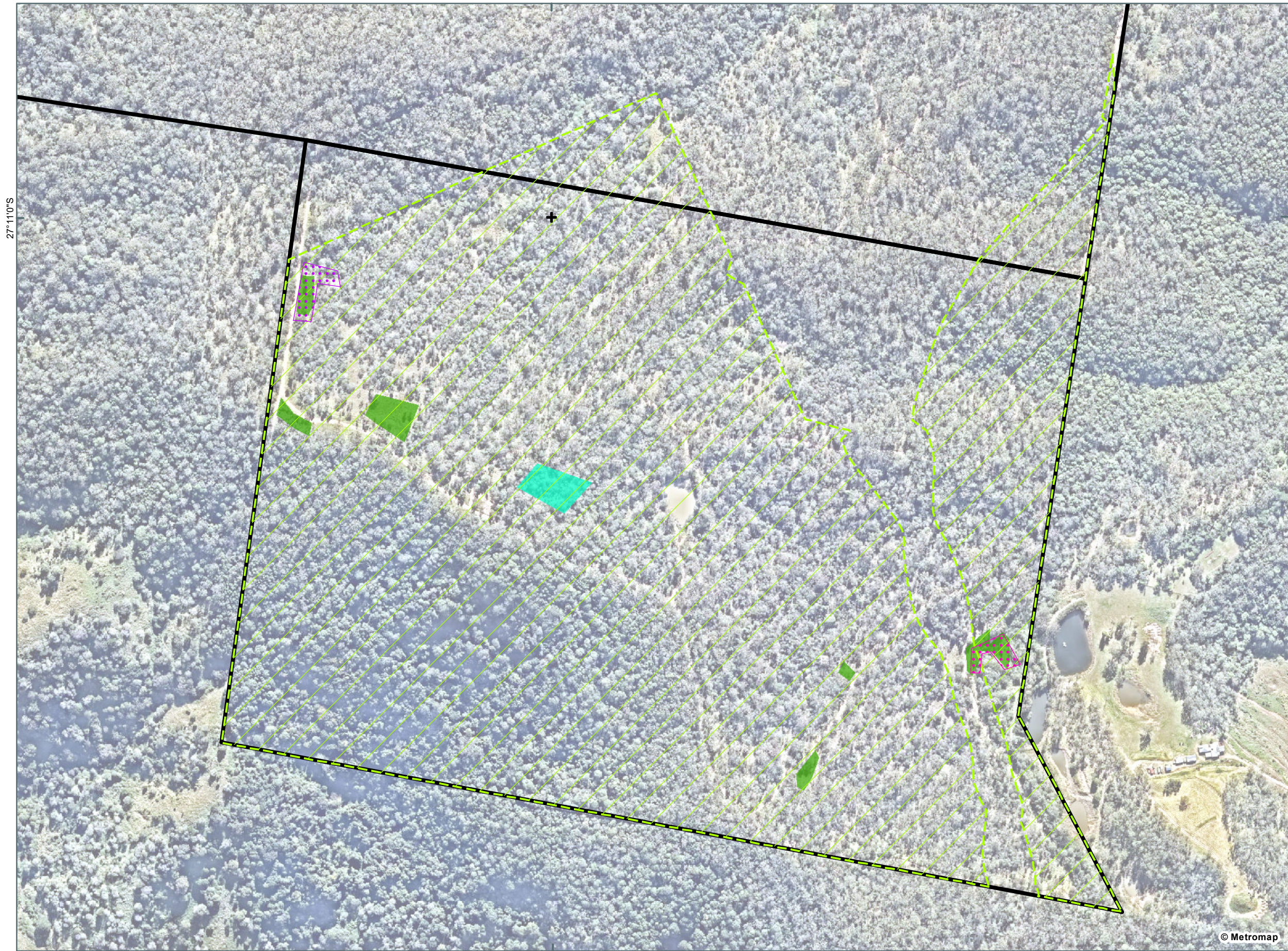
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- LEGEND**
- Qld DCDB
 - Boral landholdings
 - Weed Management Locations
 - Prescribed Burn
 - Weed Treated Areas
 - Weed Treated Tracks
- Offset staging**
- Stage 1 [73.6 ha]
 - Stage 2 [41.1 ha]
 - Stage 3 [106.1 ha]



06. OFFSET AREA - REHABILITATION/PLANTING LOCATIONS (YEAR 6)



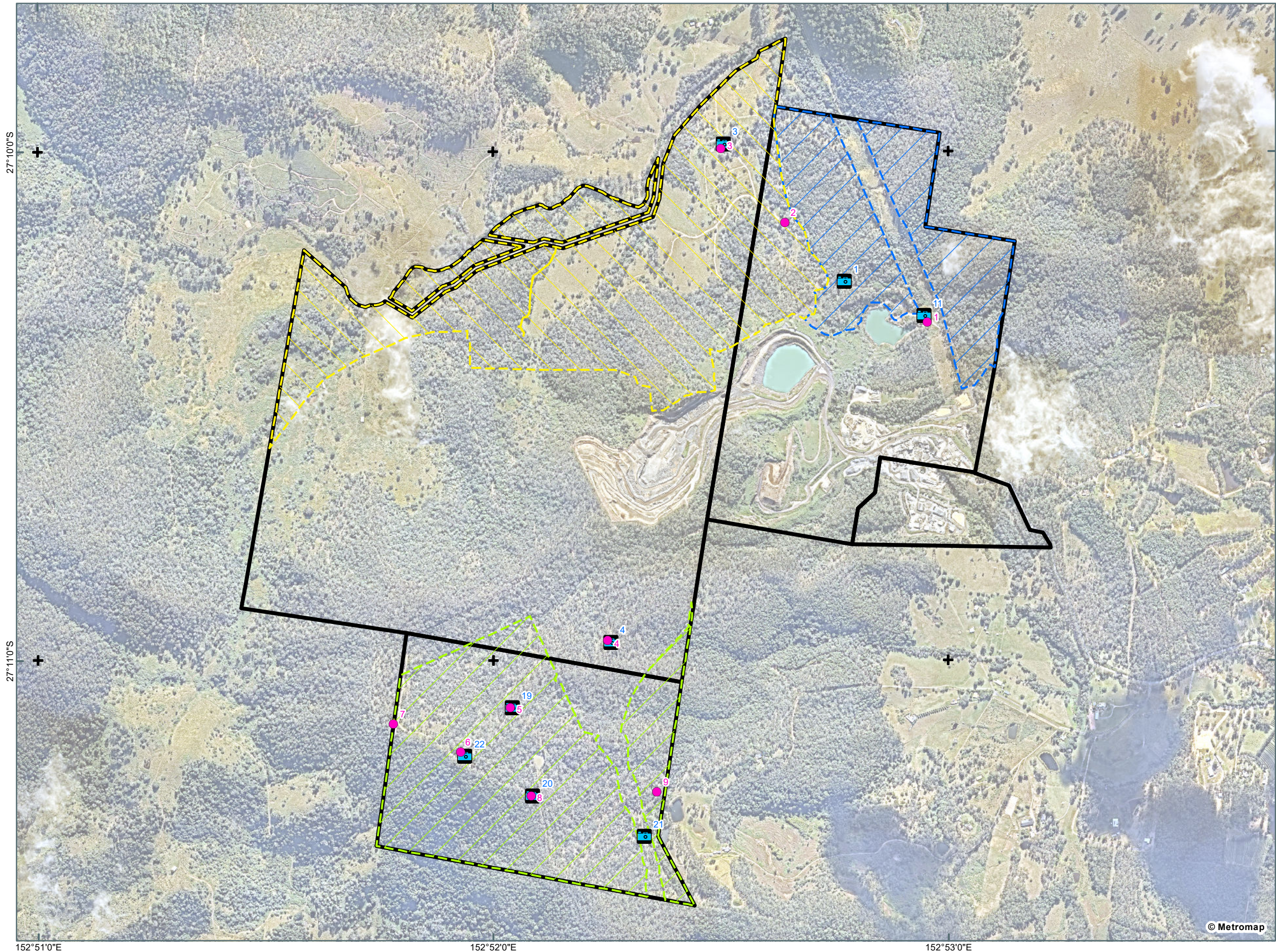
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- LEGEND**
- Qld DCDB
 - Boral landholdings
 - Offset staging**
 - Stage 1 [73.6 ha]
 - June 2021 Planting Area
 - November 2021 Planting Area
 - Rehabilitation/Planting locations 2024/2025
 - Rehabilitation/Planting Locations 2026



07. OFFSET AREA – VERTEBRATE PEST MANAGEMENT LOCATIONS (YEAR 6)



Notes:
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LEGEND

- Qld DCDB
- Boral landholdings
- Offset staging**
 - Stage 1 [73.6 ha]
 - Stage 2 [41.1 ha]
 - Stage 3 [106.1 ha]
- PIR Camera
- Soft Jaw Trap



3. EPBC Conditions and Compliance

Table 5 details the Conditions attached to the Narangba OMP Approval (EPBC 2014/7351). Sections 2-5 above provide details on process, steps and methodologies used to achieve the Conditions under the approval.

Table 5: Compliance Audit of EPBC 2014/7351 Conditions for Narangba Quarry

Date of decision	Condition Number / Reference	Condition	Is the Project compliant with this condition?	Evidence / Comments
19/08/2016	1	The approval holder must only undertake the action on the project site shown at Appendix A.	Compliant	The area of clearing on-site has occurred only within the Project area. Refer Plan 1 for clearing locations.
19/08/2016	2	The approval holder must not clear more than 52 hectares of Koala habitat on the project site.	Compliant	A total of 5.64 ha of Koala habitat within the project has been cleared since the commencement of the action in 2020, inclusive of 2.38 ha cleared in the current ACR reporting period.
10/08/2019 (variation)	3	To offset the loss of koala habitat, the approval holder must, by the 1 December 2018, submit an Offset Strategy for the Minister's written approval. The Offset Strategy must be consistent with the <i>EPBC Act Environmental Offsets Policy (2012)</i>, and must: a) confirm use of the offset area proposed in the preliminary documentation; and/or b) include the details of, and justification for, one or more other proposed offset area/s; and c) detail the process, including for preparation of the Offset Area Management Plan specified in	Compliant	Written approval for the Amended Environmental Offset Strategy was provided by the Minister on 10 th August 2019 (refer Appendix A).



Date of decision	Condition Number / Reference	Condition	Is the Project compliant with this condition?	Evidence / Comments
		Condition 3A, to ensure the offset area(s) is/are legally secured.		
		The approved Offset Strategy must be implemented.		
10/08/2019 (variation)	3A	To offset the loss of koala habitat, the approval holder must submit an Offset Area Management Plan (OAMP) for the Minister's written approval. The OAMP must be prepared in accordance with the Department's Environmental Management Plan Guidelines, and must: a) be consistent with the approved Offset Strategy and the EPBC Act Environmental Offsets Policy (2012); b) include performance and completion criteria to protect koalas and manage koala habitat; c) describe the management measures that will be implemented to achieve and maintain the performance and completion criteria, including discussion of how those measures take into account relevant conservation advice; and d) include a program to monitor (including detecting triggers) and report on the effectiveness of these measures, including triggers and corrective actions, and progress against performance and completion criteria.	Compliant – parts (a), b), (c), (d). Partial compliance part (e) Partial non-compliance part (e)	An Offset Management Plan (OMP) was prepared by SH and submitted on 6th November 2019. The OMP delineates the extent of three (3) management zones which are the 'Remnant Vegetation', 'Habitat Rehabilitation' and 'Habitat Revegetation' zones and details specific management measures to be implemented with each management zone of the offset site. Compliance with the management actions detailed in the OMP are addressed in Table 3. Condition 3A(e) relates to the implementation of the OMP. Management actions continued to be progressed throughout the Year 6 ACR reporting period, with some activities across the Stage one Offset Area of WONs subject to weather and site access constraints. In relation to the fire management strategy under the BMP, the prescribed burning activities remain a key component of ongoing management. Planning and preparation are continuing to facilitate the implementation of



Date of decision	Condition Number / Reference	Condition	Is the Project compliant with this condition?	Evidence / Comments
		e) The approval holder must not commence the action until the OAMP is approved by the Minister in writing. The approved OAMP must be implemented.		the relevant burns within FMU09 and FMU10 during 2026, subject to suitable weather conditions, site access and the necessary operational requirements. The proponent is continuing to progress these activities in accordance with the BMP and OMP. The status of the prescribed burning activities was subsequently considered in correspondence with DCCEE, including the Letter of Intent issues on 30 June 2026. As this correspondence falls within the subsequent reporting period, progress associated with the FMU09 and FMU10 burns will be addressed through the applicable reporting and compliance processes for that period.
10/08/2019 (variation)	3B	The approval holder must legally secure the offset area/s specified in the approved Offset Strategy by 28 February 2020.	Compliant	The Proponent legally secured the offset via a Voluntary Declaration under the <i>Vegetation Management Act 1999</i> on 24 th February 2020 (refer Appendix B). In accordance with Condition 3B, the offset was legally secured prior to the official commencement of the action on 12 th May 2020.



Date of decision	Condition Number / Reference	Condition	Is the Project compliant with this condition?	Evidence / Comments
19/08/2016	4	The approval holder must implement the sediment and erosion stormwater management plans, as required under the Queensland <i>Environmental Protection Act 1994</i> , Environmental Protection Regulation 2008 and the Environmental Protection (Water) Policy 2009.	Compliant	The Proponent implemented the sediment and erosion stormwater management plans as required, across the operating quarry site throughout the extent of Year 6.
19/08/2016	5	Within 20 days after the commencement of the action, the approval holder must advise the Department in writing of the actual date of commencement.	Compliant	The Department was notified on 4 th June 2020 that the action commenced on 12 th May 2020 which is 18 business days after the commencement date. Thus, notification was provided within the 20 business-day timeframe.
19/08/2016	6	The approval holder must maintain accurate records substantiating all activities and outcomes associated with or relevant to the conditions of approval, including measures taken to implement the management plans and demonstrate the outcomes required by this approval, and make them available upon request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may also be publicised through the general media.	Compliant	All records substantiating activities associated with or relevant to the conditions of approval are maintained by the Proponent. If required by the Minister, these records can be made available to allow a third-party audit of the Project. A Request for Further Information (RFI) was issued and a site inspection conducted by the Department during the Year 6 reporting period. This inspection was to view parts of the offset site as described within the Year 5 ACR and discuss items with the associated RFI.



Date of decision	Condition Number / Reference	Condition	Is the Project compliant with this condition?	Evidence / Comments
				The outcomes of this site visit and RFI are pending final correspondence from the Department.
19/08/2016	7	Unless otherwise agreed to in writing by the Minister, within three months of every 12-month anniversary of the commencement of the action, the approval holder must publish a report on its website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and details of non-compliance with any of the conditions of this approval must be provided to the Department at the same time as the compliance report is published. Reports must remain published for the life of the approval. The person taking the action must continue to publish this report each year until such time as agreed to in writing by the Minister.	Compliant	The Annual Compliance Report for Year 6 of the approval was published on the website prior to 12 August 2026. Year 1, Year 2, Year 3, Year 4 and Year 5 Annual Compliance reports remain accessible via the link below. The website link for the proponent is below: <https://www.boral.com.au/locations/boral-quarries-narangba>
19/08/2016	8	Upon the direction of the Minister, the approval holder must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Minister. The independent auditor and audit criteria must be approved by the Minister prior to the commencement of the audit. The audit report must address the approved criteria to the satisfaction of the Minister.	Not applicable	A request for an independent audit of the Project was not made by the Minister during the Year 6 reporting period.



Date of decision	Condition Number / Reference	Condition	Is the Project compliant with this condition?	Evidence / Comments
19/08/2016	9	The approval holder may choose to revise a plan approved by the Minister under the conditions without submitting it for approval under section 143A of the EPBC Act, if the taking of the action in accordance with the revised plan would not be likely to have a new or increased impact. If the approval holder makes this choice, it must: a) notify the Department in writing that the approved plan has been revised and provide the Department with: (i) an electronic copy of the revised plan or program; (ii) an explanation of the differences between the revised plan or program and the approved plan or program; and (iii) the reasons the person taking the action considers that taking the action in accordance with the revised plan or program would not be likely to have a new or increased impact; b) declare in writing a date on which the revised plan or program will first be implemented by the approval holder. That date of first implementation must be at least 28 days after sub-condition 9a is satisfied.	Not applicable	The Proponent did not choose to enact this right during the reporting period.



Date of decision	Condition Number / Reference	Condition	Is the Project compliant with this condition?	Evidence / Comments
19/08/2016	10	Condition 9 does not apply if the revisions to the approved plan, include changes to environmental offsets provided under the plan, in relation to a matter protected by a controlling provision for the action, unless otherwise agreed in writing by the Minister. This does not otherwise limit the circumstances in which the taking of the action in accordance with a revised plan, would, or would not, be likely to have new or increased impacts.	Not applicable	The Proponent did not choose to enact this right during the reporting period.
19/08/2016	11	The approval holder may revoke its choice under condition 9 at any time by giving written notice to the Department in which case, commencing on the day after giving such notice, the approval holder must implement the plan previously submitted for approval. If the approval holder revokes the choice to implement a revised plan, without approval under section 143A of the Act, the plan or strategy most recently approved by the Minister must be implemented.	Not applicable	The Proponent did not choose to enact this right during the reporting period.
19/08/2016	12	If the Minister gives a notice to the approval holder that the Minister is satisfied that the taking of the action in accordance with the revised plan would be likely to have a new or increased impact, then: a) condition 9 does not apply, or ceases to apply, in relation to the revised plan; and	Not applicable	The Proponent did not choose to enact this right during the reporting period.



Date of decision	Condition Number / Reference	Condition	Is the Project compliant with this condition?	Evidence / Comments
		b) the approval holder must implement the plan previously submitted for approval and approved by the Minister. To avoid any doubt, this condition does not affect any operation of conditions 9 and 10 in the period before the day the notice is given. At the time of giving the notice the Minister may also notify that for a specified period of time that condition 9 does not apply for one or more specified plans required under the approval.		
19/08/2016	13	Conditions 9, 10 and 11 are not intended to limit the operation of section dated 143A of the EPBC Act which allows the approval holder to submit a 19/08/2016 revised plan or strategy to the Minister for approval.	Not applicable	The Proponent did not choose to enact this right during the reporting period.
19/08/2016	14	The approval holder must report any contravention of the conditions of this approval to the Department within 2 business days of the approval holder becoming aware of the contravention.	Compliant	No incidents have occurred within the Year 6 reporting period. A minor clearing incident occurred in the Year 1 reporting period and was reported by Boral to the Department.
19/08/2016	15	If, at any time after 5 years from the date of this approval, the approval holder has not substantially commenced the action, then the approval holder must not substantially commence the action without the written agreement of the Minister.	Not applicable	The action commenced on 12 th May 2020; therefore, this condition is not applicable.



Date of decision	Condition Number / Reference	Condition	Is the Project compliant with this condition?	Evidence / Comments
19/08/2016	16	Unless otherwise agreed to in writing by the Minister, the approval holder must publish all management plans and reports, referred to in these conditions of approval on its website. Each management plan must be published on the website within one month of being approved by the Minister or submitted under condition 9a. All published reports must remain on website for the life of the approval unless otherwise agreed to in writing by the Minister.	Compliant	The approved Management Plans detailed within the referral conditions were uploaded within 1 month of being approved. The conditioned plans include the Offset Management Plan (OMP) and the Offsets Strategy were uploaded prior to the commencement of the action. The website link for the proponent is below: <https://www.boral.com.au/locations/boral-quarries-narangba>



4. Non-compliances

4.1. Weed Management

The OMP states that all WONS will be treated within 12 months of the commencement of each stage of clearing for the Action. As detailed in **Table 3**, management of WONS was not able to be completed across the entirety of the Stage 1 offset area. Management of WONS was not able to be completed within part of the southern portion of the 'Remnant Vegetation' management area due to continuing safety concerns in accessibility and current issues with addressing these concerns without degrading the structural integrity of the steep slope, by developing access tracks in strategic locations across it. This constrained the ability to complete weed treatment within the southern remnant areas onsite. At present, an option to provide safe, effective access to these areas during dry weather, to allow personnel to carry weed treatment equipment and successfully treat weeds in the area, while maintaining the integrity of the landform, is being developed to integrate into on site management.

While a large area of WONS has been treated, covering the majority of the offset area, with treatment encroaching well into the remnant area during the ACR year, as this is not 100%, this is identified as a minor non-compliance under the requirements of the OMP. A full review and recommendations for potential updates to the OMP via adaptive management processes, will be completed in the coming year to identify and address any discrepancies in administrative OMP details following detailed on ground understanding of site conditions and weather impacts.

The current bushland regeneration contractors, Phoenix Environmental Services, continue discussions with Boral about the approach for weed management further within the remnant portion of Stage 1, with further proposed spraying and manual removal to occur within these areas in Year 6. Further options are currently being investigated on ground to ensure these areas of weeds are treated within the Year 7 reporting period.

4.2. Fire Management

During the reporting period, the prescribed burn identified within FMU09 could not be undertaken due to unsuitable weather conditions. The BMP recognises that prescribed burning is dependent on appropriate environmental and operational conditions and provides for alternative fuel management approaches where ecological burns are not considered suitable. As such, the inability to undertake the prescribed burn during the reporting period did not represent a departure from the overall intent of the BMP. The prescribed burning program remains an active management action and is being progressed for implementation when suitable conditions are available, in consultation with relevant fire management stakeholders and in accordance with the BMP.

The status of the prescribed burning program was subsequently discussed with DCCEEW through ongoing correspondence, including matters raised in the Letter of Intent dated 30 June 2026. Implementation of the prescribed burning program within FMU09 and FMU10 remains an active management priority and is currently being progressed in accordance with the BMP.



In addition, annual inspections have been undertaken, and maintenance activities are being conducted across the offset area. Prolonged wet weather and associated access constraints affected the timing and extent of some maintenance works during the reporting period; however, maintenance works remain ongoing and are being progressively completed as access conditions allow. Boral will continue to implement the fire management measures outlined in the BMP and monitor progress through the applicable compliance reporting processes.



5. Appendices

Appendix A

EPBC Approval Conditions (EPBC 2014/7351)

Appendix B

Offset Area Voluntary Declaration Package

Appendix C

Written Notification of Commencement of Action

Appendix D

Contractor Reports

Appendix E

Weed Management Plan

Appendix F

Vertebrate Pest Management Plan

Appendix G

Bushfire Management Plan

Appendix H

Koala Habitat Management Plan



Appendix A

EPBC Approval Conditions (EPBC 2014/7351)





Approval

Narangba Quarry Expansion, Raynbird Road, Narangba, Queensland (EPBC 2014/7351).

This decision is made under sections 130(1) and 133 of the *Environment Protection and Biodiversity Conservation Act 1999*.

Proposed action

person to whom the approval is granted Boral Resources (QLD) Pty Limited

proponent's ACN (if applicable) ACN: 009 671 809

proposed action Fifty six hectare (56 ha) expansion of the existing Narangba Quarry, including clearing of 52 ha of vegetation. The quarry expansion site is located on Raynbird Road, 18 km south of Caboolture; as described in the referral received by the Department on 30 September 2014 [See EPBC Act referral 2014/7351].

DECISION to approve:

Approval decision

Controlling Provision	Decision
Listed threatened species and communities (sections 18 & 18A)	Approve

conditions of approval

This approval is subject to the conditions specified below.

expiry date of approval

This approval has effect until 18 August 2076.

Decision-maker

name and position James Barker
Assistant Secretary
Assessments (Qld, Tas, Vic) and Sea Dumping Branch

signature

date of decision

19 / 8 / 2016

Conditions attached to the approval

1. The **approval holder** must only undertake the **action** on the **project site** shown at Appendix A.
2. The **approval holder** must not clear more than 52 hectares of **koala habitat** on the **project site**.
3. The **approval holder** must submit an Offset Management Plan for the **Minister's** written approval. The Offset Management Plan must:
 - a. be consistent with the offset proposed in the **preliminary documentation** and the **EPBC Act Environmental Offsets Policy (2012)**;
 - b. include a description of the management measures that will be implemented for the protection of koala and **koala habitat**, including discussion of how measures outlined take into account relevant conservation advice;
 - c. include a program to monitor and report on the effectiveness of these measures, and progress against performance and completion criteria; and
 - d. outline the process to obtain the legal mechanism for securing the offset area into conservation within 2 years of this approval.

The **approval holder** must not **commence** the action until the Offset Management Plan is approved by the **Minister** in writing. The approved Offset Management Plan must be implemented.

-
4. The **approval holder** must implement the sediment and erosion and stormwater management plans, as required under the Queensland *Environmental Protection Act 1994*, *Environmental Protection Regulation 2008* and the *Environmental Protection (Water) Policy 2009*.

General

5. Within 20 days after the **commencement** of the **action**, the **approval holder** must advise the **Department** in writing of the actual date of **commencement**.
6. The **approval holder** must maintain accurate records substantiating all activities and outcomes associated with or relevant to the conditions of approval, including measures taken to implement the management plans and demonstrate the outcomes required by this approval, and make them available upon request to the **Department**. Such records may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the **EPBC Act**, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the **Department's** website. The results of audits may also be publicised through the general media.
7. Unless otherwise agreed to in writing by the **Minister**, within three months of every 12 month anniversary of the **commencement** of the **action**, the **approval holder** must publish a report on its website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and details of non-compliance with any of the conditions of this approval must be provided to the **Department** at the same time as the compliance report is published. Reports must remain published for the life of the approval. The person taking the action must continue to publish this report each year until such time as agreed to in writing by the **Minister**.

8. Upon the direction of the **Minister**, the **approval holder** must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the **Minister**. The independent auditor and audit criteria must be approved by the **Minister** prior to the commencement of the audit. The audit report must address the approved criteria to the satisfaction of the **Minister**.
9. The **approval holder** may choose to revise a plan approved by the **Minister** under the conditions without submitting it for approval under section 143A of the **EPBC Act**, if the taking of the **action** in accordance with the revised plan would not be likely to have a **new or increased impact**. If the **approval holder** makes this choice it must:
 - a. notify the **Department** in writing that the approved plan has been revised and provide the **Department** with:
 - i. an electronic copy of the revised plan or program;
 - ii. an explanation of the differences between the revised plan or program and the approved plan or program; and
 - iii. the reasons the person taking the action considers that taking the action in accordance with the revised plan or program would not be likely to have a **new or increased impact**;
 - b. declare in writing a date on which the revised plan or program will first be implemented by the **approval holder**. That date of first implementation must be at least 28 days after sub-condition 9a. is satisfied.
10. Condition 9 does not apply if the revisions to the approved plan, include changes to environmental offsets provided under the plan, in relation to a matter protected by a controlling provision for the action, unless otherwise agreed in writing by the **Minister**. This does not otherwise limit the circumstances in which the taking of the action in accordance with a revised plan, would, or would not, be likely to have **new or increased impacts**.
11. The **approval holder** may revoke its choice under condition 9 at any time by giving written notice to the **Department** in which case, commencing on the day after giving such notice, the **approval holder** must implement the plan previously submitted for approval. If the **approval holder** revokes the choice to implement a revised plan, without approval under section 143A of the Act, the plan or strategy most recently approved by the **Minister** must be implemented.
12. If the **Minister** gives a notice to the **approval holder** that the **Minister** is satisfied that the taking of the **action** in accordance with the revised plan would be likely to have a **new or increased impact**, then:
 - a. condition 9 does not apply, or ceases to apply, in relation to the revised plan; and
 - b. the **approval holder** must implement the plan previously submitted for approval and approved by the **Minister**.

To avoid any doubt, this condition does not affect any operation of conditions 9 and 10 in the period before the day the notice is given.

At the time of giving the notice the **Minister** may also notify that for a specified period of time that condition 9 does not apply for one or more specified plans required under the approval.

13. Conditions 9, 10 and 11 are not intended to limit the operation of section 143A of the **EPBC Act** which allows the **approval holder** to submit a revised plan or strategy to the **Minister** for approval.
14. The **approval holder** must report any contravention of the conditions of this approval to the **Department** within 2 business days of the **approval holder** becoming aware of the contravention.
15. If, at any time after 5 years from the date of this approval, the **approval holder** has not substantially **commenced** the **action**, then the **approval holder** must not substantially **commence** the **action** without the written agreement of the **Minister**.
16. Unless otherwise agreed to in writing by the **Minister**, the **approval holder** must publish all management plans and reports, referred to in these conditions of approval on its website. Each management plan must be published on the website within one month of being approved by the **Minister** or submitted under condition 9a. All published reports must remain on website for the life of the approval unless otherwise agreed to in writing by the Minister.

Definitions

Action: the Narangba Quarry Expansion project as referred under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC 2014/7351)

Approval holder: the person to whom the approval is granted or any person acting on their behalf, or to whom the approval is transferred under section 145B of the **EPBC Act**.

Commence/commencement: The clearing of vegetation or construction of any infrastructure, excluding fences and signage, associated with the proposed action.

Department: The Australian Government Department or any other agency administering the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) from time to time.

EPBC Act: the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

EPBC Act Environmental Offsets Policy (2012): the *Environment Protection and Biodiversity Conservation Act 1999* Environmental Offsets Policy (October 2012), or subsequent revision, including the Offset Assessment Guide.

Koala habitat: forest or woodland with two or more **known koala food tree species**, OR one food tree species that alone accounts for >50% of the vegetation in the relevant strata. Habitat that is threats, such as dogs and vehicle strike, removed. As described in *EPBC Act referral guidelines for the vulnerable koala (combined populations of Qld, NSW and the ACT)*. Commonwealth of Australia, 2014.

Known koala food tree species: species of trees whose leaves are consumed by koalas. Koala food trees can generally be considered to be those of the following genus: *Angophora*, *Corymbia*, *Eucalyptus*, *Lophostemon* and *Melaleuca*. Note that food tree species may vary spatially and temporally and information specific to local area is likely to be most accurate. For lists of koala food tree species refer to the scientific literature or QLD Department of

Environment and Heritage protection koala habitat webpage:
www.ehp.qld.gov.au/wildlife/koalas/koala-ecology.html

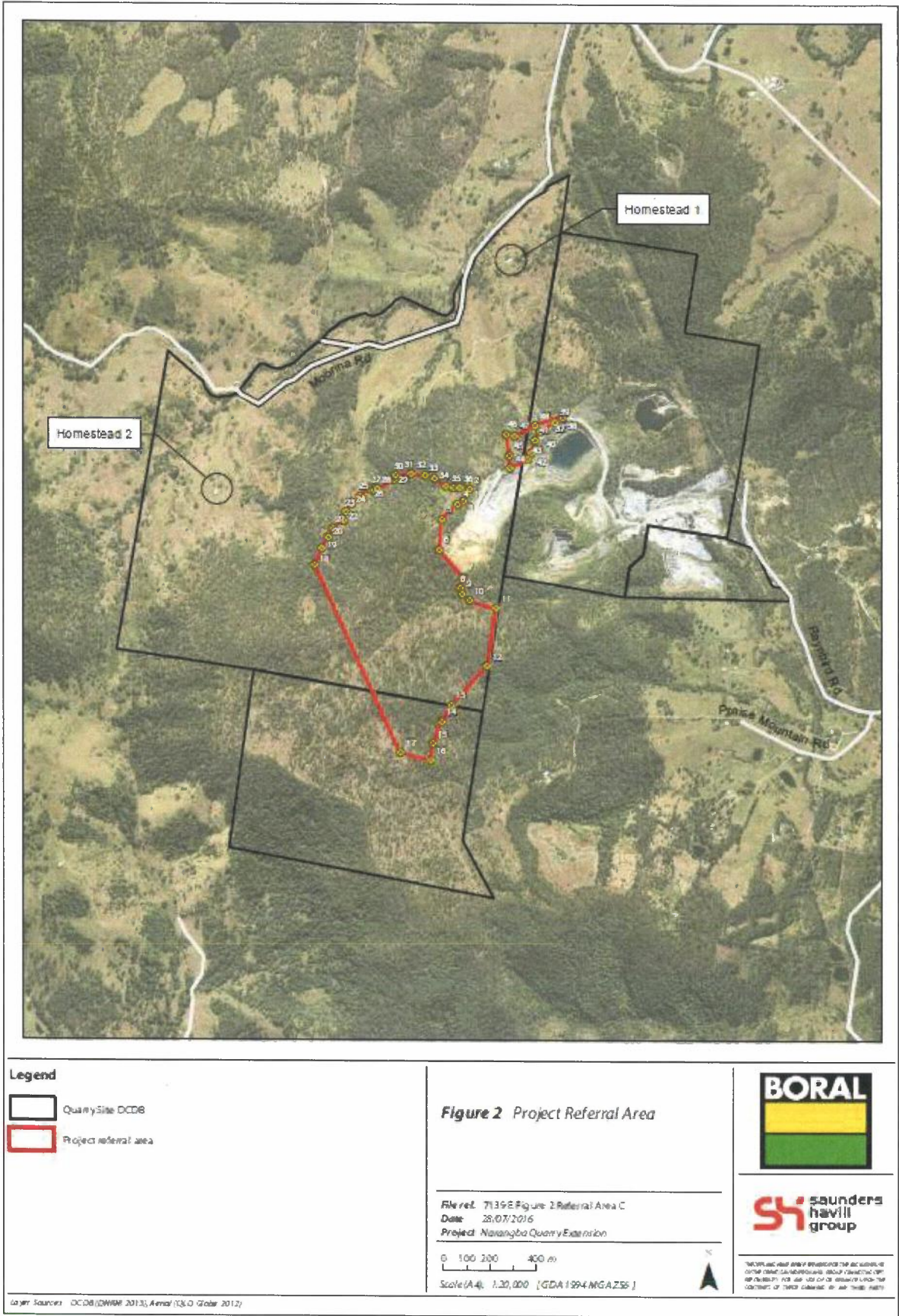
Minister: the **Minister** administering the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) and includes a delegate of the **Minister**.

New or increased impact: A new or increased impact on any matter protected by the controlling provisions for the action, when compared the environmental impact or risk resulting from implementing to the plan, that has been approved by the Minister.

Preliminary documentation: *Narangba Quarry Expansion, EPBC Act Preliminary Documentation Submission* (March 2016). Saunders Havill Group on behalf of Boral Resources (Qld) Pty Ltd. As provided to the Department of the Environment.

Project site: Lot 1 on RP167435, Lot 53 on RP895391, Lot 139 on SL10320 and Lot 93 on SP193378 Raynbird Road, Narangba, Queensland as displayed in Appendix A.

Appendix A





VARIATION OF CONDITIONS ATTACHED TO APPROVAL
Narangba Quarry Expansion, Raynbird Road, Narangba, Queensland
(EPBC 2014/7351)

This decision to vary conditions of approval is made under section 143 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Approved action

Person to whom the approval is granted

Boral Resources (QLD) Pty Limited
ABN: 009 671 809

Approved action

Fifty six hectare (56 ha) expansion of the existing Narangba Quarry, including clearing of 52 ha of vegetation. The quarry expansion site is located on Raynbird Road, 18 km south of Caboolture; as described in the referral received by the Department on 30 September 2014 [See EPBC Act referral 2014/7351].

Variation

Variation of conditions attached to approval

The variation is:

Delete conditions 3 and 3A attached to the approval and substitute with conditions 3 and 3A specified in the table below.

Add new condition 3B specified in table below.

Delete the definition for Koala habitat attached to the approval and substitute with the definition for Koala habitat specified in the table below.

Date of effect

This variation has effect on the date the instrument is signed

Person authorised to make decision

Name and position

Gregory Manning
Assistant Secretary
Assistant (WA, SA, NT) & Post Approvals Branch

Signature

Date of decision

10 August 2019

Date of decision	Definitions attached to approval
Original dated 19/08/2016	Commence/commencement: The clearing of vegetation or construction of any infrastructure, excluding fences and signage, associated with the proposed action.
Original dated 19/08/2016	Department: The Australian Government Department or any other agency administering the <i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i> from time to time.
Variation dated 24/08/2018	Environmental Management Plan Guidelines means the <i>Environmental Management Plan Guidelines</i> (2014), or subsequent revision. Available at www.environment.gov.au/epbc/publications/environmental-management-plan-guidelines .
Original dated 19/08/2016	EPBC Act: the <i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i> .
Original dated 19/08/2016	EPBC Act Environmental Offsets Policy (2012): the <i>Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy (October 2012)</i> , or subsequent revision, including the Offset Assessment Guide.
As varied on the date this instrument was signed	Koala habitat: forest or woodland with two or more known koala food tree species , OR one food tree species that alone accounts for >50% of the vegetation in the relevant strata. Koala habitat does not include habitat that is subject to threats, such as dogs and vehicle strike. As described in EPBC Act referral guidelines for the vulnerable koala (combined populations of Qld, NSW and the ACT). Commonwealth of Australia, 2014.
Original dated 19/08/2016	Known koala food tree species: species of trees whose leaves are consumed by koalas. Koala food trees can generally be considered to be those of the following genus: <i>Angophora</i> , <i>Corymbia</i> , <i>Eucalyptus</i> , <i>Lophostemon</i> and <i>Melaleuca</i> . Note that food tree species may vary spatially and temporally and information specific to local area is likely to be most accurate. For lists of koala food tree species refer to the scientific literature or QLD Department of Environment and Heritage protection koala habitat webpage: www.ehp.qld.gov.au/wildlife/koalas/koala-ecology.html
Variation dated 24/08/2018	Legally secured means placing on the land title, for the duration of the impact of the action , a voluntary declaration under the <i>Vegetation Management Act 1999 (Qld)</i> .
Original dated 19/08/2016	Minister: the Minister administering the <i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i> and includes a delegate of the Minister .
Original dated 19/08/2016	New or increased impact: A new or increased impact on any matter protected by the controlling provisions for the action, when compared the environmental impact or risk resulting from implementing to the plan that has been approved by the Minister.
Original dated 19/08/2016	Preliminary documentation: <i>Narangba Quarry Expansion, EPBC Act Preliminary Documentation Submission</i> (March 2016). Saunders Havill Group on behalf of Boral Resources (Qld) Pty Ltd. As provided to the Department of the Environment.
Original dated 19/08/2016	Project site: Lot 1 on RP167435, Lot 53 on RP895391, Lot 139 on SL10320 and Lot 93 on SP193378 Raynbird Road, Narangba, Queensland as displayed in <u>Appendix A</u> .

Date of decision	Conditions attached to approval
Original dated 19/08/2016	1. The approval holder must only undertake the action on the project site shown at <u>Appendix A</u> .
Original dated 19/08/2016	2. The approval holder must not clear more than 52 hectares of koala habitat on the project site .
As varied on the date this instrument was signed	3. To offset the loss of koala habitat, the approval holder must, by 1 December 2018, submit an Offset Strategy for the Minister's written approval. The Offset Strategy must be consistent with the EPBC Act Environmental Offsets Policy (2012), and must: a) confirm use of the offset area proposed in the preliminary documentation; and/or b) include the details of, and justification for, one or more other proposed offset area/s; and c) detail the process, including for preparation of the Offset Area Management Plan specified in Condition 3A, to ensure the offset area(s) is/are legally secured. The approved Offset Strategy must be implemented.
As varied on the date this instrument was signed	3A. To offset the loss of koala habitat, the approval holder must submit an Offset Area Management Plan (OAMP) for the Minister's written approval. The OAMP must be prepared in accordance with the Department's Environmental Management Plan Guidelines, and must: a) be consistent with the approved Offset Strategy and the EPBC Act Environmental Offsets Policy (2012); b) include performance and completion criteria to protect koalas and manage koala habitat; c) describe the management measures that will be implemented to achieve and maintain the performance and completion criteria, including discussion of how those measures take into account relevant conservation advice; and d) include a program to monitor (including detecting triggers) and report on the effectiveness of these measures, including triggers and corrective actions, and progress against performance and completion criteria. The approval holder must not commence the action until the OAMP is approved by the Minister in writing. The approved OAMP must be implemented.
As varied on the date this instrument was signed	3B. The approval holder must legally secure the offset area/s specified in the approved Offset Strategy by 28 February 2020.
Original dated 19/08/2016	4. The approval holder must implement the sediment and erosion and stormwater management plans, as required under the <i>Queensland Environmental Protection Act 1994</i> , <i>Environmental Protection Regulation 2008</i> and the <i>Environmental Protection (Water) Policy 2009</i> .
Original dated 19/08/2016	5. Within 20 days after the commencement of the action , the approval holder must advise the Department in writing of the actual date of commencement .

Date of decision	Conditions attached to approval
Original dated 19/08/2016	6. The approval holder must maintain accurate records substantiating all activities and outcomes associated with or relevant to the conditions of approval, including measures taken to implement the management plans and demonstrate the outcomes required by this approval, and make them available upon request to the Department . Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act , or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may also be publicised through the general media.
Original dated 19/08/2016	7. Unless otherwise agreed to in writing by the Minister , within three months of every 12 month anniversary of the commencement of the action, the approval holder must publish a report on its website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and details of non-compliance with any of the conditions of this approval must be provided to the Department at the same time as the compliance report is published. Reports must remain published for the life of the approval. The person taking the action must continue to publish this report each year until such time as agreed to in writing by the Minister .
Original dated 19/08/2016	8. Upon the direction of the Minister , the approval holder must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Minister . The independent auditor and audit criteria must be approved by the Minister prior to the commencement of the audit. The audit report must address the approved criteria to the satisfaction of the Minister .
Original dated 19/08/2016	9. The approval holder may choose to revise a plan approved by the Minister under the conditions without submitting it for approval under section 143A of the EPBC Act , if the taking of the action in accordance with the revised plan would not be likely to have a new or increased impact . If the approval holder makes this choice it must: a) notify the Department in writing that the approved plan has been revised and provide the Department with: i) an electronic copy of the revised plan or program; ii) an explanation of the differences between the revised plan or program and the approved plan or program; and iii) the reasons the person taking the action considers that taking the action in accordance with the revised plan or program would not be likely to have a new or increased impact; b) declare in writing a date on which the revised plan or program will first be implemented by the approval holder. That date of first implementation must be at least 28 days after sub-condition 9a is satisfied.
Original dated 19/08/2016	10. Condition 9 does not apply if the revisions to the approved plan, include changes to environmental offsets provided under the plan, in relation to a matter protected by a controlling provision for the action, unless otherwise agreed in writing by the Minister . This does not otherwise limit the circumstances in which the taking of the action in accordance with a revised plan, would, or would not, be likely to have new or increased impacts .

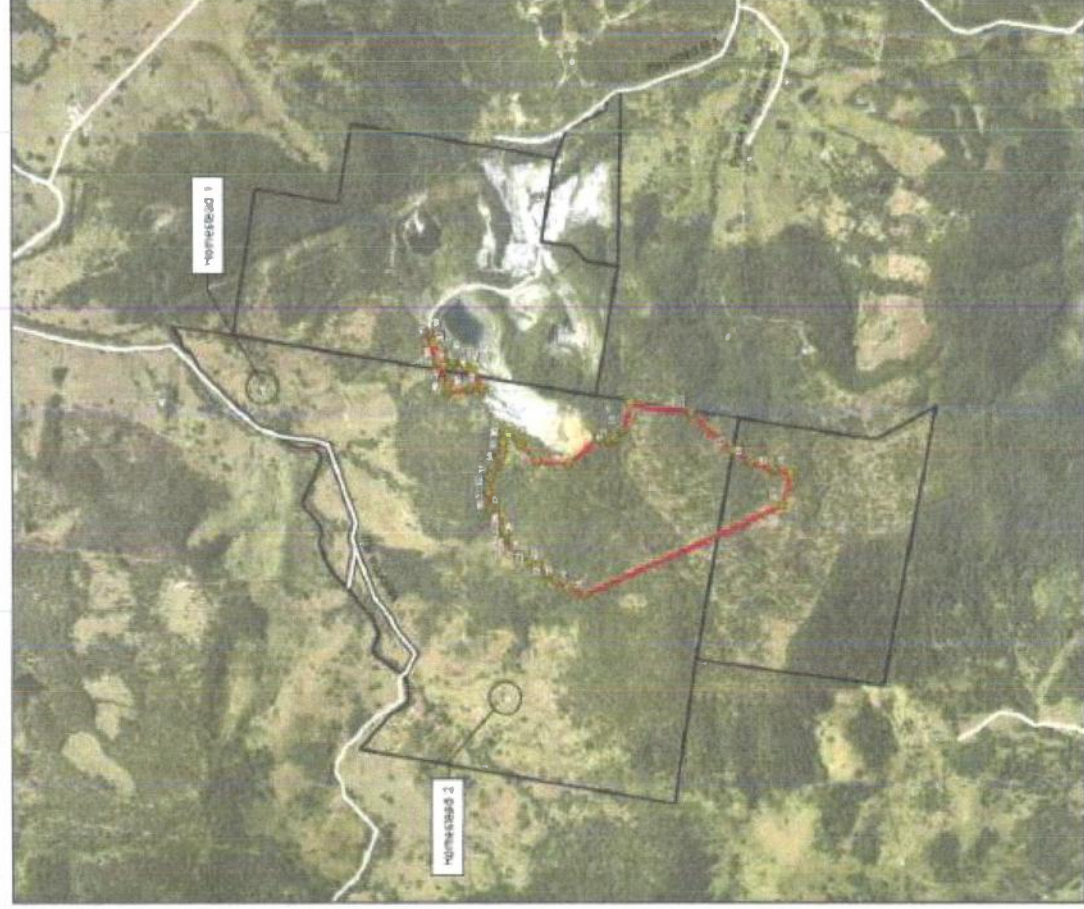
Date of decision	Conditions attached to approval
Original dated 19/08/2016	11. The approval holder may revoke its choice under condition 9 at any time by giving written notice to the Department in which case, commencing on the day after giving such notice, the approval holder must implement the plan previously submitted for approval. If the approval holder revokes the choice to implement a revised plan, without approval under section 143A of the Act, the plan or strategy most recently approved by the Minister must be implemented.
Original dated 19/08/2016	12. If the Minister gives a notice to the approval holder that the Minister is satisfied that the taking of the action in accordance with the revised plan would be likely to have a new or increased impact , then: a) condition 9 does not apply, or ceases to apply, in relation to the revised plan; and b) the approval holder must implement the plan previously submitted for approval and approved by the Minister. To avoid any doubt, this condition does not affect any operation of conditions 9 and 10 in the period before the day the notice is given. At the time of giving the notice the Minister may also notify that for a specified period of time that condition 9 does not apply for one or more specified plans required under the approval.
Original dated 19/08/2016	13. Conditions 9, 10 and 11 are not intended to limit the operation of section 143A of the EPBC Act which allows the approval holder to submit a revised plan or strategy to the Minister for approval.
Original dated 19/08/2016	14. The approval holder must report any contravention of the conditions of this approval to the Department within 2 business days of the approval holder becoming aware of the contravention.
Original dated 19/08/2016	15. If, at any time after 5 years from the date of this approval, the approval holder has not substantially commenced the action , then the approval holder must not substantially commence the action without the written agreement of the Minister .
Original dated 19/08/2016	16. Unless otherwise agreed to in writing by the Minister , the approval holder must publish all management plans and reports, referred to in these conditions of approval on its website. Each management plan must be published on the website within one month of being approved by the Minister or submitted under condition 9a. All published reports must remain on website for the life of the approval unless otherwise agreed to in writing by the Minister .

Date of decision	Definitions attached to approval
Original dated 19/08/2016	Action: the Narangba Quarry Expansion project as referred under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC 2014/7351)
Original dated 19/08/2016	Approval holder: the person to whom the approval is granted or any person acting on their behalf, or to whom the approval is transferred under section 145B of the EPBC Act .

Date of
decision

Annexure A

Original
dated
19/08/2016



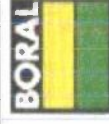
Legend

- Outer area (OCEB)
- Project referral area

Figure 2 Project Referral Area

Drawn by: [Name] (Date: 19/08/2016)
Date: 19/08/2016
Project: [Project Name]

Scale: 1:100,000 (0.1m = 1cm)
North Arrow

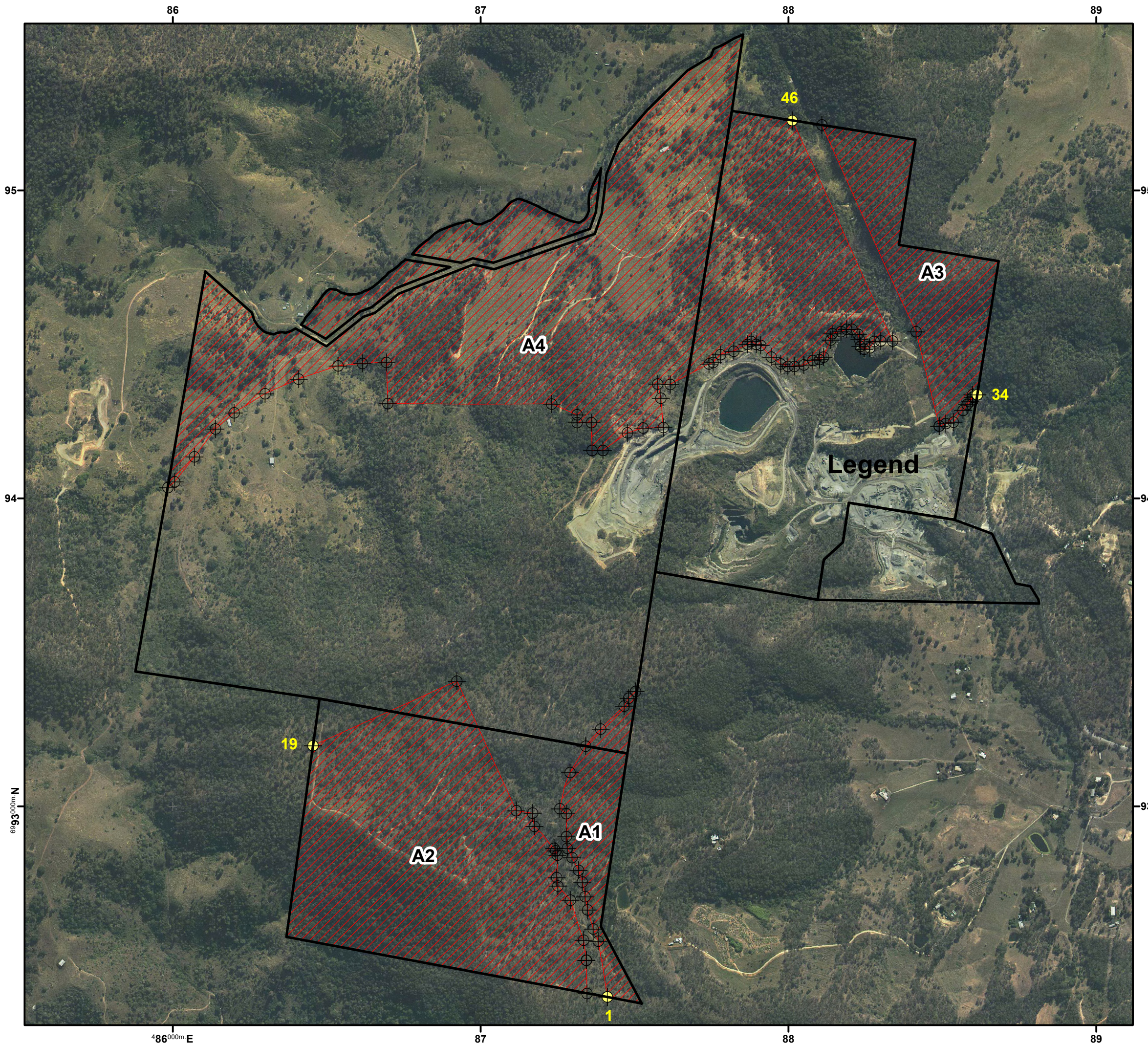


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Appendix B

Offset Area Voluntary Declaration Package



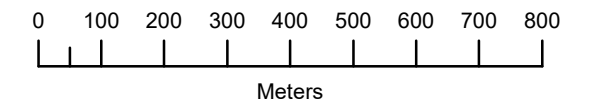


Declared Area Map

Sheet 1 of 2

2020/010206

LOT on PLAN
53 RP895391, 93 SP193378,
139 SL10320 & 1 RP167435



Scale: 1:12000
(original size A3)

LEGEND

- Declared Area reference start points
- Property boundary
- Declared Area



Notes:

Property boundary provided by Department of Natural Resources, Mines and Energy
The property boundaries shown on this plan are approximate only.
They are not an accurate representation of the legal boundaries.
Labelled Category B areas indicate a change in Regional Ecosystem classification as a result of detailed assessment.
Map Information:
Horizontal Datum: GDA 1994
Projection: Universal Transverse Mercator - Zone 56

Map Prepared by: DGH

Department of Natural Resources, Mines and Energy
PO Box 589, Dalby, Qld, 4405

Map Preparation Date: 07/02/2020

© The State of Queensland (Natural Resources, Mines and Energy) 2018

Author: D Hinz
Ref number: 2020/010206
Unit: Natural Resource Assessment
Phone: (07) 4531 8513



Department of
**Natural Resources,
Mines and Energy**

26 February 2020

Andrew Lyndon
Level 6, 88 Musk Avenue,
KELVIN GROVE QLD 4059

Dear Andrew

Re: Declaration over part of lots 53 RP895391, 93 SP193378, 139 SL10320 & 1 RP167435– Moreton Bay Regional Council – as an area of high nature conservation value

This is to advise you that a declaration, on the above lot, has been made—consistent with your application—by the Department of Natural Resources Mines and Energy (DNRME) on 24 February 2020.

A copy of each of the following documents is attached for your records:

- Declared area notice
- Offset management plan – 6 November 2019 Job No. 7139 Quarry Expansion for lots 53 RP895391, 93 SP193378, 139 SL10320 & 1 RP167435
- Declared area map 2020/010206
- Property Map of Assessable Vegetation PMAV 2020/010207 showing the declared area as a Category A area

If a registered owner requires additional copies of these documents, they can be purchased at any DNRME Customer Service Centre.

Please note, that in accordance with the declaration, you may be required to conduct management of the declared area, monitoring of the condition of the declared area, and reporting on the condition of the declared area. Please refer to the declaration documents for the specifics regarding such requirements.

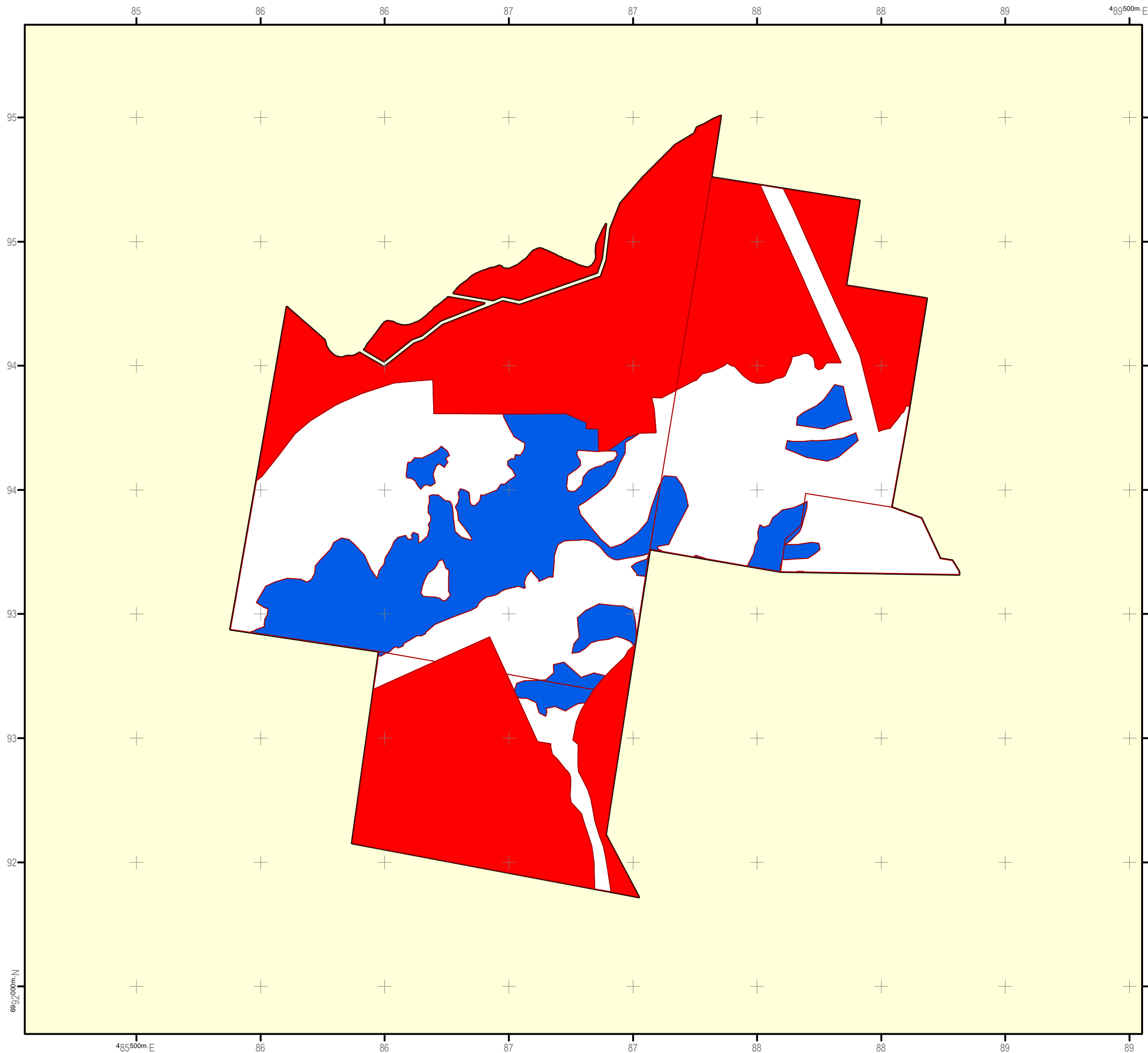
This declaration will be noted on the property titles of the declared area and is binding on current and future owners.

If you wish to discuss this matter further, please contact me on telephone number (07) 4531 8513 quoting the above reference number.

Yours sincerely

David Hinz
Natural Resource Management Officer, Vegetation Management

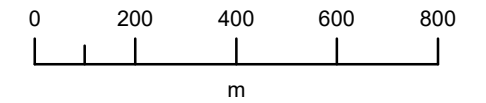
PO Box 789, 30 Nicholson Street
Dalby Qld 4405
Telephone (07) 4531 8501
Facsimile (07) 4531 8548
Website www.dnrm.qld.gov.au
ABN 59 020 847 551



**Property Map of
Assessable Vegetation**

PMAV 2020/010207

LOT on PLAN
139SL10320, 1RP167435, 53RP895391,
93SP193378



Scale: 1:15000
(original size A3)



LEGEND

-  Subject Lot(s)
 Area to which the PMAV does not apply
- Vegetation Category Area**
-  Category A area
 Category B area
 Category X area

Notes:

Property boundaries provided by Department of Natural Resources, Mines and Energy.
The property boundaries on this plan are a spatial representation of the property boundaries.
They are not the legal property boundaries and are subject to change as more accurate information becomes available.
The PMAV does not move with changes to the property boundaries.
Labelled Category B areas indicate a change in Regional Ecosystem classification as a result of detailed assessment.

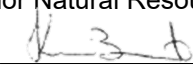
Map Information:
Horizontal Datum: GDA 1994
Projection: Universal Transverse Mercator - Zone 56

This PMAV replaces PMAV 2015/005356 under
Section 20D(1) of the *Vegetation Management Act 1999*.

Signed for the Chief Executive of the Department of Natural
Resources, Mines and Energy by:

Name: Kellie Bryant

Title: Senior Natural Resource Management Officer

Signature: 

Date: 24 February 2020

Map Prepared by: DGH

Department of Natural Resources, Mines and Energy
PO Box 589, Dalby, Qld, 4405

Map Preparation Date: 07/02/2020

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Appendix C

Written Notification of Commencement of Action



Amy Westman

From: Lyndon, Andrew <andrew.lyndon@boral.com.au>
Sent: Thursday, 4 June 2020 2:00 PM
To: postapproval@environment.gov.au
Cc: Sam Maynard; Russel Wilson
Subject: Fwd: Tree clearing
Attachments: image001.jpg; image002.jpg; EPBC Approval-notice-conditions.pdf

Attention Zoe Lee

Dear Zoe

We refer to the EPBC Act Approval for the Boral Narangba Quarry, QLD with reference number 2014/7351 (Attached).

As per condition 5 of the approval we would like to confirm that clearing commenced 12 May 2020. We were uncertain whether the 20 day notification period applied to business days or every day of the week because there is inconsistency throughout the approval and the term days or business days are not defined in the approval. We have interpreted the period to apply to business days however please contact me if you have any questions or concerns.

Kind regards

ANDREW LYNDON
Planning & Development Manager - BLPG (Qld)

Telephone: (07)38677603
Mobile: 0401893232
Email: Andrew.Lyndon@boral.com.au



Boral Land and Property Group
Level 6, [88 Musk Ave, Kelvin Grove QLD 4059](#)
www.boral.com.au



----- Forwarded message -----

From: Castle, Nicholas <nicholas.castle@boral.com.au>
Date: Thu, 4 Jun 2020 at 11:29
Subject: Tree clearing
To: Andrew Lyndon <andrew.lyndon@boral.com.au>

Hi Andrew,

The tree clearing commenced on the 12th May directly after nest box removal.

Nick

Appendix D

Contractor Reports

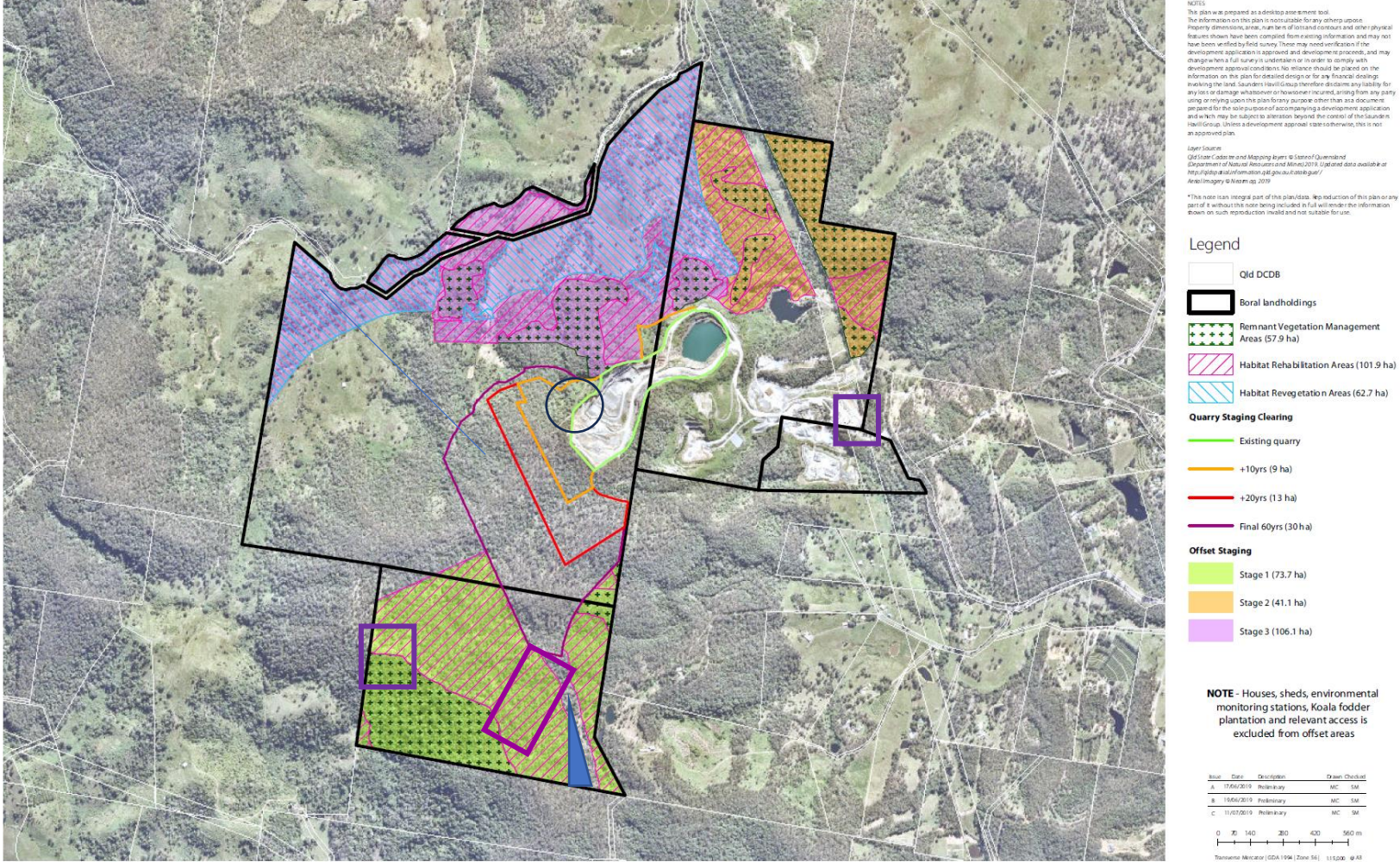


REHABILITATION REPORT NARANGBA QUARRY

21/01/2020, version 1



Area worked: Offset, Crib, Clearing area



Summary of works complete

Month: July 2025
Report date: 7/8/2025
Number of work days completed: 238hrs 30 mins, Rained out: 0 days

Area	Notes
Offset C	Cut Stump of Lantana and Groundsel along gully. Planting activities through cleared area.
Offset A	Planting activities through A plantation. Spray remerging weeds through A plantation
Offset D	Foliar spray remerging weeds through reveg area
Crib	Planting activities behind crib room adjacent to new walkway.
Clearing Area	Supervised and spotted for mulching and clearing.

- Issues/ incidents/ comments:
- Further damage to Plantation A from deer, leaves eaten off plants and guards torn apart from antlers
 - Planting activites (drilling, planting, fertiliser tablets, guards, watering) undertaken in Offset A, C and in behind crib room as per managers request.
 - Backpack spray of remerging weeds through reveg areas to maintain access and prevent new plants becoming overgrown.
 - Escorted Jacobs (Consultancy contractor) to offset
 - Clearing at top of pit with Indigenous Rangers and Ryans

Next months work

- Offset C continue lantana and groundsel removal
- Maintain garden at crib room
- High volume spray of access tracks from Stage 2 to Moorina Rd
- Check Sediment Ponds for weed control
- Brushcut B plantation

Chemicals used

Chemical used	Quantity	Purpose
Glyphosate	1100ml	Cut Stump
Glyphosate	700ml	Backpack spray
Metsulfuron	0g	
Wetter	0ml	
Dicamba	0ml	HV spray

Photos

Offset C lantana



Cut stump Lantana



Planting activities through Offset A, C and Crib area

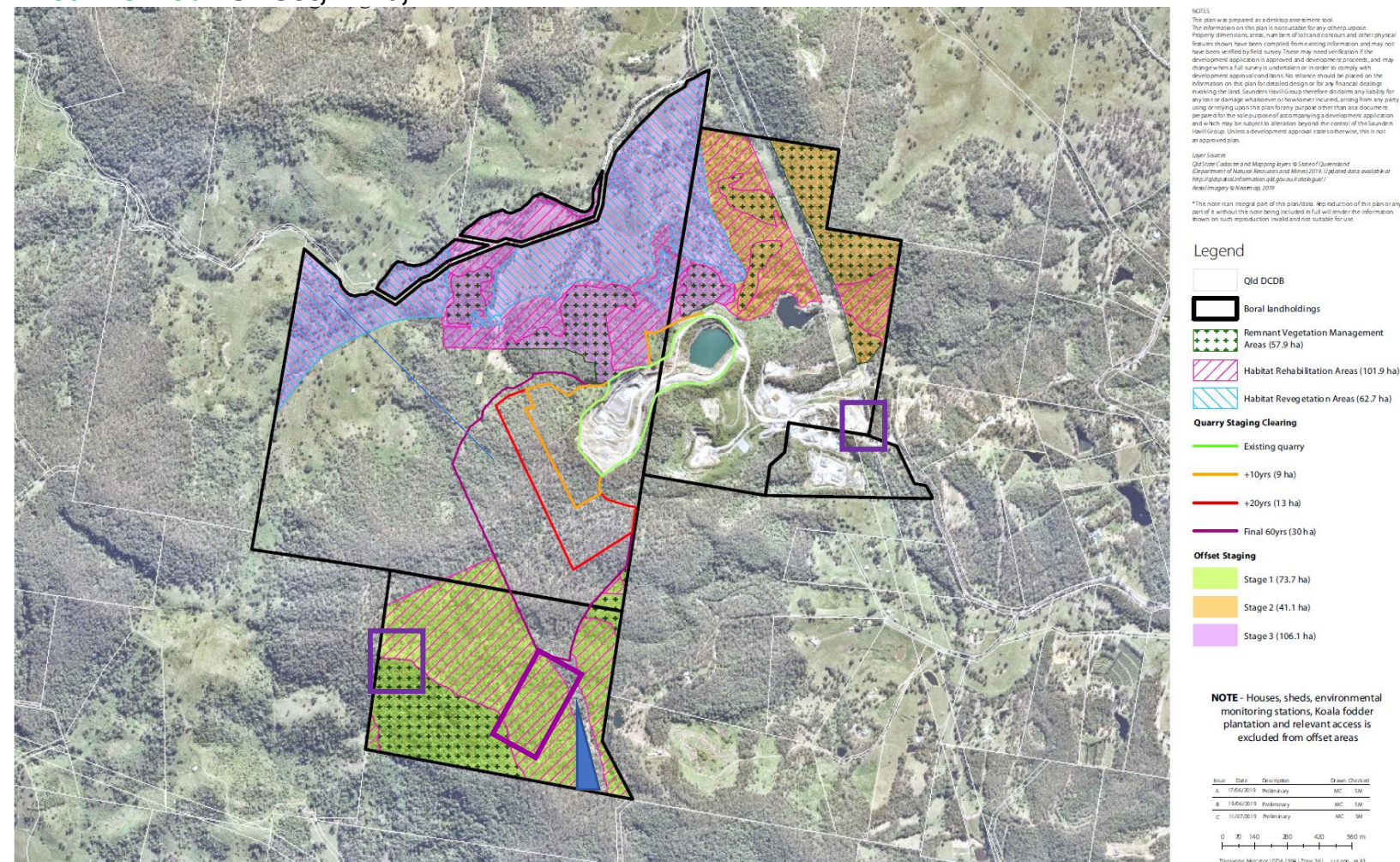


REHABILITATION REPORT NARANGBA QUARRY

21/01/2020, version 1



Area worked: Offset, Crib,



Summary of works complete

Month: August 2025

Report date: 4/9/2025

Number of work days completed: 83hrs 20 mins, Rained out: 3 days

Area	Notes
Offset C	Cut Stump of Lantana and Groundsel along gully. Watering plants through plantation.
Offset A	Watering plants through A plantation. Spray reemerging weeds through A plantation
Crib	Watering plants and adjusting guards behind crib room adjacent to new walkway.

Issues/ incidents/ comments:

- Further damage to Plantation A from deer and cows, leaves eaten off plants and guards torn apart from antlers
- Continuation of watering plants undertaken in Offset A, C and in behind crib room.
- Cut stump and manual control of lantana and groundsel through offset section C, continuing to focus on smaller patches with the aim to foliar spray larger pockets in the coming warmer months, as per recommendation of Lantana Camara DAF factsheet.

Next months work

- Offset A continue lantana and groundsel removal
- Mulch garden at crib room
- High volume spray of access tracks from Stage 2 to Moorina Rd
- Check Sediment Ponds for weed control
- Brushcut B plantation

Chemicals used

Chemical used	Quantity	Purpose
Glyphosate	500ml	Cut Stump
Glyphosate	0ml	Backpack spray
Metsulfuron	0g	
Wetter	0ml	
Dicamba	0ml	HV spray

Photos

Offset C lantana



Cut stump Lantana



Planting activities through Offset A, C



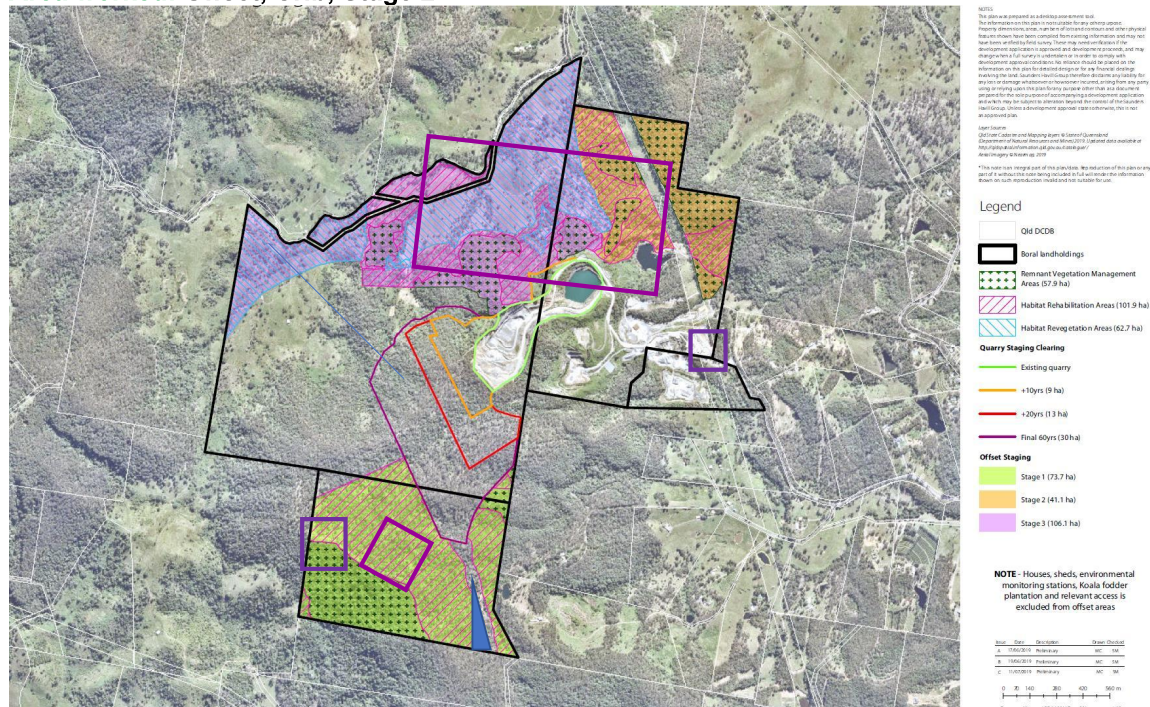
la

REHABILITATION REPORT NARANGBA QUARRY

21/01/2020, version 1



Area worked: Offset, Crib, Stage 2



Summary of works complete

Month: September 2025

Report date: 2/10/2025

Number of work days completed: 197hrs 30 mins, Rained out: 0 days

Area	Notes
Offset C	Cut Stump of Lantana and Groundsel along gully.
Offset A	Spray remerging weeds through A plantation. Cut stump Lantana and groundsel around dam
Offset B	Back pack spray through firebreak trail.
Stage 2	High volume spray of access tracks, gates and fence lines and dust monitor stations
Crib/Weighbridge	Watering plants and adjusting guards behind crib room adjacent to new walkway. Mulching of crib garden. Backpack spray of remerging weeds around crib/weighbridge/workshop, including spraying around transformer below switch room

Issues/ incidents/ comments:

- Further damage to Plantation A from deer and cows, leaves eaten off plants and guards torn apart from antlers
- Continuation of watering plants undertaken in behind crib room, including mulching garden bed
- Cut stump and manual control of lantana and groundsel through offset section A, continuing to focus on smaller patches with the aim to foliar spray larger pockets in the coming warmer months, as per recommendation of Lantana Camara DAF factsheet.
- High volume spray of vegetation along access tracks through stage 2, including fence lines, gates and dust monitor sites
- Cows have been very active throughout the entire site.

Next months work

- Offset A continue lantana and groundsel removal
- Water plants at crib room
- Check Sediment Ponds for weed control
- Brushcut B plantation
- Backpack spray A plantation

Chemicals used

Chemical used	Quantity	Purpose
Glyphosate	950ml	Cut Stump
Glyphosate	5450ml	foliar spray
Metsulfuron	75g	spray
Wetter	1000ml	
Dicamba	3000ml	HV spray

Photos

Offset A lantana



High vol Stage 2,



back pack spray transformer

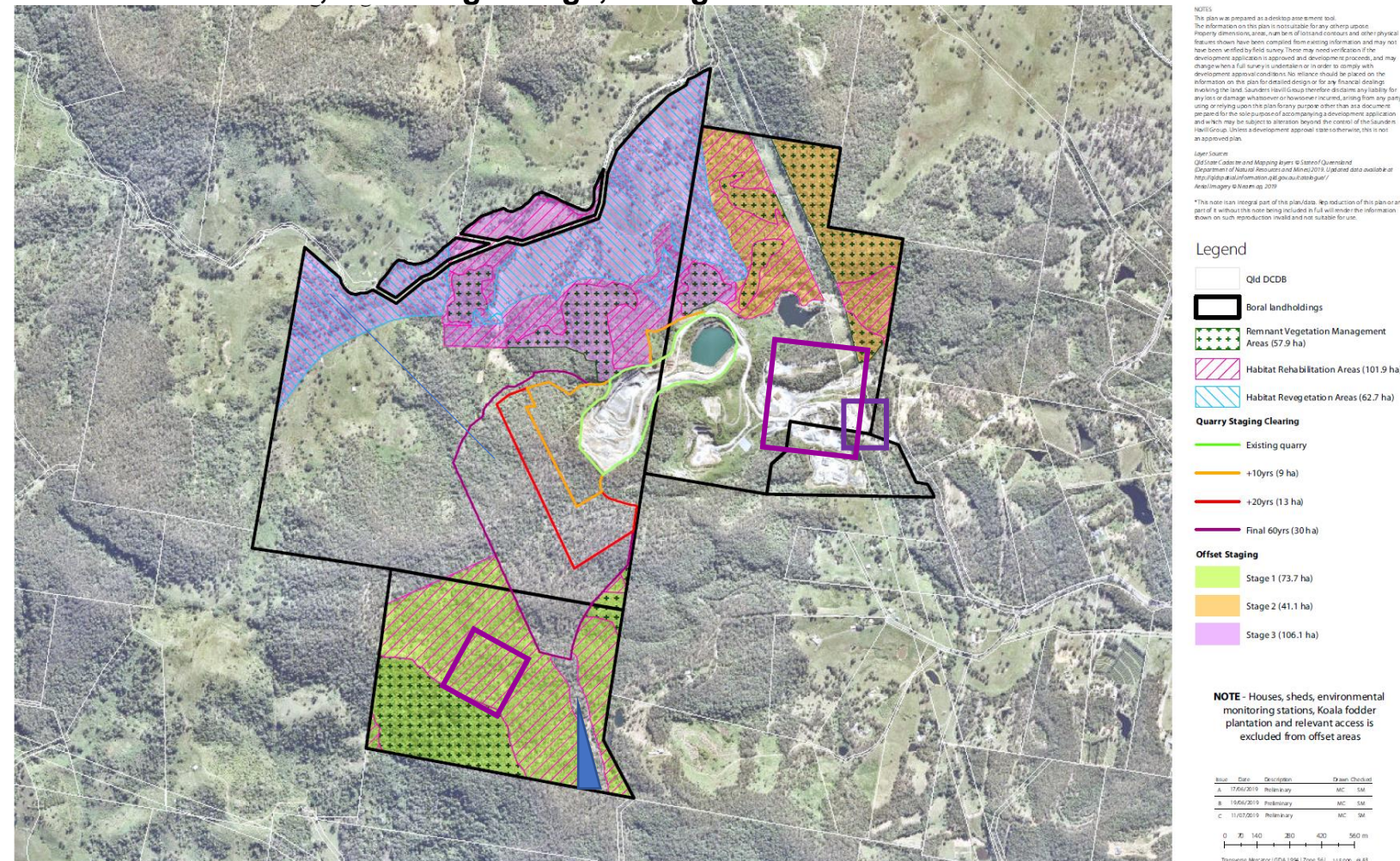


REHABILITATION REPORT NARANGBA QUARRY

21/01/2020, version 1



Area worked: Offset, Crib/weighbridge, side gate



Summary of works complete

Month: October 2025

Report date: 3/11/2025

Number of work days completed: 157hrs, Rained out: 2 days

Area	Notes
Offset A	Cut stump Lantana and groundsel around dam. Water plants in A plantation
Maintenance	Chainsaw and removal of fallen tree near side gate. Pruning of overhanging trees in wash bay. Pruning of overhanging trees through sales floor near old hold point.
Crib/Weighbridge	Watering plants and adjusting guards behind crib room adjacent to new walkway. Backpack spray of remerging weeds around crib/weighbridge/workshop, including spraying around transformer below switch room.

Issues/ incidents/ comments:

- Further damage to Plantation A from deer and cows, leaves eaten off plants and guards torn apart from antlers
- Continuation of watering plants undertaken in behind crib room
- Cut stump and manual control of lantana and groundsel through offset section A, continuing to focus on smaller patches with the aim to foliar spray larger pockets in the coming warmer months, as per recommendation of Lantana Camara DAF factsheet.
- Cows have been very active throughout the entire site.
- Maintenance requests to prune overhanging trees in the wash bay to gain access to power pole for Energex.
- Heavy rain and storm events towards the end of the month preventing access to site.

Next months work

- Offset A continue lantana and groundsel removal
- Water plants at crib room
- Beginning foliar spraying lantana
- Brushcut B plantation
- Backpack spray A plantation

Chemicals used

Chemical used	Quantity	Purpose
Glyphosate	850ml	Cut Stump
Glyphosate	450ml	foliar spray
Metsulfuron	4.5g	spray
Wetter	100ml	
Dicamba	0ml	HV spray

Photos

Offset A lantana



Chainsaw fallen tree, Prune in wash bay,



Cows in offset area,



backpack spray workshop area

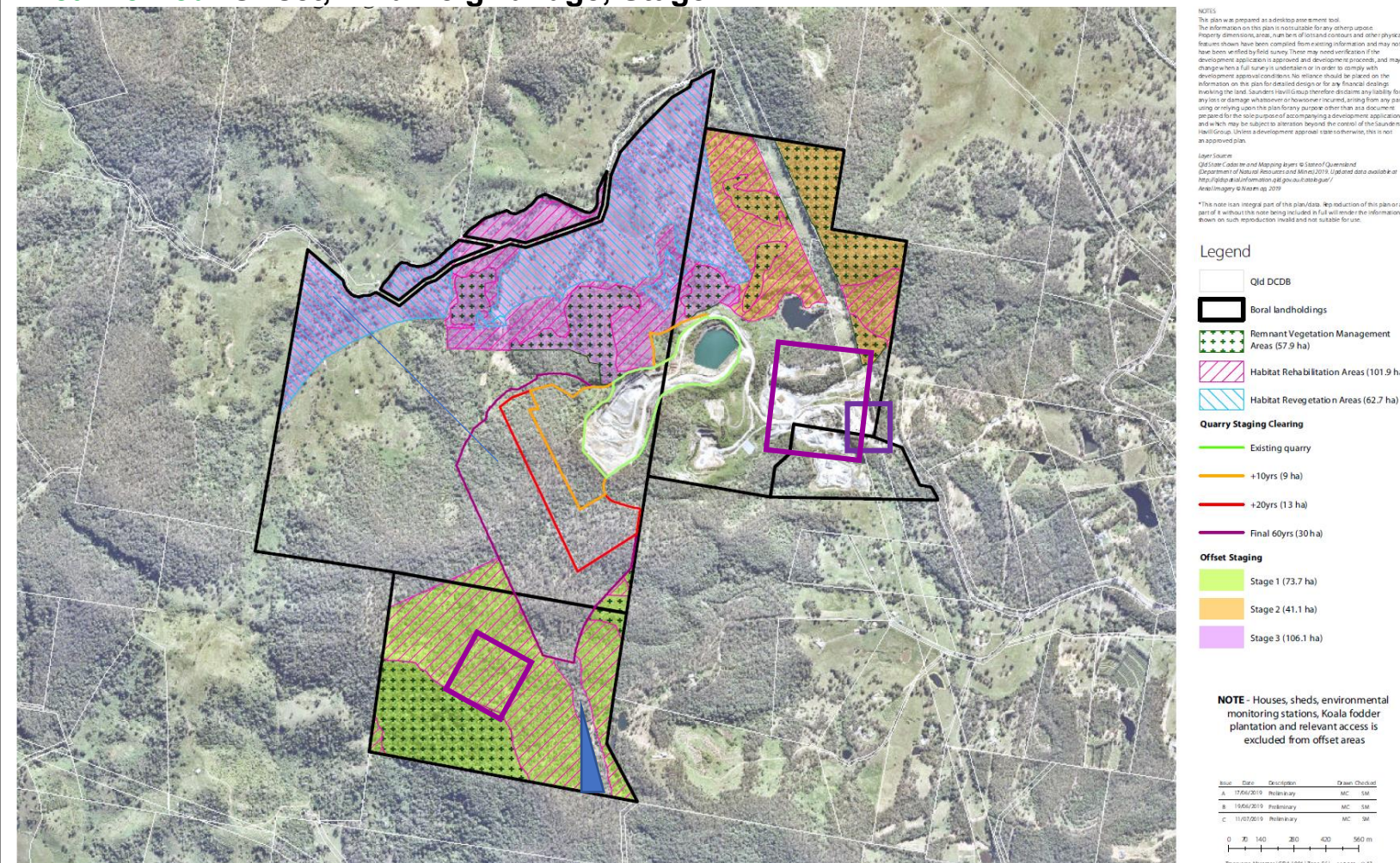


REHABILITATION REPORT NARANGBA QUARRY

21/01/2020, version 1



Area worked: Offset, Crib/weighbridge, Stage 2



Narangba Quarry

Summary of works complete

Month: November 2025

Report date: 2/12/2025

Number of work days completed: 223hrs, Rained out: 1 days

Area	Notes
Offset	Cut stump Lantana and groundsel around dam. Foliar spray through reveg area. Foliar spray large patches of lantana
Maintenance	Chainsaw and removal of fallen trees across tracks in offset and stage 2 after storm.
Crib/Weighbridge	Backpack spray of remerging weeds around crib/weighbridge/workshop, including spraying around transformer below switch room.
Management request	Spotter catch for tree felling. Spread grass seed along drain on RL 210 bench

Issues/ incidents/ comments:

- Backpack spray remerging weeds and grasses through reveg areas.
- Cut stump and manual control of lantana and groundsel through offset section A, continuing to focus on smaller patches with the aim to foliar spray larger pockets in the coming warmer months, as per recommendation of Lantana Camara DAF factsheet.
- Cows have been very active throughout the entire site.
- Maintenance requests to spotter catch for a small number of trees to be felled
- Heavy rain and storm events towards the end of the month preventing access to site.
- Removal of trees from tracks after large storm.
- Backpack spray remerging weeds around crib/workshop/control room

Next months work

- Offset A continue lantana and groundsel removal
- continue foliar spraying lantana
- Brushcut B plantation
- Backpack spray A plantation
- High volume spray tracks

Chemicals used

Chemical used	Quantity	Purpose
Glyphosate	800ml	Cut Stump
Glyphosate	1100ml	foliar spray
Metsulfuron	4.5g	spray
Wetter	100ml	
Dicamba	240ml	backpack spray

Photos

Offset A lantana



Chainsaw fallen tree, Back pack spray reveg, seed spreading drain ,backpack spray workshop/control room area

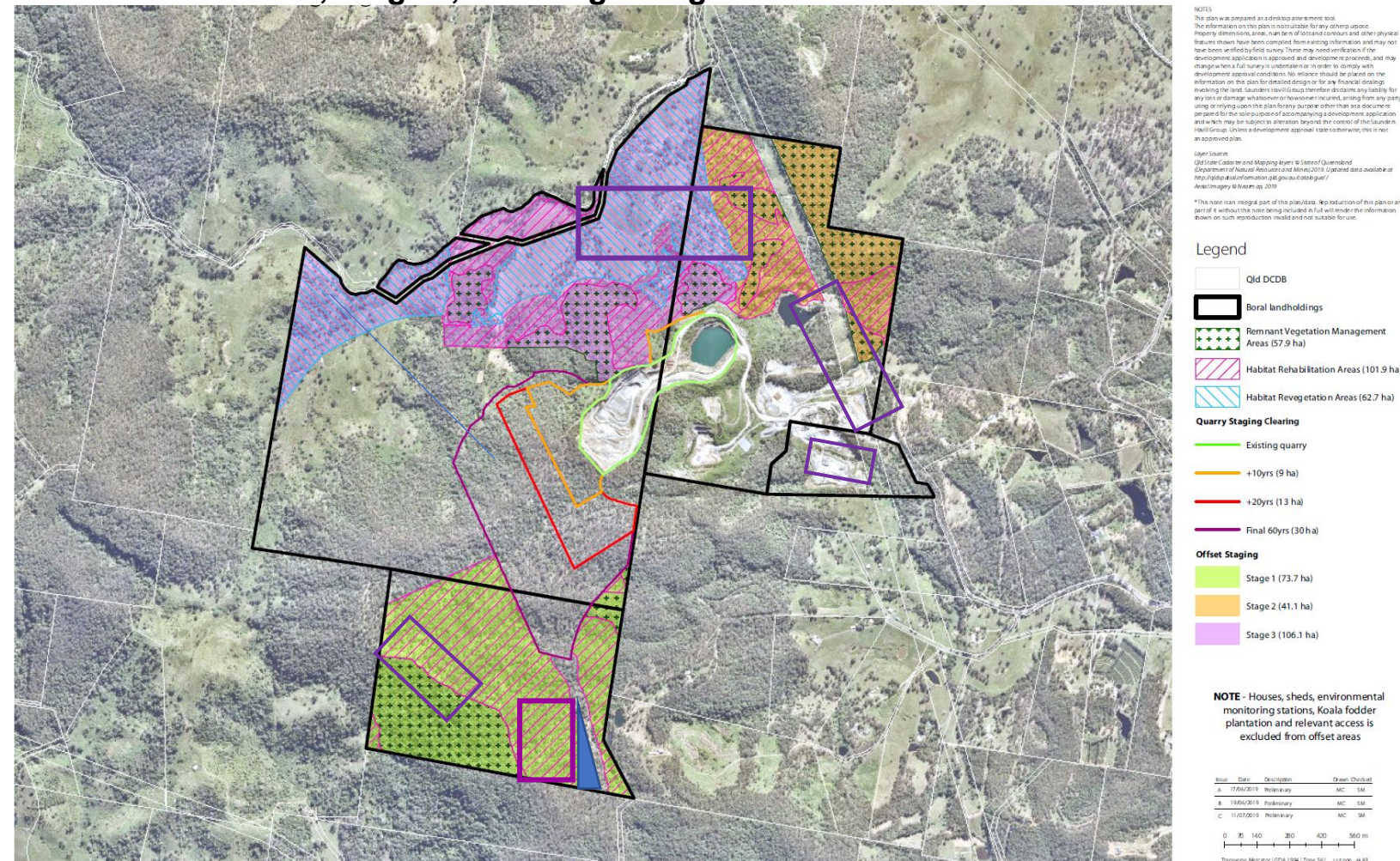


REHABILITATION REPORT NARANGBA QUARRY

21/01/2020, version 1



Area worked: Offset, Stage 2, crib/weighbridge



Narangba Quarry

Summary of works complete

Month: December 2025

Report date: 19/12/2025

Number of work days completed: 178.5 hrs

Area	Notes
Offset	Cut stump lantana and groundsel around dam area. Backpack large stands of lantana along gully.
Stage 2	High volume spray tracks, gates and fence lines. High volume spray rock spillway near transformers and bottom dam tracks. High volume spray wash Bay Area and around sediment C basin area, including rock spillways adjacent to creek through sales floor.
Crib/weighbridge	Backpack spray reemerging weeds and vegetation around crib, weighbridge, workshop, control room area

Issues/ incidents/ comments:

- Good results from previously sprayed stands of lantana along gully.
- Continue to spray periodically to reduce large off target damage underneath lantana.
- Evidence of neighboring cows throughout offset and stage 2 causing damage to planting areas.
- Continue to manage vegetation growth around office, weighbridge, and workshop areas during high growth months.

Next months work

- Offset continue lantana and groundsel removal
- Offset B plantation to be slashed & fire break once dry enough
- Dairy access to be high volume sprayed
- Backpack spray around crib, weighbridge, workshop area for continual regrowth

Chemicals used

Chemical used	Quantity	Purpose
Glyphosate	21.9	Foliar spray
Glyphosate	650ml	Cut stump
Metsulfuron	13.5g	Foliage spray
Wetter	1000ml	Foliar spray
Tricolpyr	7.2L	Foliar spray

Photos

Cut stump lantana



High volume spray around Sed C, Hish vol spray graveyard, high volume spray rock spillway

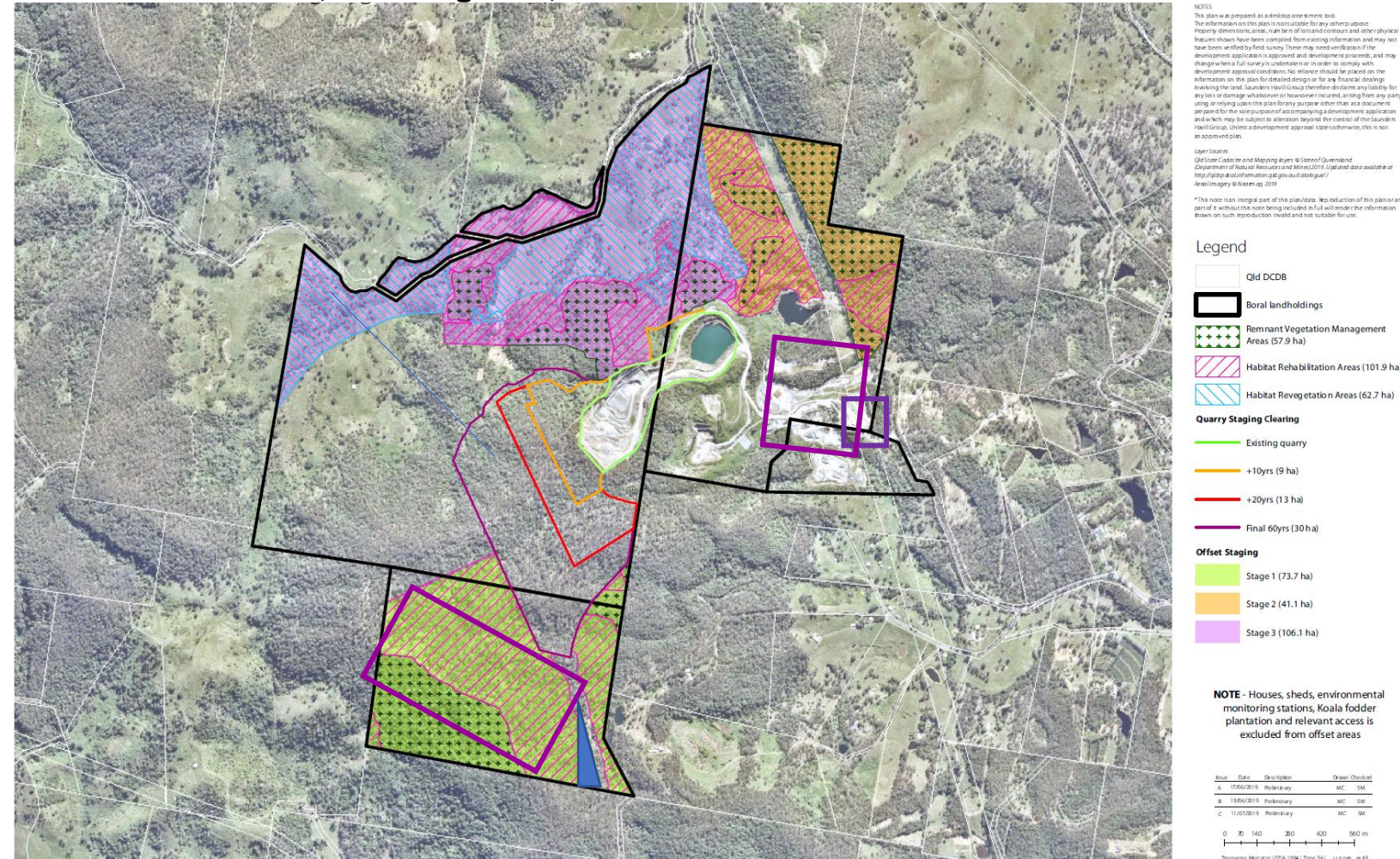


REHABILITATION REPORT NARANGBA QUARRY

21/01/2020, version 1



Area worked: Offset, Blending area, Sediment C basin



Narangba Quarry

Summary of works complete

Month: January 2026

Report date: 3/2/2026

Number of work days completed: 91hrs, Rained out: 0 days

Area	Notes
Offset	Cut stump Lantana and groundsel around dam in zone A/C. Foliar spray through reveg area. High volume spray access tracks through offset area
Maintenance	High volume spray around sediment C basin and blending area bund walls.

Issues/ incidents/ comments:

- Cut stump and manual control of lantana and groundsel through offset section A/C, continuing to focus on smaller patches with the aim to foliar spray larger pockets, as per recommendation of Lantana Camara DAF factsheet.
- Cows have been very active throughout the entire site.
- High volume spray of access tracks through offset area to maintain ease of access and prevent overgrowth.
- High volume spray around sediment C basin and blending plant bund walls to prevent overgrowth and visibility.

Next months work

- Offset A continue lantana and groundsel removal
- Continue foliar spraying lantana in section C
- Brushcut B plantation
- Backpack spray A plantation
- High volume spray tracks through stage 2

Chemicals used

Chemical used	Quantity	Purpose
Glyphosate	800ml	Cut Stump
Glyphosate	10L	foliar spray
Metsulfuron	150g	Foliar spray
Wetter	1000ml	
Dicamba	3L	spray

Photos

Offset A lantana



HV spray offset tracks, HV spray blending plant walls and sediment C basin

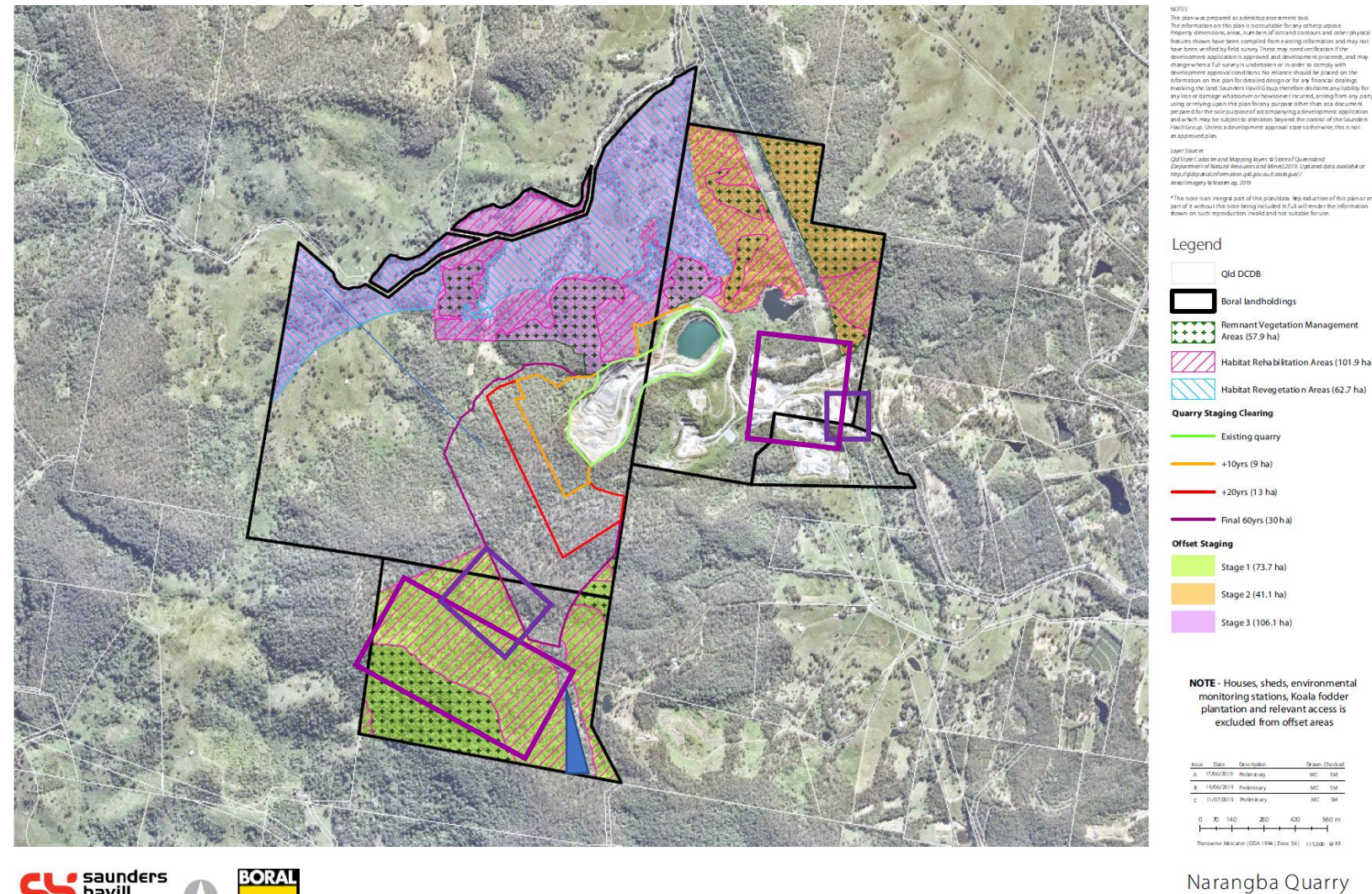


REHABILITATION REPORT NARANGBA QUARRY

21/01/2020, version 1



Area worked: Offset



Summary of works complete

Month: February 2026

Report date: 3/3/2026

Number of work days completed: 235hrs, Rained out: 1 days

Area	Notes
Offset	Cut stump Lantana and groundsel around dam in zone A/C. Foliar spray through reveg areas A and C. Foliar spray of large stands of lantana through zone C. Hand weed and foliar spray through zone A reveg area.
Maintenance	High volume spray access tracks through offset. Brushcut firebreak along neighbouring boundary. Re-establish boundary lines for offset.

Issues/ incidents/ comments:

- Cut stump and manual control of lantana and groundsel through offset section A/C, continuing to focus on smaller patches with the aim to foliar spray larger pockets, as per recommendation of Lantana Camara DAF factsheet.
- High volume spray of access tracks through offset area to maintain ease of access and prevent overgrowth.
- Foliar spray and hand weed of remerging weeds and grasses through zone A and C reveg areas to promote growth of planted species.
- Brushcut through B plantation and firebreak adjacent to neighbouring property to maintain accessibility.
- Rain event prevented access to site due to wet tracks

Next months work

- Offset A continue lantana and groundsel removal
- Continue foliar spraying lantana in section C
- Foliar spray emerging vegetation around plant area when accessible.
- Brushcut and spray front entrance in preparation for family day.
- High volume spray tracks through stage 2

Chemicals used

Chemical used	Quantity	Purpose
Glyphosate	550ml	Cut Stump
Glyphosate	5.1L	foliar spray
Metsulfuron	45g	Foliar spray
Wetter	0ml	
Dicamba	0L	spray
Regrowth	1.8L	Spray

Photos

Results from sprayed lantana, Brushcut firebreak and B plantation,

Foliar spray through offset reveg areas

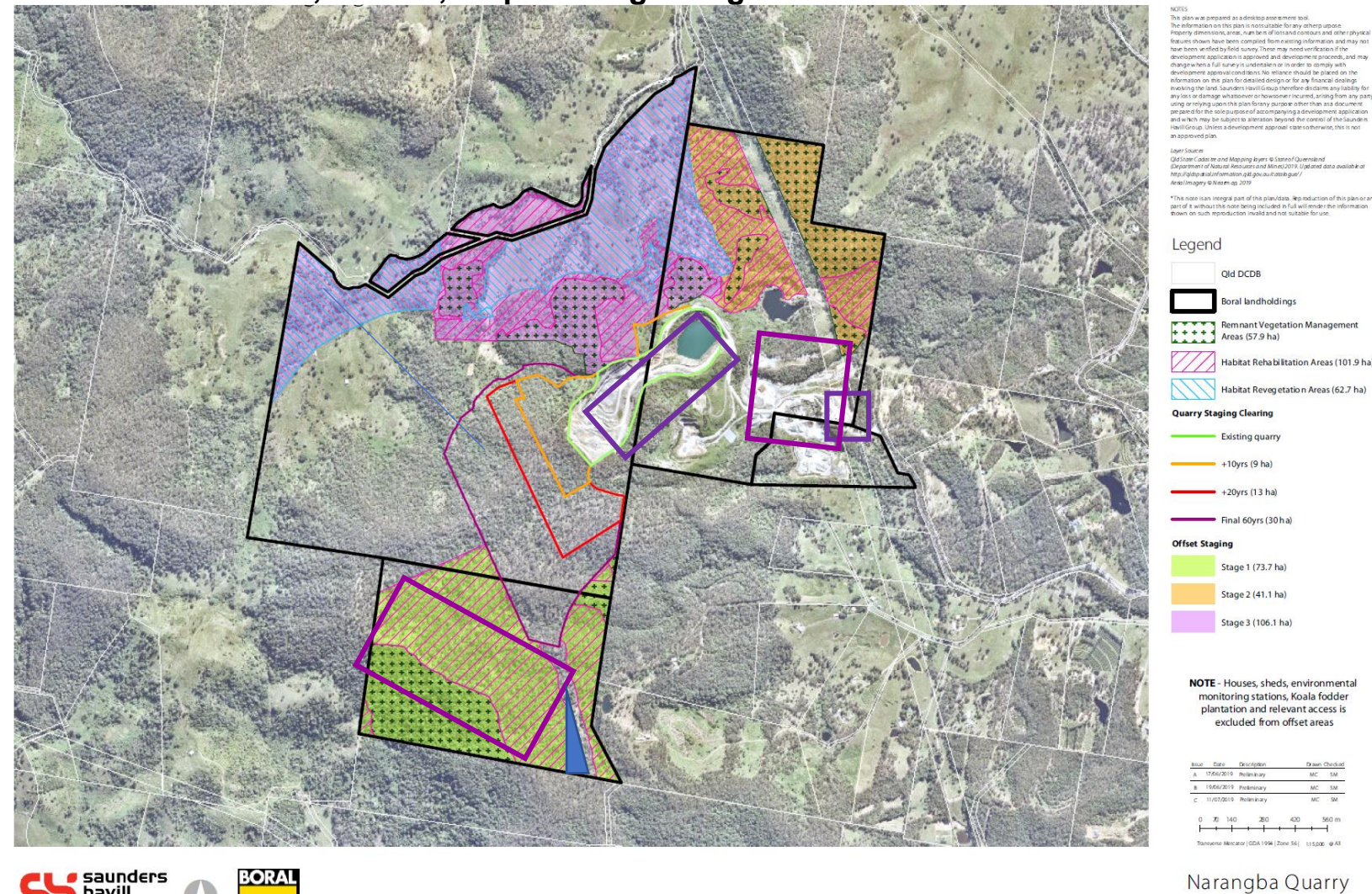


REHABILITATION REPORT NARANGBA QUARRY

21/01/2020, version 1



Area worked: Offset, Haul rd, carpark/weighbridge



Summary of works complete

Month: March 2026

Report date: 3/4/2026

Number of work days completed: 255.5hrs, Rained out: 1 days

Area	Notes
Offset	Cut stump Lantana and groundsel around dam in zone A/C. Foliar spray through reveg area. High volume spray access tracks through offset area. Marked out area to be planted in section A in May. Chainsaw fallen tree across track in offset.
Maintenance	High volume spray around all signs and structures on haul rd. Brushcut front entry way. Backpack spray weighbridge/control room/switch box/carpark.

Issues/ incidents/ comments:

- Cut stump and manual control of lantana and groundsel through offset section A/C, continuing to focus on smaller patches with the aim to foliar spray larger pockets, as per recommendation of Lantana Camara DAF factsheet.
- Dingo spotted running along tracks in offset area.
- High volume spray of access tracks through offset area to maintain ease of access and prevent overgrowth.
- High volume spray around all signs and structures along the haul rd to maintain line of sight and visibility.
- Began preparation for planting areas in Section A.
- Continued wet weather restricted access to some areas of site at times.

Next months work

- Offset A continue lantana and groundsel removal
- Continue foliar spraying lantana in section C
- Brushcut and Backpack spray new A plantation
- High volume spray tracks through stage 2
-

Chemicals used

Chemical used	Quantity	Purpose
Glyphosate	1000ml	Cut Stump
Glyphosate	2.8L	foliar spray
Metsulfuron	0g	Foliar spray
Wetter	0ml	
Dicamba	480ml	spray
Regrowth	1200ml	Spray

Photos

Offset A lantana



Backpack spray switch box, HV spray Haul Rd,



Brushcut Entryway,



Chainsaw fallen tree

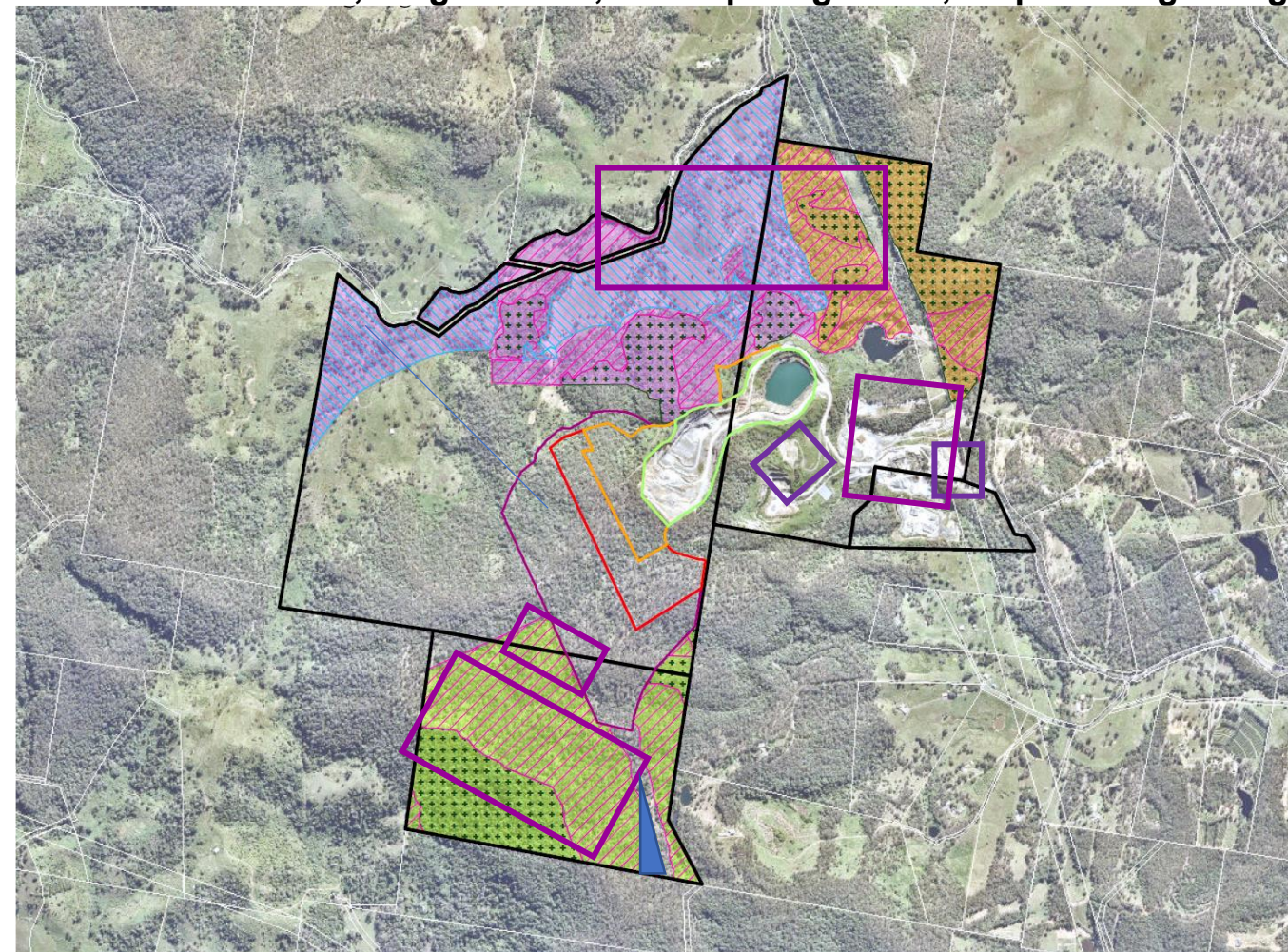


REHABILITATION REPORT NARANGBA QUARRY

21/01/2020, version 1



Area worked: Offset, Stage 2 track, Green pit high road, carpark/weighbridge



NOTES
This plan was prepared as a design assessment tool. The information on this plan is not suitable for any other purpose. Property dimensions, area, quantity of forested land and other physical features shown have been compiled from existing information and may not have been verified by field survey. There may be variations between the development application as approved and development proceeds, and may change while a full survey is undertaken 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 design involving the land. Saunders Havill Group members disclaim 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.

Scale: 0 100 200 300 400 500 m

Transverse Mercator (GDA 1994 Zone 56) 115,000 49 AU

Legend

- Old DCDB
- Boral landholdings
- Remnant Vegetation Management Areas (57.9 ha)
- Habitat Rehabilitation Areas (101.9 ha)
- Habitat Revegetation Areas (62.7 ha)
- Quarry Staging Clearing**
 - Existing quarry
 - +10yrs (9 ha)
 - +20yrs (13 ha)
 - Final 60yrs (30 ha)
- Offset Staging**
 - Stage 1 (73.7 ha)
 - Stage 2 (41.1 ha)
 - Stage 3 (106.1 ha)

NOTE - Houses, sheds, environmental monitoring stations, Koala fodder plantation and relevant access is excluded from offset areas

Scale: 0 100 200 300 400 500 m

Transverse Mercator (GDA 1994 Zone 56) 115,000 49 AU

Narangba Quarry

Summary of works complete

Month: April 2026

Report date: 5/5/2026

Number of work days completed: 219hrs, Rained out: 12.5 hrs

Area	Notes
Offset	Cut stump Lantana and groundsel around dam in zone A/C. Foliar spray through reveg area. High volume spray access tracks through offset area. Brushcut area in A in preparation for planting in May
Stage 2	High volume spray of stage 2 access tracks
Maintenance	Backpack spray weighbridge/control room/switch box/carpark. High Volume spray section of green pit high road as per management request.

Issues/ incidents/ comments:

- Cut stump and manual control of lantana and groundsel through offset section A/C, continuing to focus on smaller patches.
- Escorted Biodiversity contractor around site to set up camera traps.
- High volume spray of access tracks through stage 2 area to maintain ease of access and prevent overgrowth.
- Brushcut area for planting in Section A.
- Backpack spray around weighbridge/workshop areas to maintain aesthetic and prevent overgrowth
- Continued wet weather restricted access to some areas of site at times.

Next months work

- Offset A continue lantana and groundsel removal
- Start treatment of lantana adjacent to top road through section D
- Plant 200 plants through prepared area
- Backpack spray around weighbridge/ workshop area
-

Chemicals used

Chemical used	Quantity	Purpose
Glyphosate	1000ml	Cut Stump
Glyphosate	13.5L	foliar spray
Metsulfuron	0g	Foliar spray
Wetter	0ml	
Dicamba	0ml	spray
Regrowth	7.2L	Spray

Photos

Offset A lantana



Brushcut new planting area,



HV spray stage 2 tracks,



High volume spray green pit high road

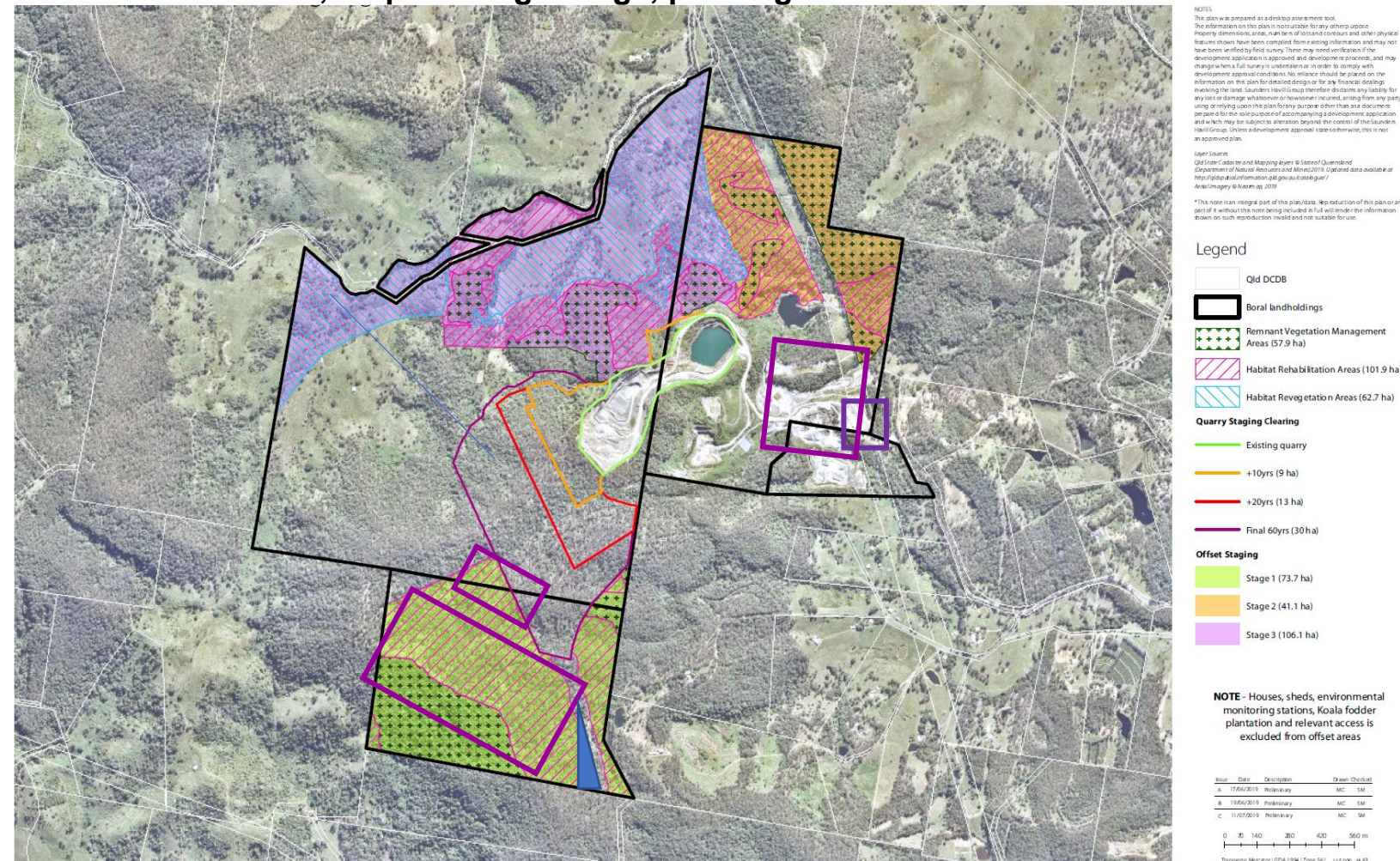


REHABILITATION REPORT NARANGBA QUARRY

21/01/2020, version 1



Area worked: Offset, carpark/weighbridge, planting area



Narangba Quarry

Summary of works complete

Month: May 2026

Report date: 3/6/2026

Number of work days completed: 218hrs 15mins, Rained out: 2 days

Area	Notes
Offset	Cut stump Lantana and groundsel along top of D section. Foliar spray through reveg areas.
Planting area	Brushcut and foliar spray area for planting. Planted 200 plants in A section
Maintenance	Backpack spray weighbridge/control room/switch box/carpark.

Issues/ incidents/ comments:

- Cut stump and manual control of lantana and groundsel through offset section A/C, continuing to focus on smaller patches.
- Brushcut area for planting in Section A.
- Foliar spray vegetation through planting area in preparation for planting.
- Planted, Fertiliser tablets, water crystals, Tree Guards 200 plants through section A
- Backpack spray around weighbridge/workshop areas to maintain aesthetic and prevent overgrowth
- Continued wet weather restricted access to some areas of site at times.
- Successfully relocated 2 carpet pythons found in the pit from excavation activities and released safely into the offset area

Next months work

- Offset A continue lantana and groundsel removal
- High Vol spray tracks
- Prepare for infill planting in B section
- Backpack spray around weighbridge/ workshop area
-

Chemicals used

Chemical used	Quantity	Purpose
Glyphosate	800ml	Cut Stump
Glyphosate	900mL	foliar spray
Metsulfuron	0g	Foliar spray
Wetter	0ml	
triclopyr	420ml	spray
Regrowth	0L	Spray

Photos

Planting of 200 tube stock, Foliar sprayed planting area, Backpack spray carpark/workshop/control room, Release of carpet python



LEADING THE WAY
IN ENVIRONMENTAL
MANAGEMENT

**VERTEBRATE PEST
MANAGEMENT REPORT**

NARANGBA QUARRY

June 2026

Contents

Document Control Page.....	3
1. Introduction	4
1.1 Objectives.....	4
1.2 Site Location and Description.....	4
1.3 Target Species.....	7
2. Methodology.....	9
2.1 Pre-Trapping Monitoring Period.....	9
2.2 Trapping Period.....	9
2.3 Limitations.....	11
3. Results.....	14
3.1 Pre-Works Monitoring.....	14
3.2 Trapping.....	19
4. Recommendations	21
5. References	22
6. Appendix.....	24

List of Tables

Table 1: Regional Ecosystems Present Onsite.....	5
Table 2: Bycatch Management Actions	11
Table 3: Limitations.....	11
Table 4: Total Sightings of each Targeted Species.....	14
Table 5: Calculated Relevant Abundance Frequency.....	15
Table 6: Trapping Results.....	19
Table 7: Trap Exposure Percentage	20
Table 8: Recommendations.....	21
Table 9: Euthanised Target Pet Species.....	32

List of Figures

Figure 1: Site Location.....	6
Figure 2: PIR Camera Trap Locations.....	12
Figure 3: Soft Jaw Trap Locations.....	13
Figure 4: Wild Dog Sightings per Camera.....	16



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1. Introduction

Biodiversity Australia Pty Ltd (BA) was engaged by Boral Pty Ltd (the Client) to undertake Vertebrate Pest Management within the Narangba Quarry Offset Area (the Site; Figure 1). Works were conducted in accordance with the Saunders Havill Group Vertebrate Pest Management Plan (VPMP (Saunders Havill Group, 2020)).

As part of this engagement, Biodiversity Australia implemented a monitoring and management program to identify the presence and distribution of feral and pest species within the Site and to reduce their populations where required. This program is undertaken annually, with the year of 2026 survey representing the fifth consecutive year of monitoring and management activities. This report also presents post-monitoring outcomes and observations, which will contribute to the refinement and ongoing development of management strategies for future feral animal control programs within the Site.

1.1 Objectives

To remain compliant with the VPMP, the projects' objective is to assess five (5) target species, monitor, and manage their presence and abundance within the Site. The VPMP provides a rating scale towards the pest species which rates them from low to high priority, as below:

- High Priority – Feral and unwanted Domestic Dogs (*Canis familiaris*).
- Medium Priority – Red Fox (*Vulpes vulpes*) and Feral Cat (*Felis catus*).
- Low Priority – Red Deer (*Cervus elaphus*) and Feral Pig (*Sus scrofa*).

As per the VPMP objectives, BA conducted a program which:

- Established the approximate size/presence of the five (5) target species within the Site.
- Reduced the number of high priority species within the Site through trapping and humane euthanasia.
- Provide data-based recommendations for future pest animal management within the Site.

1.2 Site Location and Description

The Site is located on Raynbird Road, Narangba, Queensland, approximately 37 kilometres (km) north of Brisbane and northwest of the Narangba township (Figure 1). Boral's landholdings encompass approximately 469.8 hectares (ha), of which approximately 50 ha are utilised for quarry operations, and 420 ha is surrounding buffer land. The Site is predominantly bordered by state forest, with established and developing residential estates located to the east and agricultural properties situated to the south-east. Vertebrate pest management activities were concentrated within the areas identified within the VPMP.

The Site is predominantly open eucalypt woodland and open forests dominated by Northern Grey Ironbark (*Eucalyptus siderophloia*) and Grey Gum (*Eucalyptus propinqua*) within the canopy. Other species present include Tallowwood (*Eucalyptus microcorys*), Brush Box (*Lophostemon confertus*) and Forest Red Gum (*Eucalyptus tereticornis*). The Site is consistent with the state mapping, which is displayed in Table 1.



Table 1: Regional Ecosystems Present Onsite

Regional Ecosystem	Description
RE 12.11.3 (Least Concern)	<i>Eucalyptus siderophloia</i> , <i>E. propinqua</i> +/- <i>E. microcorys</i> , <i>Lophostemon confertus</i> , <i>Corymbia intermedia</i> , <i>E. acmenoides</i> open forest on metamorphics +/- interbedded volcanics
RE 12.11.3a (Least Concern)	<i>Eucalyptus siderophloia</i> , <i>E. propinqua</i> +/- <i>E. microcorys</i> , <i>Lophostemon confertus</i> , <i>Corymbia intermedia</i> , <i>E. acmenoides</i> open forest on metamorphics +/- interbedded volcanics
RE 12.11.10 (Least Concern)	Notophyll vine forest +/- <i>Araucaria cunninghamii</i> on metamorphics +/- interbedded volcanics
RE 12.11.14 (Least Concern)	<i>Eucalyptus crebra</i> , <i>E. tereticornis</i> , <i>Corymbia intermedia</i> woodland on metamorphics +/- interbedded volcanics
RE 12.11.18 (Least Concern)	<i>Eucalyptus moluccana</i> woodland on metamorphics +/- interbedded volcanics
RE 12.12.12 (Of Concern)	<i>Eucalyptus tereticornis</i> , <i>Corymbia intermedia</i> , <i>E. crebra</i> +/- <i>Lophostemon suaveolens</i> woodland on Mesozoic to Proterozoic igneous rocks
RE 12.12.15b (Least Concern)	Mixed open forest including combinations of <i>Eucalyptus propinqua</i> , <i>E. siderophloia</i> , <i>Corymbia intermedia</i> , <i>E. microcorys</i> , <i>Lophostemon confertus</i> open forest on Mesozoic to Proterozoic igneous rocks
RE 12.12.16 (Least Concern)	Notophyll vine forest on Mesozoic to Proterozoic igneous rocks



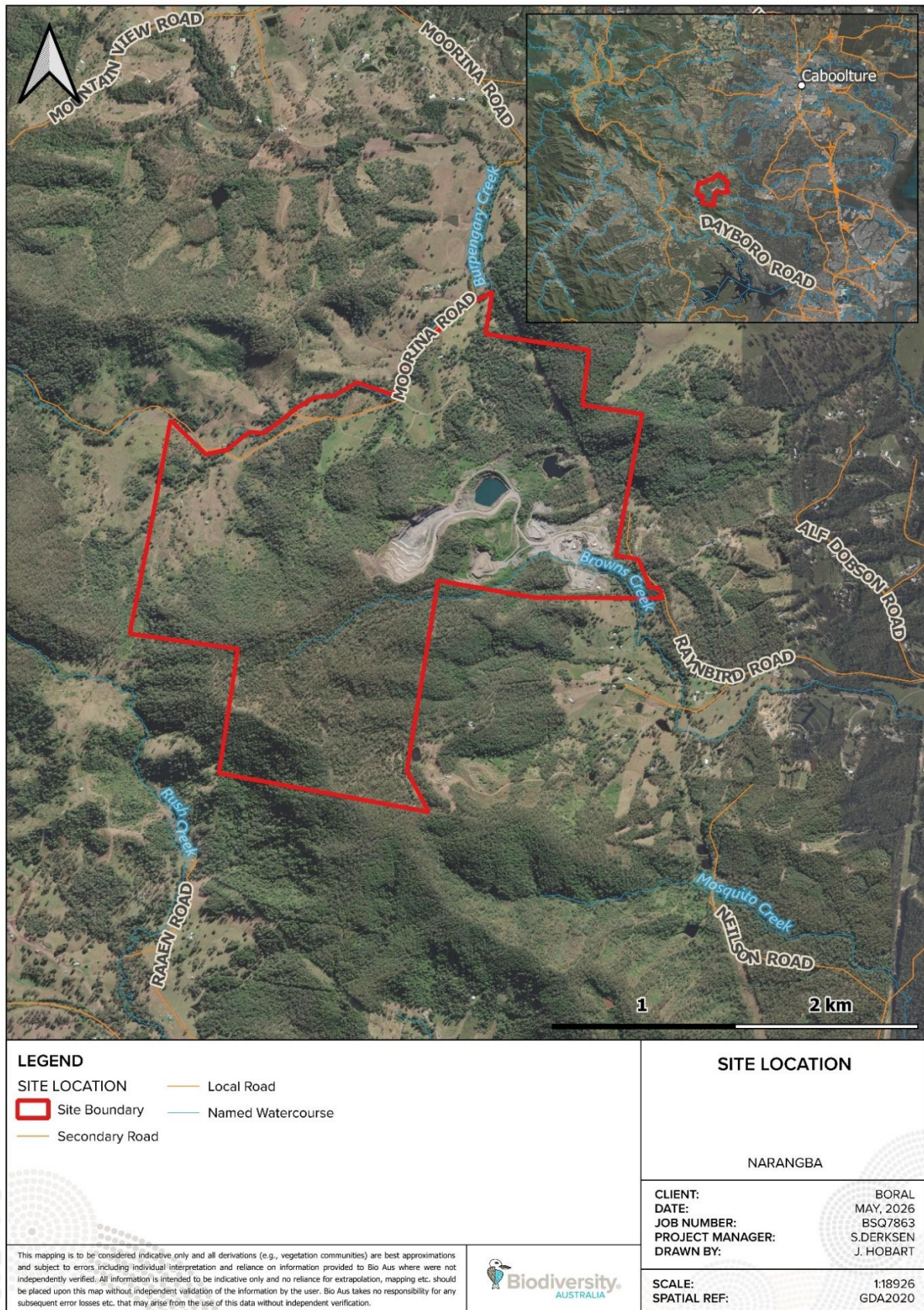


Figure 1: Site Location



1.3 Target Species

As per the VPMP, five (5) target species are a priority within the Site, to monitor and manage presence, as detailed below.

1.3.1 High Priority

1.3.1.1 Wild and Unwanted Domestic Dog (*Canis lupus familiaris*)

Wild and Unwanted Domestic Dogs (Wild Dogs) cause significant impacts to the agricultural industry through predation on livestock and are listed as Category 3, 4, and 6 restricted invasive animals under Queensland's *Biosecurity Act 2014* (Queensland Government, 2014). Wild Dogs preferentially prey on small to medium-sized mammals, including native mice, dunnarts, bandicoots, and wallabies; however, they are also known to prey upon a broad range of native and introduced fauna, including insects, kangaroos, and livestock (Queensland Government, 2025a). As opportunistic feeders, Wild Dogs may also frequent areas where food resources are readily available through human activity, such as waste disposal sites (Queensland Government, 2025a).

Wild Dogs can have significant impacts within offset areas through predation and disturbance of native fauna. Their presence can reduce populations of small to medium-sized mammals, birds, and other ground-dwelling species, particularly where fauna are already vulnerable due to fragmented or recovering habitat conditions. This predation pressure can disrupt ecological processes, alter food web dynamics, and impede the natural regeneration and conservation outcomes intended for offset areas (Queensland Government, 2025a).

Control measures for Wild Dogs commonly include baiting, trapping, shooting, exclusion fencing, and the use of guardian animals, often implemented as part of an integrated pest management approach (Queensland Government, 2025b). Effective long-term management generally requires coordinated, landscape-scale control programs involving multiple landholders and stakeholders (Queensland Government, 2025a).

1.3.2 Medium Priority

1.3.2.1 Red Fox (*Vulpes vulpes*)

Red foxes are listed as Category 3, 4, and 6 restricted invasive animals under Queensland's *Biosecurity Act 2014* (Queensland Government, 2014). The species is primarily a carnivorous predator and scavenger; however, Red Foxes are highly opportunistic feeders capable of consuming a wide variety of animal and plant material (Queensland Government, 2025a). Their diet commonly includes bandicoots, antechinus, frogs, birds, insects, fruit, vegetables, and grain (Department of Climate Change, Energy, the Environment and Water (DCCEEW), 2023).

Red Foxes prey upon a wide range of native fauna, resulting in significant environmental impacts. Within offset areas, Red Fox predation can reduce populations of ground-dwelling and small to medium-sized native species, disrupt local food webs, and limit the recovery and persistence of conservation-significant fauna. These impacts can ultimately undermine ecosystem function and compromise the ecological integrity and restoration objectives of offset management programs (Queensland Government, 2025a).

Management of Red Fox populations typically involves an integrated control approach, including exclusion fencing, trapping, shooting, and baiting programs (Queensland Government, 2025b).

1.3.2.2 Feral Cat (*Felis catus*)

Feral Cats are listed as Category 3, 4, and 6 restricted invasive animals under Queensland's *Biosecurity Act 2014* (Queensland Government, 2014). Feral Cats are predominantly nocturnal, with peak hunting activity typically occurring during dusk and dawn periods (DCCEEW, 2023a). The species exhibits a distinctive green-yellow eyeshine, which can assist with identification during nocturnal surveys. During daylight hours, Feral Cats commonly seek refuge in hollow logs, dense grass tussocks, debris piles, rabbit warrens, and hollows within standing trees (DCCEEW, 2023a).



Feral Cats are highly efficient predators and are recognised as a significant threat to native wildlife populations across Australia. Within offset areas, their presence can directly undermine conservation objectives by preying on small to medium-sized native fauna, including ground-dwelling mammals, birds, reptiles, and invertebrates, thereby reducing local biodiversity and limiting population recovery of sensitive species. They have been identified as a contributing factor in the extinction of twenty-five (25) Australian mammal species and are linked to ongoing population declines in numerous threatened fauna species, including the Night Parrot (*Pezoporus occidentalis*) and the Paradise Parrot (*Psephotellus pulcherrimus*) (Legge *et al.* 2020).

Management of Feral Cats generally involves an integrated control approach incorporating exclusion fencing, trapping, shooting, baiting, and the use of attractants or lures to improve trapping success (Queensland Government, 2025a).

1.3.3 Low Priority

1.3.3.1 Red Deer (*Cervus elophus*)

Red Deer are classed as restricted invasive animals under Queensland's *Biosecurity Act 2014* (Queensland Government, 2014). Introduced into Australia in the nineteenth century, Red Deer were initially released near Esk, Queensland, and have since established populations across Queensland, New South Wales, Victoria, and South Australia (DCCEEW, 2023).

Red Deer have been identified as having environmental, economic, and social impacts that are particularly relevant to offset areas, where the primary objective is to maintain and enhance ecological values. Within these environments, Red Deer can contribute to the degradation of native vegetation through selective overgrazing, browsing damage to seedlings and mature trees (including ringbarking), and the spread of invasive plant species via seed dispersal. Such impacts can reduce habitat quality, hinder natural regeneration processes, and compromise long-term restoration outcomes (Queensland Government, 2025a).

Management of Red Deer includes coordinated control methods such as ground shooting, trapping, and exclusion fencing as part of integrated pest animal programs (Queensland Government, 2025a).

1.3.3.2 Feral Pig (*Sus scrofa*)

Feral Pigs are classified as Category 3, 4, and 6 restricted invasive animals under Queensland's *Biosecurity Act 2014* (Queensland Government, 2014). The species occurs across a wide range of habitats in Queensland, with highest densities typically associated with drainage basins, wetlands, and swampy coastal and inland areas. During periods of high temperatures, Feral Pigs generally remain close to reliable water sources to regulate heat and maintain hydration (Queensland Government, 2025a).

Feral Pigs can have substantial impacts within offset areas, where the protection and restoration of ecological values are a primary management objective. Their rooting, wallowing, and grazing behaviours can cause extensive soil disturbance, damage native groundcover and regenerating vegetation, alter drainage patterns, and increase erosion potential. These activities may also reduce habitat quality for native fauna and facilitate the establishment and spread of invasive weed species through soil disturbance and seed dispersal (Queensland Government, 2025a). In wetland and riparian environments, Feral Pigs can significantly degrade sensitive habitat areas through trampling and sediment disturbance, potentially impacting water quality and ecosystem function. Such disturbances can compromise the ecological integrity and rehabilitation outcomes of offset areas if not effectively managed.

Control methods for Feral Pigs commonly include exclusion fencing, trapping, ground and aerial shooting, and baiting programs, typically implemented as part of coordinated integrated pest management strategies (Queensland Government, 2025b).



2. Methodology

Management works within the Site included pre-trapping monitoring and trapping. All Site standard protocols identified by the Client were followed and adhered to throughout the management period. Methodology for each management period is detailed in Sections 2.1 and 2.2 below.

2.1 Pre-Trapping Monitoring Period

In accordance with the VPMP, nine (9) Passive Infrared (PIR) cameras were installed across the Site for twenty-eight (28) consecutive days between 31st of March 2026 and 27th of April 2026 by suitably qualified BA Senior Vertebrate Pest Officers. In line with the VPMP, camera traps were installed within the same vicinity as previous years, to ensure consistency with the data. Passive Infrared Camera trap locations were mapped using a Geographic Information System (GIS) system and given an identification number (Figure 2). Locations were set along established dirt tracks, animal tracks, edges of vegetation, and waterways.

Camera outputs were formally assessed at the end of the monitoring period, and the following data collected:

- Species,
- Number of animals seen,
- Sex of animals (where this could be determined),
- Direction of travel and activity observed,
- Camera trap number, &
- Time of day.

2.1.1 Opportunistic Sightings

In addition, opportunistic sightings of native species are documented to assist in evaluating potential interactions between pest species and native wildlife, including any indications that pest presence may be influencing the abundance, distribution, or activity of native fauna within the Site.

2.2 Trapping Period

A trapping program was conducted over a twelve (12) day period within the Site. Nine (9) Soft Jaw Traps (SJT) were installed in selected areas and mapped (Figure 3). Traps were set on the 28th of April 2026 and collected on 9th of May 2026. During this time, BA assessed the traps on a daily basis and serviced them when required. In consideration of Wild Dog trapping, weather conditions were recorded daily, the following was recorded:

- Humidity,
- Temperature, &
- Wind speed and direction.

Target pest species commonly utilise well-defined movement corridors including waterways, tracks, and previously established animal trails aligned with natural topographic features, and it is anticipated that both Wild Dogs and Red Foxes will regularly travel along established pathways that provide ease of movement (Queensland Government, 2025a; DCCEEW, 2023).

Scent lures were deployed in association with traps and positioned adjacent to these travel routes to maximise the likelihood of attracting target species. The placement of traps and lures was carefully considered in relation to prevailing wind direction to ensure that scent plumes were carried across anticipated movement corridors, thereby increasing detection and capture efficiency for Wild Dogs and Red Foxes (DCCEEW, 2023; APVMA, 2022).



The following data was collected for all pest animals captured:

- Species,
- Sex,
- Date of capture,
- Location, including GPS coordinates of capture location,
- Trap type,
- Method of euthanasia, &
- Pictures of animals prior to and post euthanasia.

2.2.1 Trap Preparation

Prior to deployment, all traps were thoroughly cleaned and treated with a tannin and wax solution to remove residual odours and provide a protective wax coating. Each trap was then individually inspected and tested to confirm that all components were present, intact, and fully operational, ensuring functionality, and compliance prior to field installation.

2.2.2 Trap Installation

As per the National Standard Operating Procedure for Wild Dogs (NATSOP-DOG001) (Appendix A-1), SJTs were utilised within the management program. Soft Jaw Traps were strategically placed, in order to minimise the exposure of trapped individuals to harsh conditions such as direct sunlight or rain. Once traps were positioned in a shallow hole in the ground, the trap was then anchored and set.

A lure or attractant was placed in a location of high Wild Dog activity, aiming to provoke an investigation. The trap was placed at a pre-determined distance and bearing from the lure in the expectation that the target animal would step in that spot resulting in a capture. A mixture of artificial and natural lures was used.

2.2.3 Trap Monitoring

Each trap was inspected each morning in accordance with animal welfare requirements to minimise stress, exposure, and potential harm to captured fauna (NHMRC, 2013). Additional bait and/or scent lures were replenished within and around traps throughout the survey period where required, based on trap activity and environmental conditions, to maximise detection and capture success in accordance with standard fauna survey methodologies (DES, 2020). All trapping activities were undertaken by Suitably Qualified BA personnel in accordance with relevant fauna survey and animal ethics guidelines.

2.2.4 Euthanasia

Firearms and ammunition appropriate to the target species were utilised to ensure humane euthanasia and immediate incapacitation in accordance with accepted vertebrate pest management practices (Sharp & Saunders, 2011).

For Wild Dogs, smaller calibre rifles, including .22 rimfire or .22 magnum rimfire firearms fitted with hollow-point or soft-point ammunition, are considered suitable where accurate shot placement can be consistently achieved (Department of Agriculture and Fisheries (DAF), 2021). All shots were undertaken by Suitably Qualified personnel from an appropriate and safe distance, and only when target animals were stationary and clearly visible, to maximise animal welfare outcomes and maintain operational safety standards.

2.2.5 Bycatch

The procedures implemented for non-target species captured within the SJTs are outlined in Table 2.



Table 2: Bycatch Management Actions

Non-target Species Category	Management Procedure
Native fauna – injured	Transported to a local wildlife carer or Wildcare Australia for treatment and rehabilitation.
Native fauna – not injured	Released at the point of capture or within suitable adjacent habitat as soon as practicable.
Domestic pet – injured/non-injured	Transported to a local veterinary clinic for assessment and care.
Pest or non-native species	Humanely euthanised in accordance with accepted animal welfare and pest management guidelines.

2.2.6 Analysis

Trap placement was strategically considered in relation to prevailing wind conditions to maximise the likelihood of Wild Dogs detecting lure scents along identified travel corridors. The orientation of each trap relative to anticipated Wild Dog movement pathways was assessed to ensure lure odours were effectively dispersed across target areas under suitable wind conditions. For example, where a trap was positioned west of a known or anticipated travel route, easterly wind movement was considered favourable for transporting lure scent across the pathway and increasing exposure to target animals.

To quantify lure exposure effectiveness, the proportion of management days associated with each prevailing wind direction (e.g. northerly, southerly, easterly, and westerly conditions) was calculated throughout the trapping period. This data was then used to determine the percentage of management days during which lure scents were likely dispersed towards identified Wild Dog travel routes for each trap location.

2.3 Limitations

Limitations associated with the monitoring and management program should be considered when interpreting the results of this assessment. These limitations may influence species detectability, movement patterns, and the overall effectiveness of management activities undertaken throughout the Site. A summary of key limitations is provided in Table 3.

Table 3: Limitations

Limitation	Potential Influence on Results
Seasonal variability	Seasonal changes in temperature and resource availability are likely to influence the movement patterns and Site utilisation of pest and native fauna species. Variations in seasonal conditions between monitoring years may therefore affect species abundance, detectability, and activity levels recorded during PIR camera monitoring and trapping programs.
Rainfall and wet weather conditions	Rainfall events throughout the monitoring period may have reduced the effectiveness and longevity of bait and lure scents through dilution, wash-off, or degradation. Wet weather conditions may also alter animal movement patterns and reduce detectability in some areas of the Site.
PIR camera detection limitations	PIR camera detection rates are influenced by species behaviour, body size, vegetation density, environmental conditions, and camera placement. As such, some fauna species present within the Site may not have been detected during the monitoring period.
Trap avoidance and behavioural responses	Target species may exhibit trap shyness or avoidance behaviours following previous exposure to trapping or management activities, potentially reducing trap success rates within portions of the Site.
Spatial coverage limitations	Monitoring and trapping activities were undertaken within accessible areas of the Site and along identified movement corridors. Areas with limited accessibility or dense vegetation may support additional fauna activity not fully represented within the results.



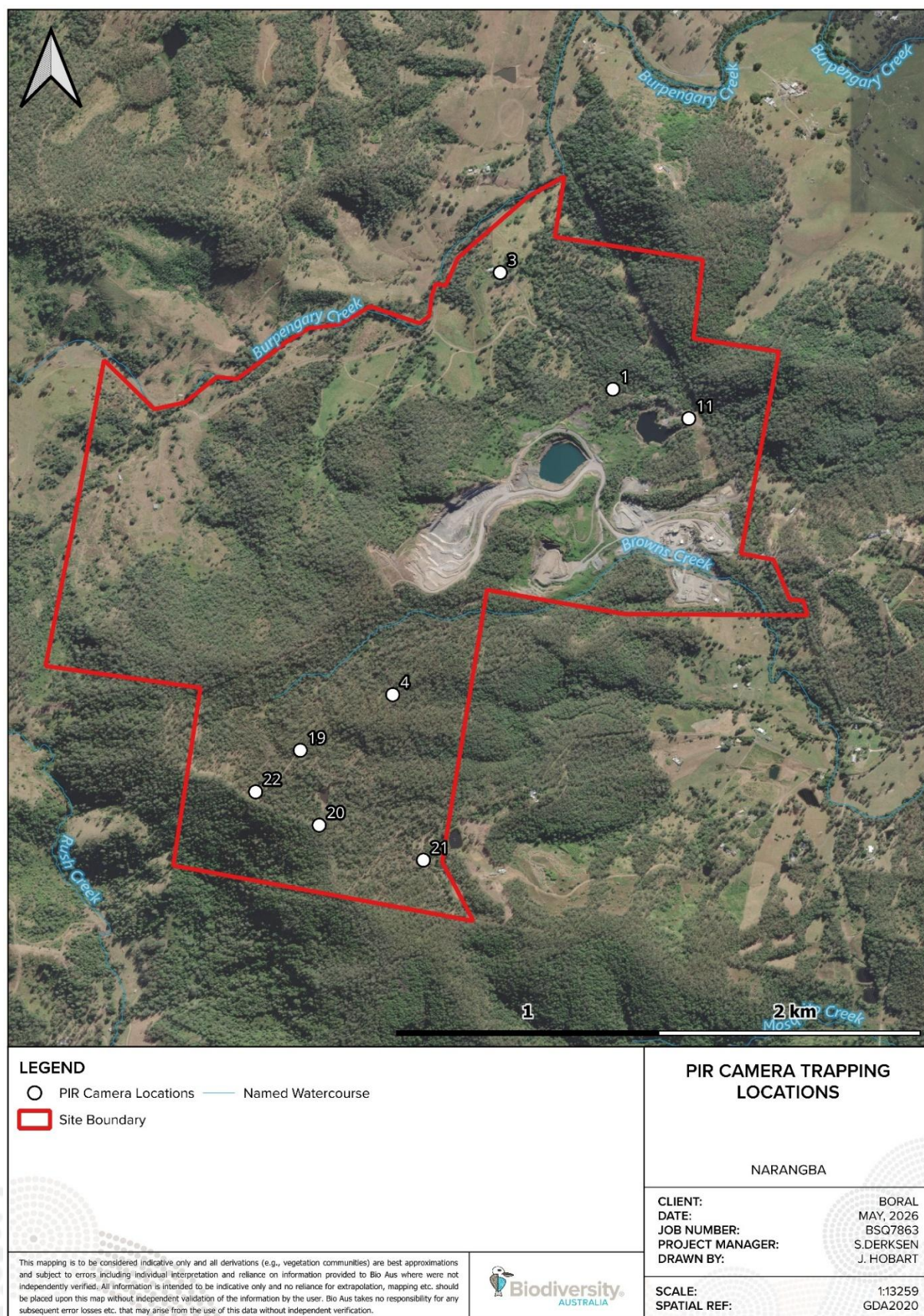


Figure 2: PIR Camera Trap Locations



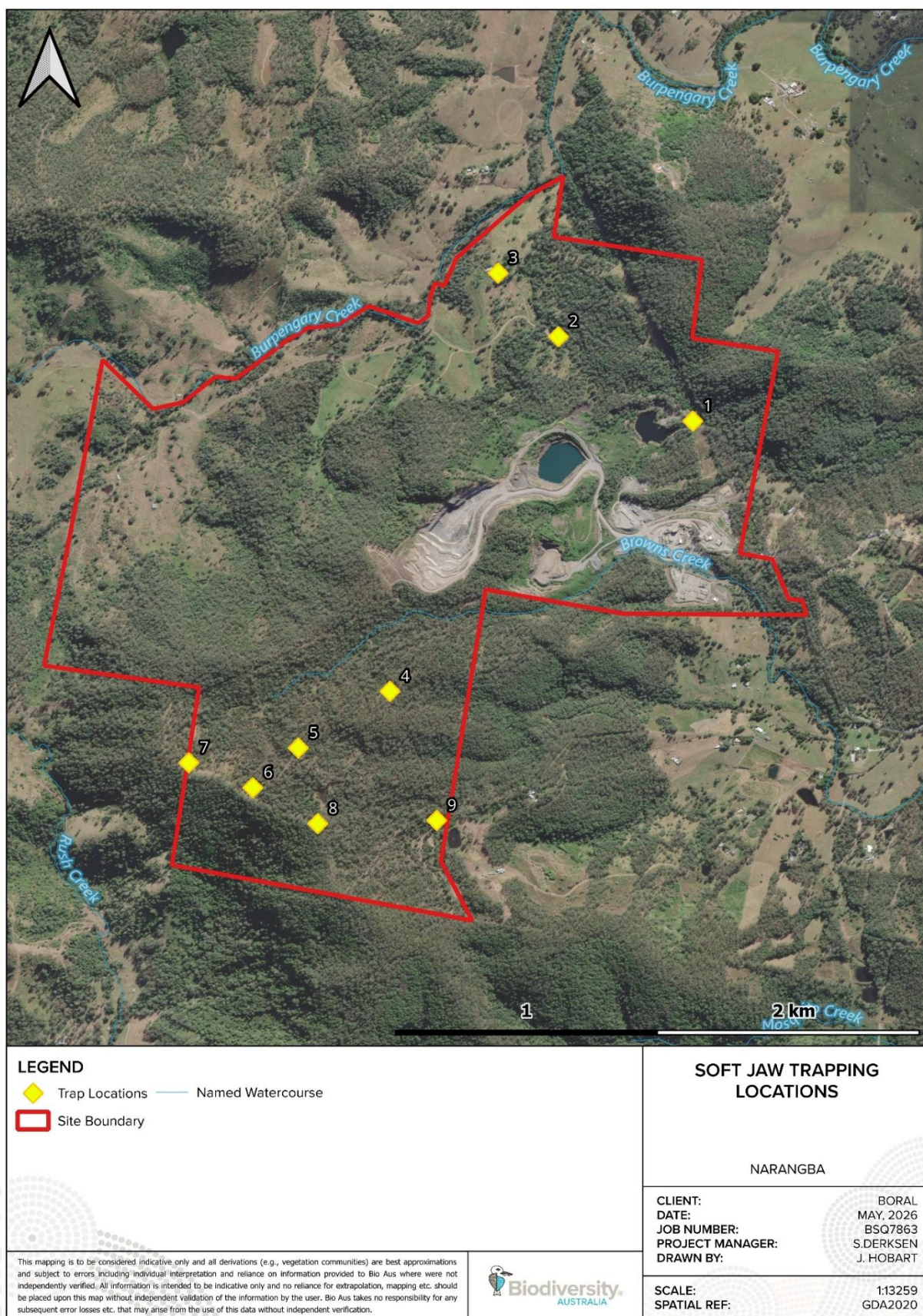


Figure 3: Soft Jaw Trap Locations



3. Results

3.1 Pre-Works Monitoring

Pre-works PIR camera monitoring within the Site captured a total of seven (7) individual Wild Dogs and confirmed presence of Red Foxes, Red Deer, and Feral Pigs. While not a target species, European Hares (*Lepus europaeus*) were also observed. Total sightings of each pest species sighted within the PIR camera monitoring period is displayed in Table 4 and Appendix A-2.

Table 4: Total Sightings of each Targeted Species.

Camera ID	Monitoring Period	Trap Nights / Camera Nights	Target Species Detected	Number of Detections
Cam-01	March 2026 – April 2026	28	Wild Dog	40
			European Hare	7
Cam-03	March 2026 – April 2026	28	Wild Dog	4
			Feral Pig	20
			Red Deer	1
Cam-04	March 2026 – April 2026	28	Wild Dog	27
			Red Deer	6
			Red Fox	1
Cam-11	March 2026 – April 2026	28	Wild Dog	1
			European Hare	46
Cam-19	March 2026 – April 2026	28	Wild Dog	36
			Red Deer	7
Cam-20	March 2026 – April 2026	28	Wild Dog	9
			Red Deer	6
			Red Fox	1
Cam-21	March 2026 – April 2026	28	Wild Dog	7
			Red Deer	1
			Red Fox	2
Cam-22	March 2026 – April 2026	28	Wild Dog	1



3.1.1 Calculated Relevant Abundance Frequency

Calculated Relevant Abundance (CRA) is provided within this report to give insight into each targeted feral animal's abundance onsite, compared to the other species abundance that was found throughout the monitoring period. The CRA is calculated by dividing the total number of a species caught on camera, by the total number of monitoring points over the twenty-eight day (28) monitoring period. The CRA of the Target Species are summarised in Table 5 below.

Table 5: Calculated Relevant Abundance Frequency

Species	Total Number Recorded	Number of Monitoring Points	Calculated Relative Abundance	Calculated Relative Abundance (%) 2026	Comparison CRA	
					Calculated Relative Abundance (%) 2025	Calculated Relative Abundance (%) 2024
Wild Dog	125	252	0.50	50%	8%	3%
Red Fox	4	252	0.02	2%	3%	8%
Red Deer	21	252	0.08	8%	N/A	N/A
Feral Pig	20	252	0.08	8%	9%	15%

3.1.2 Wild Dogs

Within the 2026 Narangba Offset Area Monitoring program, seven (7) Wild Dogs were observed within the Site. Individuals were able to be deciphered due to unique markings that were observed, as displayed in Appendix A-2. This is a decrease from 2025, with eleven (11) Wild Dogs observed.

The CRA of Wild Dogs increased substantially during the current monitoring period, with over 125 independent observations recorded across the Site, resulting in a CRA of approximately 50 percent (%). This represents a significant increase compared to the 2025 monitoring program, where only 48 observations were recorded, resulting in a CRA of 8%. Individuals previously identified during the 2025 monitoring period were again detected throughout the current survey, as displayed in Photo Plate 1 below. These repeated detections indicate that Wild Dogs are consistently utilising the Site and surrounding landscape, rather than merely moving opportunistically through the area.

As displayed in Figure 4, Wild Dog detections were concentrated around Camera Traps 1, 4, and 19, which recorded the highest number of sightings during the monitoring period. Camera Traps 1 is positioned within the north-western portion of the Site in proximity to permanent water sources, while Camera Trap 4 and 19 were located adjacent to a watercourse. The elevated activity recorded at these locations is consistent with the 2025 monitoring program, where increased Wild Dog activity was similarly observed in areas associated with water availability, maintained access tracks, and higher levels of human disturbance and movement throughout the Site.



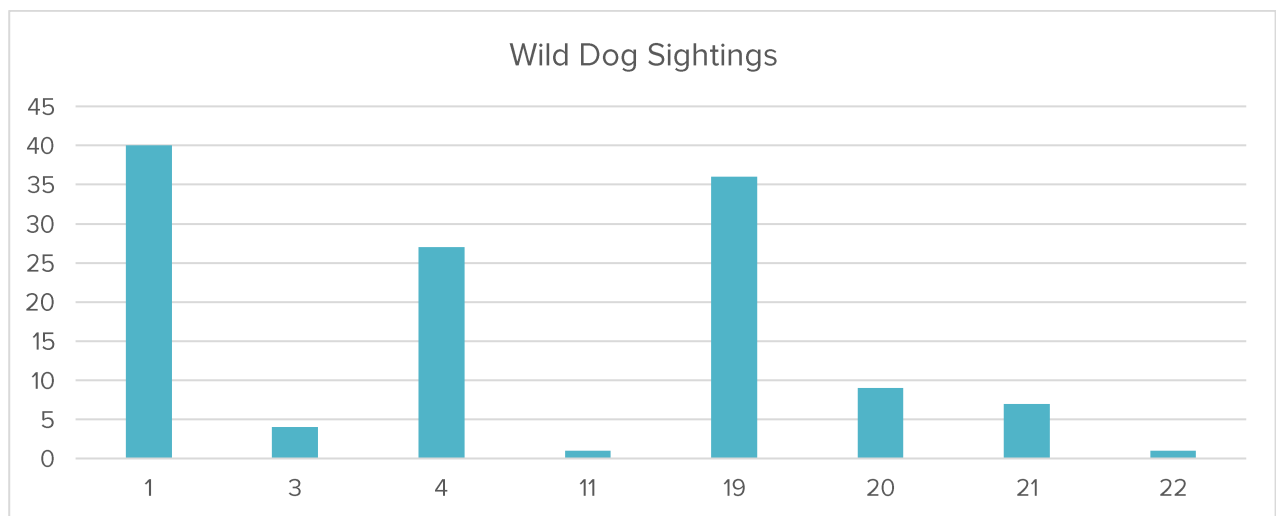


Figure 4: Wild Dog Sightings per Camera.



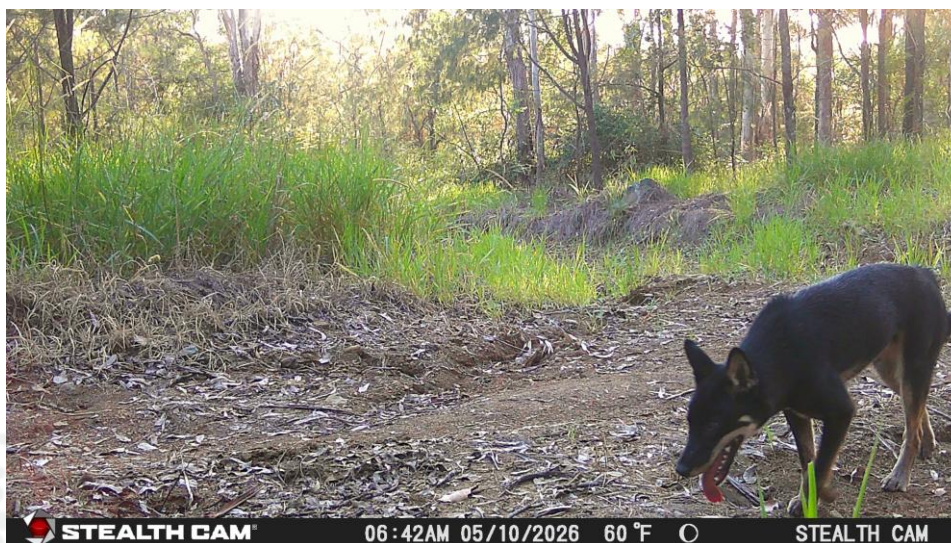
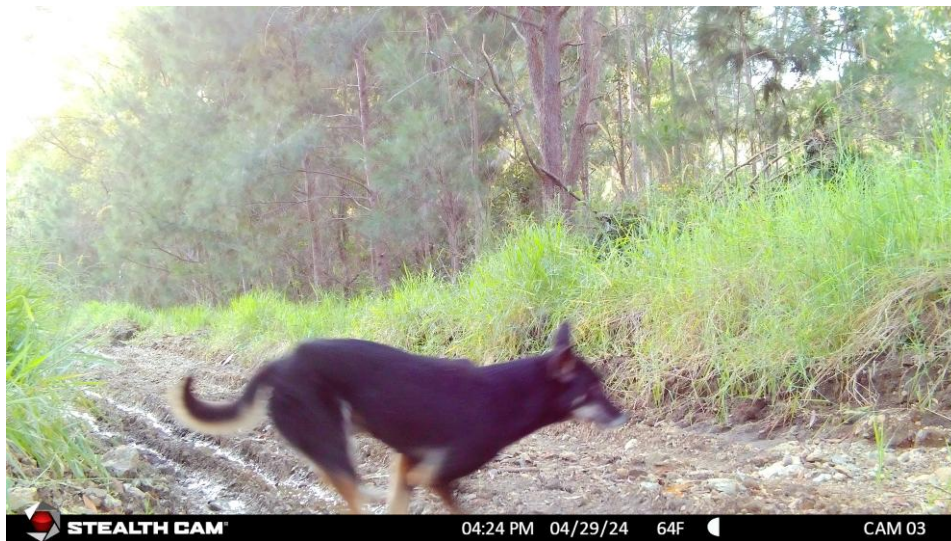


Photo Plate 1: Wild Dog Individual Sightings 2024 – 2026



3.1.3 Red Foxes

During the 2026 monitoring period, a total of four (4) Red Fox detections were recorded within the Site, resulting in a CRA of 2%. This represents a continued decline in Red Fox activity compared to the 2025 monitoring program, which recorded a CRA of 3%. The reduced abundance of Red Foxes across the Site may be associated with the increasing presence and activity of Wild Dogs, which are known to competitively exclude smaller predators within shared landscapes.

3.1.4 Feral Cat

Within 2026, no Feral Cats were sighted within the Site. This is conducive data, with last year's (2025) results also showing no Feral Cats within the Site.

3.1.5 Red Deer

During the 2026 monitoring period, a total of twenty-one (21) Red Deer detections were recorded across the Site, resulting in a CRA of 8%. This represents a substantial increase in activity compared to the 2025 monitoring program, where no Red Deer were recorded within the Site, and the 2024 program, where only a single Red Deer was detected within the central portion of the Site. The increased detections recorded during 2026 may reflect more favourable seasonal conditions and increased forage availability across the Site.

3.1.6 Feral Pigs

The 2026 Monitoring Program recorded a total of twenty (20) Feral Pig detections within the Site, resulting in a CRA of 8%. This represents a slight decrease in relative abundance compared to the 2025 monitoring program, which recorded a CRA of 9%, and a substantial decrease from the 2024 monitoring period, where Feral Pig activity resulted in a CRA of 15%.

While overall Feral Pig activity remains present throughout the Site, the continued reduction in CRA values since 2024 may indicate a gradual decline in population abundance or a reduction in utilisation of the Site. In 2024, detections were predominantly comprised of piglets and family groups, suggesting active breeding within the local area at that time. Comparatively, subsequent monitoring periods have recorded lower activity levels and fewer signs of juvenile recruitment.

3.1.7 Opportunistic Sightings

Opportunistic sightings of native fauna were recorded throughout the camera trapping program, with a total of fourteen (14) native species observed within the Site, including:

- Red-necked Wallaby (*Macropus rufogriseus*),
- Swamp Wallaby (*Wallabia bicolor*),
- Brush Turkey (*Alectura latham*),
- Rufous Bettong (*Aepyprymnus rufescens*),
- Red-necked Pademelon (*Thylogale thetis*),
- Australian Magpie (*Gymnorhina tibicen*),
- Common Brushtail Possum (*Trichosurus vulpecula*),
- Koala (*Phascolarctos cinereus*),
- Pheasant Coucal (*Centropus phasianinus*),
- Laughing Kookaburra (*Dacelo novaeguineae*),
- Willie Wagtail (*Rhipidura leucophrys*),



- Bush Stone-curlew (*Burhinus grallarius*),
- Tawny Frogmouth (*Podargus strigoides*), and
- Eastern Grey Kangaroo (*Macropus giganteus*).

Additionally, European Hares (*Lepus europaeus*) were recorded extensively throughout the monitoring period, with a total of fifty-three (53) detections recorded across the Site. Of these, forty-six (46) detections occurred at Camera Trap 11, indicating concentrated activity within this portion of the Site.

3.2 Trapping

3.2.1 Climate and Weather Conditions

Climatic conditions throughout the monitoring period between 28th of April and 9th of May 2026 were generally favourable for fauna monitoring and camera trapping activities within the Narangba area. Weather conditions were characterised by mild daytime temperatures, cooler overnight conditions, and predominantly stable weather patterns. Intermittent rainfall occurred throughout the survey period, with a cumulative rainfall total of 42.4 millimetres (mm) recorded during the monitoring duration based on Bureau of Meteorology data from the closest weather station (Appendix A-3).

3.2.2 Trapping Results

Trapping activities resulted in the capture and euthanasia of one (1) Wild Dog, one (1) Red Fox, and one (1) Feral Pig. These results are displayed in Table 6, with photos displayed in Appendix A-4. Viewer discretion is advised for these images.

Table 6: Trapping Results

Date of capture	Trap Number	Lure Disturbance	Trap Disturbance	Species	Sex/Age	Count	Comment
30/04/2026	3	Y	Y	Feral Pig	Male - Juvenile	1	Euthanised
02/05/2026	9	Y	Y	Wild Dog	Male – Adult	1	Euthanised
03/05/2026	8	Y	Y	Brush-tail Possum	Male – Adult	1	Uninjured and released.
04/05/2026	8	Y	Y	Red Fox	Male – Adult	1	Euthanised
04/05/2026	2	N	Y	Cattle	-	-	Evidence of Cattle false triggering trap.
04/05/2026	3	N	Y	Cattle	-	-	Evidence of Cattle false triggering trap.
05/05/2026	1	N	Y	Cattle	-	-	Evidence of Cattle false triggering trap.
05/05/2026	3	N	Y	Cattle	-	-	Evidence of Cattle false triggering trap.
06/05/2026	3	N	Y	Cattle	-	-	Evidence of Cattle false triggering trap.
07/05/2026	1	N	Y	Cattle	-	-	Evidence of Cattle false triggering trap.
09/05/2026	9	N	Y	-	-	-	Trap Triggered.



3.2.3 Trap Exposure

Analysis of prevailing wind conditions determined that lure scents were effectively dispersed towards identified Wild Dog travel corridors for approximately 13% of the trapping period. A summary of trap exposure relative to prevailing wind direction and target movement pathways is provided in Table 7.

Table 7: Trap Exposure Percentage

Trap Number	Trap Position (relative to path)	% of Management Days Tracks were exposed to Trap Scents
1	SE	33%
2	W	17%
3	N	0%
4	NE	0%
5	NE	0%
6	SW	25%
7	W	17%
8	NW	0%
9	SW	25%
Average exposure (% of management days):		13%



4. Recommendations

Increased Wild Dog activity indicates a rise in local food availability, likely supporting larger predator populations. It is recommended that targeted control measures be implemented to address this trend. Recommendations for future management of each species is detailed in Table 8.

Table 8: Recommendations

Target Species / Program	Recommendation
Soft Jaw Trapping Program	- It is recommended that the Soft Jaw Trapping Program continue in accordance with the requirements and approved locations outlined within the VPMP. - The program should continue targeting the following priority pest species: - Red Fox, and - Wild Dog.
Cage Trapping Program	- It is recommended that a targeted Cage Trapping Program for Feral Pig be implemented in conjunction with the Soft Jaw Trapping Program. - Trap placement should be strategically informed by current and previous PIR camera monitoring results to maximise program effectiveness and target areas of elevated Feral Pig activity. - Traps should be configured specifically for Feral Pig capture to minimise the risk of non-target species interactions.
Deer Management Program	- Biodiversity Australia recommends continued monitoring and the start of management of Deer activity levels. - Recommended management measures may include, but are not limited to: - Targeted thermal-assisted shooting programs. - Strategic trapping programs. - Ongoing PIR camera monitoring to assess population trends and Site utilisation.



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6. Appendix

A-1 DOG001 Soft Jaw Trapping Procedure



NATSOP-DOG001 NATIONAL STANDARD OPERATING PROCEDURE: TRAPPING OF WILD DOGS USING PADDED-JAW TRAPS

Voluntarily adopted by the Vertebrate Pest Committee 2012 with the Invasive Plants and Animals Committee endorsing minor updates September 2017.

BACKGROUND

Wild dogs, which include feral domestic dogs, dingoes and their hybrids, prey on livestock causing significant impact on agricultural production. Methods of control include poisoning with sodium monofluoroacetate (1080), trapping, shooting, exclusion fencing, aversion and use of livestock guarding animals.

Trapping of wild dogs is often used where poison baiting is less effective, for example, in or around lambing paddocks where there is abundant food. Trapping is useful for targeting individual problem animals, or as a follow-up after 1080 baiting programs, but is regarded as an inefficient method for general population control.

Padded jaw traps are used to reduce the incidence and severity of foot injuries sustained by dogs. Traps are inspected daily and caught dogs are shot whilst still held by the trap. If the traps cannot be checked daily, lethal trap devices containing an humane toxin should be used to prevent prolonged exposure and suffering.

This National Standard Operating Procedure (NATSOP) is a guide only; it does not replace or override the legislation that applies in the relevant state or territory jurisdiction. The NATSOP should only be used subject to the applicable legal requirements (including WH&S) operating in the relevant jurisdiction.

APPLICATION

- Trapping is time-consuming and labour intensive and is therefore best suited for control of small populations or problem individuals.
- Traps have the potential to cause significant suffering and distress so should only be used when there is no suitable alternative.
- Humane and successful trapping requires extensive training and experience. Trapping by inexperienced operators can result in 'trap-shy' dogs that are difficult to catch because they have previously escaped from a carelessly prepared and presented trap.
- Selection of appropriate traps and trap of capturing of non-target animals, and to minimise the pain and distress experienced by trapped animals.
- Every effort must be made to avoid animal deaths from factors such as exposure, shock, capture myopathy and predation.
- Once trapped, wild dogs are euthanased by shooting at the site of capture.
- Traps must be used in accordance with relevant state and territory legislation (see Table 1). In some states for example, Western Australia, a permit may be required to trap within certain municipalities.
- Shooting of wild dogs in traps should only be performed by skilled operators who have the necessary experience with firearms and who hold the appropriate licences and accreditation. Storage and transportation of firearms and ammunition must comply with relevant legislation requirements.
- Unless otherwise authorised by the relevant vertebrate pest authority, where leg-hold traps cannot be checked at least once daily a lethal toxin must be applied to the jaws of the trap or a lethal trap device must be used. Use of the lethal toxin or lethal trap device is to bring about a relatively quick death of trapped animals. This is preferable to the dog suffering a prolonged death from exposure, dehydration and/or stress. New lethal trap devices using humane toxins are currently being developed for use in all states and territories.

NATSOP-DOG001 NATIONAL STANDARD OPERATING PROCEDURE: TRAPPING OF WILD DOGS USING PADDED-JAW TRAPS

Table 1: Relevant State and Territory animal welfare and related legislation relevant to the use of traps (legislation correct 2012).

Jurisdiction	Legislation	Conditions
ACT	<u>Animal Welfare Act 1992</u>	Use of steel-jaw traps is prohibited. Trapping with padded-jaw traps, cage traps and treadle snares is permitted.
NSW	<u>Prevention of Cruelty to Animals Act 1979</u>	Use of steel-jaw traps is prohibited. Trapping with padded-jaw traps, cage traps and treadle snares is permitted.
NT	<u>Animal Welfare Act 2000</u>	Use of steel-jaw traps is prohibited. Trapping with padded-jaw traps is permitted
QLD	<u>Animal Care and Protection Act 2001</u>	Steel-jaw traps are not prohibited traps
TAS	<u>Animal Welfare Act 1993</u>	Leg-hold traps and snares are prohibited.

NATSOP-DOG001 NATIONAL STANDARD OPERATING PROCEDURE: TRAPPING OF WILD DOGS USING PADDED-JAW TRAPS

SA	<u>Animal Welfare Act 1985</u>	Small steel-jaw traps are prohibited. Large steel-jaw traps are prohibited in most areas except for wild dog control along the dingo fence and for research purposes. The large steel-jaw traps are required to be bound with cloth soaked strychnine or modified.
VIC	<u>Prevention of Cruelty to Animals Act 1986</u> <u>Prevention of Cruelty to Animals Regulations 2008</u>	Mandatory features of traps, conditions of use, inspection periods and where traps may be set are specified for all trap types. All steel-jaw traps are prohibited. Padded traps are permitted for wild dogs, foxes and rabbits. Confinement traps, net traps and rodent kill traps are permitted. Lethal snares are illegal. Non-kill snares and kill traps require Ministerial approval.

NATSOP-DOG001 NATIONAL STANDARD OPERATING PROCEDURE: TRAPPING OF WILD DOGS USING PADDED-JAW TRAPS

WA	Animal Welfare Act 2002 Agriculture and Related Resources Protection (Traps) Regulations 1982	Steel-jaw traps are permitted for wild dog control. The jaws must be bound with a cloth soaked in strychnine. Only padded steel-jawed traps are permitted for fox control and use in research programs. Permits are required to set traps in metropolitan areas. Neck snares are illegal.
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ANIMAL WELFARE CONSIDERATIONS

Impact on target animals

- Traps which catch dogs on the leg or foot cause pain and distress in two ways; pressure of the trap jaws on the captured limb and restraint of the animal. Injuries will inevitably occur to some animals, especially when they struggle to escape the trap. These range from swelling of the foot and lacerations to dislocations and fractures. Wild dogs may also inflict injuries to their feet and legs by chewing on the captured limb, and to their teeth, lips and gums by gnawing at the trap jaws. To reduce capture distress, trapped dogs must be destroyed humanely and as quickly as possible.
- It is preferable to set traps at sites where vegetation can provide shade and shelter. However, sites should be avoided where there is a risk of the trapped animal becoming entangled in understorey vegetation or fences, which could result in dislocation of the limb.
- Captured animals must be approached carefully and quietly to reduce panic, further stress and risk of injury.
- To minimise the animal welfare implications of leaving dependent pups to die a slow death from starvation it is preferable not to undertake trapping when females are whelping, that is, June to August in temperate areas.
- If lactating bitches are caught in a trap, efforts should be made to find dependent pups and kill them quickly and humanely with a shot to the brain.
- Traps should be inspected at least daily. In remote and extensive areas where this may not be possible, a lethal trap device containing a humane poison should be used to prevent prolonged exposure and suffering.

Impact on non target animals

- Traps are not target specific, so a wide range of nontarget species may be caught. These can include birds (eg ravens, magpies, pied currawongs, kangaroos, wallabies, rabbits, hares, echidnas, goannas, wombats, possums, bandicoots, quolls and sheep). If there is a high risk of trapping non-target animals, traps should not be set.

NATSOP-DOG001 NATIONAL STANDARD OPERATING PROCEDURE: TRAPPING OF WILD DOGS USING PADDED-JAW TRAPS

- Different groups of non-target animals suffer different levels of injury and distress. For example:
 - Wallabies often experience serious injuries (eg dislocations) due to the morphology of their limbs and because they become very agitated when restrained.
 - Goannas (eg lace monitors) also suffer from dislocations and can die from hyperthermia.
 - Birds, rabbits and hares can be preyed upon by foxes, cats and wild dogs while caught in traps.
- Traps must not be set near areas such as waterholes or gully crossings that are regularly frequented by nontarget species. Animal tracks and pads or holes in fences should also be avoided.
- If scavenging birds or goannas are known to frequent the area, food baits should not be used.
- If the trap is not checked for many days trapped nontarget animals will suffer for a prolonged period, dying from thirst, exposure and/or stress.
- Live non-target animals caught in traps must be examined for injuries and signs of illness or distress and dealt with as follows:
 - Animals which are unharmed or have only received minimal injuries such as minor cuts or abrasions should be immediately released at the site of capture.
 - Animals which have more severe injuries or which are suffering from thermal stress should receive appropriate attention. An animal suffering from thermal stress can initially be placed in a suitable quiet holding area which provides warmth or shade to allow recovery before release. Animals with treatable injuries that cannot be immediately released or those failing to recover from thermal stress should be presented to a veterinarian or a registered wildlife carer for treatment.
 - Animals that have injuries which are untreatable or which would compromise their survival in the wild should be euthanased using a technique that is suitable for the species. For more information on euthanasia techniques refer to Methods of Euthanasia.
- If a domestic pet is caught, it should be taken to the nearest animal shelter, council pound or veterinarian where it can be scanned for a microchip and the owner contacted, or assessed for suitability of re-homing.
- If foxes or feral cats are caught in the trap they must be euthanased quickly and humanely by a shot to the brain using an appropriate firearm.

HEALTH AND SAFETY CONSIDERATIONS

- Firearms are hazardous. All people should stand well behind the shooter when a dog is being shot. The line of fire must be chosen to prevent accidents or injury from stray bullets or ricochets.
- Care must be taken when handling wild dog carcasses as they may carry diseases such as hydatidosis and sarcoptic mange that can affect humans and other animals. A dog with obvious mange should only be handled while wearing gloves. Routinely wash hands after handling all wild dog carcasses.
- Operators should be wary of the risks of injury when placing and setting traps. Protective clothing, boots and leather gloves may help prevent injuries from shovels, hammers and trap jaws.

NATSOP-DOG001 NATIONAL STANDARD OPERATING PROCEDURE: TRAPPING OF WILD DOGS USING PADDED-JAW TRAPS

EQUIPMENT REQUIRED

Traps

- Approved padded-jaw traps suitable for catching wild dogs must be used for example, padded Lanes dingo trap or Victor Soft-Catch® trap no. 3. It is illegal to use serrated, steel-jawed traps in most states and they are not recommended for use in any circumstances on animal welfare grounds.
- Traps must have the following characteristics:
 - The jaws have no teeth.
 - The jaws are offset to increase the space between them when closed (ie a distance of 6-8 mm remains when the jaws are closed).
 - Each jaw has a rubber-like pad to cushion the impact of the jaws on the limb and to prevent the limb sliding out. The padding fills the offset gap when the jaws are closed.
- Traps should also have:
 - A spring placed in the anchor chain to act as a shock absorber, reducing the chance of dislocation of the captured limb. Swivels are located on both ends of the anchor chain allowing the trap to twist as the animal struggles to escape.
- Adjustable pan tension so that a certain minimum force is required to depress the pan and trigger the trap. This minimises the chance of smaller non-target animals setting off the trap.

Lures

- Olfactory stimuli such as dog faeces and/or urine, or a commercially prepared lure (eg synthetic fermented egg) are used to lure wild dogs into the trap set.
- The attractiveness of lures will vary with season and location.

Meat baits

- A handful of meat bait (eg beef, rabbit, lamb, chicken, and kangaroo) can also be placed near the trap.
- Attractiveness and palatability of the bait will vary with season and location.

Firearms and ammunition

- Firearms no smaller than a .17 calibre rimfire with hollow/soft point ammunition are recommended for euthanasia.
- 12 gauge shotguns with shot sizes of BB or AAA may also be used.

PROCEDURES

Selection of trap sites

- Traps should be set where the dog is most likely to find and investigate the unfamiliar lure odour eg beside regularly used boundary pads, near scent pads and around scratch points. Do

NATSOP-DOG001 NATIONAL STANDARD OPERATING PROCEDURE: TRAPPING OF WILD DOGS USING PADDED-JAW TRAPS

not set traps near fences and other objects such as trees, bushes etc. in which the trapped dog may become entangled.

- The location of all trap sites must be accurately recorded and marked. This information should be readily available to others in case the trapper is unable to return to check traps.

Setting of traps

- It is preferable to set traps at the end of each day and check them each morning.
- Test that the trap is functioning properly before setting.
- Traps should only be anchored to stakes or fixed objects if there is a shock absorbing device such as a spring fitted to the anchor chain and a swivel attaching the chain to the trap. It is recommended to use a short length of chain (approx. 50 cm). Alternatively the trap can be tied to 'drags', objects such as rocks, solid pieces of steel or small logs that will move when the dog pulls against the trap.
- Set the trap and place into position in the hole in the ground. Ensure that surrounding shrubs or debris will not interfere with the spring mechanism.
- Camouflage the area around the trap with leaves, grass debris etc. but leave a slightly cleared area (10–15 cm) over the area of the plate.
- Place the lure on a slightly elevated clump of grass, stick or rock behind the trap. The distance from the plate of the trap to the decoy is critical and should be 45–50 cm, roughly equivalent to the distance between a dog's front feet and his nose when leaning forward to smell.

Shooting of wild dogs

- Trapped dogs should be euthanased by shooting whilst still held by the trap.
- Unnecessary people should keep away from the area to allow the dog to become less agitated. The shooter should approach the animal in a calm and quiet manner.
- To maximise the impact of the shot and to minimise the risk of misdirection the range should be as short as possible, that is around 5-20 cm from the head if using a rifle, 1–2 m if using a shotgun.
- Never fire when the dog is moving its head, be patient and wait until the dog is motionless before shooting. Accuracy is important to achieve a humane death. One shot should ensure instantaneous loss of consciousness and rapid death without resumption of consciousness. Shots must be aimed to destroy the major centres at the back of the brain near the spinal cord. This can be achieved by one of the following methods (see diagrams below):

Frontal position (front view)

The firearm is aimed at a point midway between the level of the eyes and the base of the ears, but slightly off to one side so as to miss the bony ridge that runs down the middle of the skull. The aim should be slightly across the centreline of the skull and towards the spine.

Temporal position (side view)

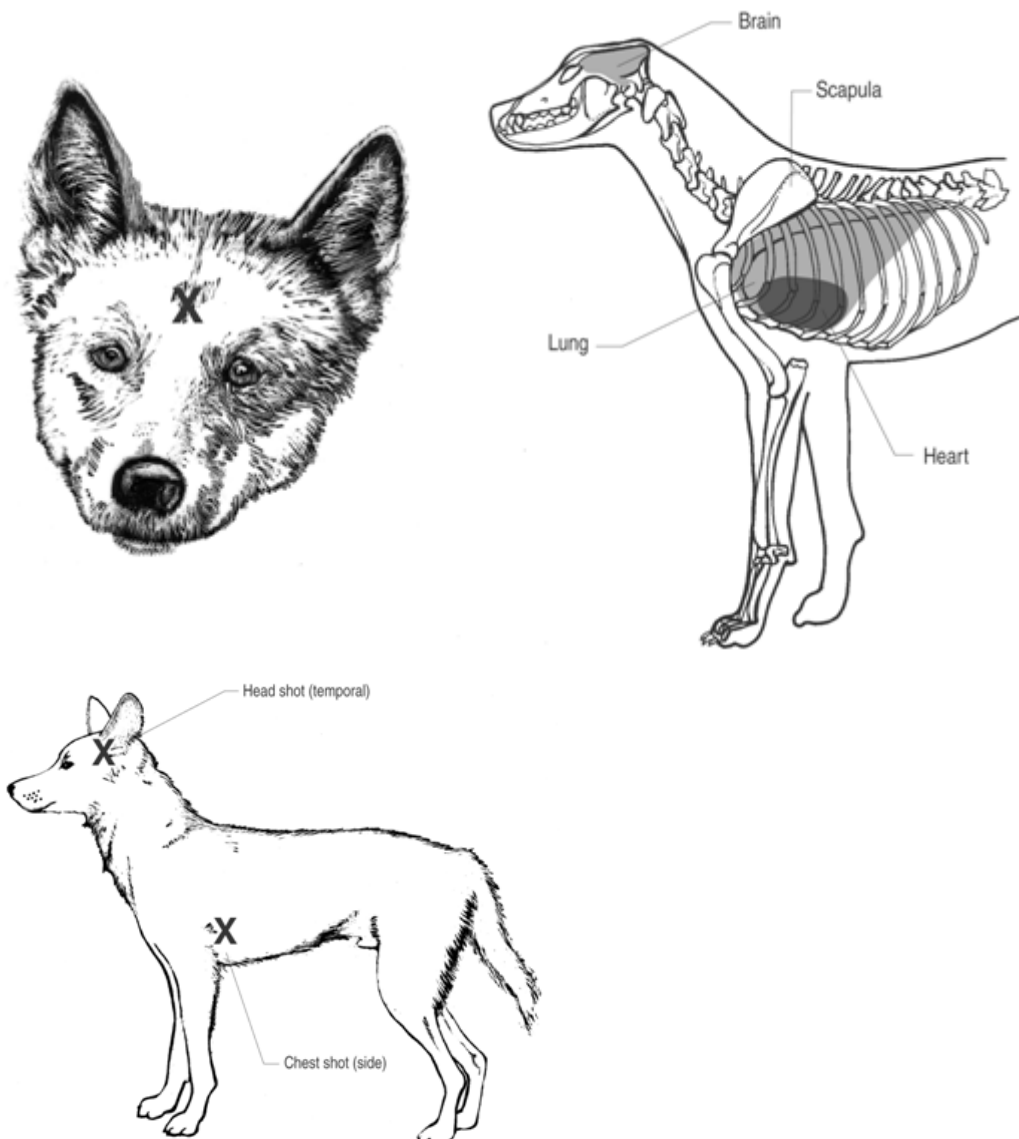
The firearm is aimed horizontally at the side of the head at a point midway between the eye and the base of the ear.

- Death of shot animals should always be confirmed by observing the following:
 - Absence of rhythmic, respiratory movements
 - Absence of eye protection reflex (corneal reflex) or 'blink'
 - A fixed, glazed expression in the eyes

NATSOP-DOG001 NATIONAL STANDARD OPERATING PROCEDURE: TRAPPING OF WILD DOGS USING PADDED-JAW TRAPS

- Loss of colour in mucous membranes (become mottled and pale without refill after pressure is applied). If death cannot be verified, a second shot to the head should be taken immediately.

Recommended shot placements for wild dogs



Note: Head shots (temporal or frontal) should be used for shooting wild dogs caught in traps. In order: Side view, Side view (skeleton), Head shot (frontal)

NATSOP-DOG001 NATIONAL STANDARD OPERATING PROCEDURE: TRAPPING OF WILD DOGS USING PADDED-JAW TRAPS

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If you have printed this document please ensure you regularly check <https://pestsmart.org.au> for the latest updates of these documents.

Reference me as: Sharp T (2012) NATSOP-DOG001 National Standard Operating Procedure: Trapping of wild dogs using padded jaw traps. PestSmart website: <https://pestsmart.org.au/toolkit-resource/trapping-of-wild-dogs-using-padded-jaw-traps/>

A-2 PIR Camera Monitoring Results

A-2-1 Wild Dog Sightings

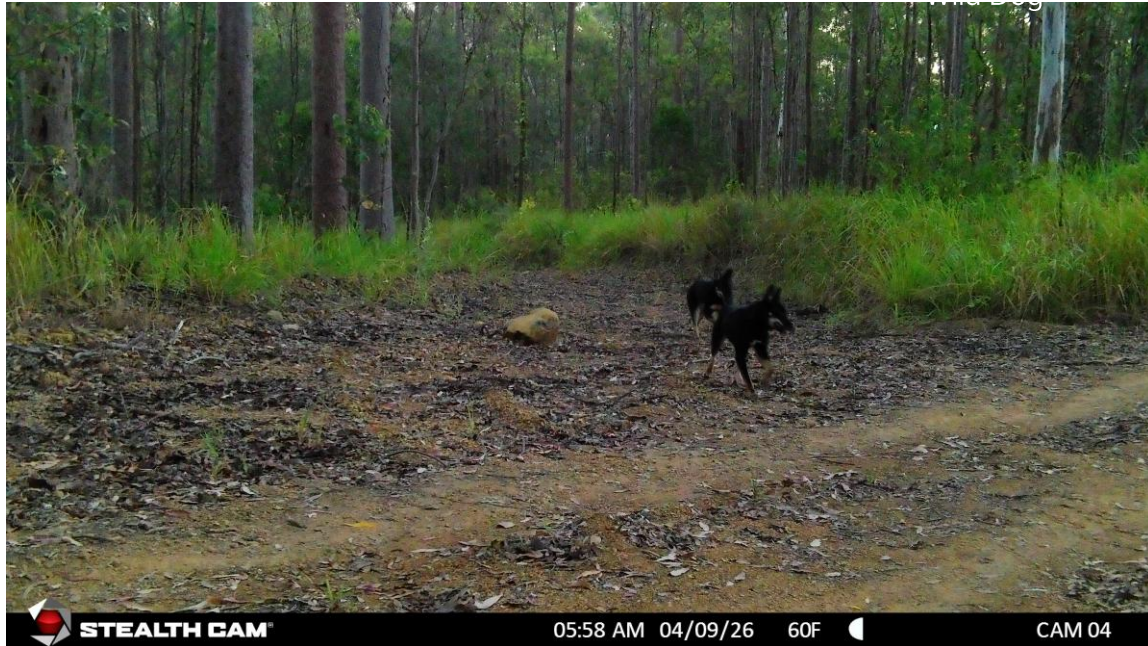


Photo Plate 2: Dog 1 and Dog 2



Photo Plate 3: Dog 3, Dog 4 and Dog 5





Photo Plate 4: Dog 6



Photo Plate 5: Dog 7



A-2-2 Red Fox Sightings



Photo Plate 6: Red Fox Sightings



A-2-3 Red Deer Sightings

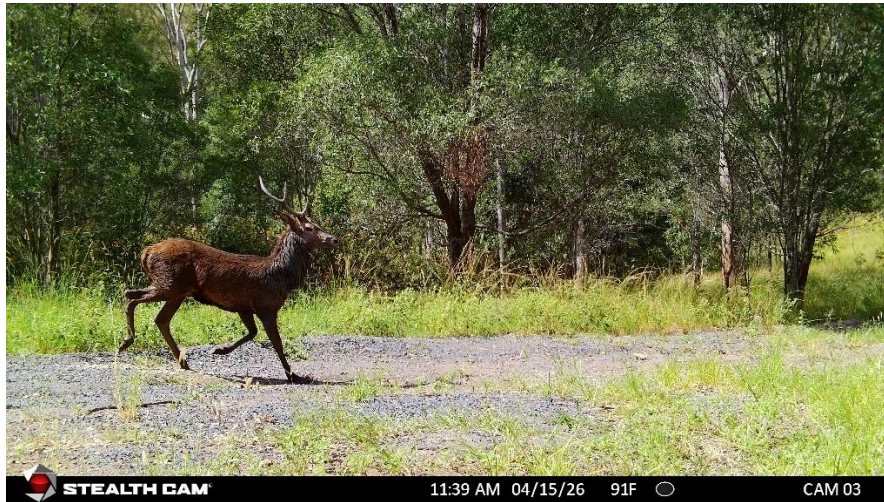


Photo Plate 7: Red Deer Sightings



A-2-4 Feral Pig Sightings

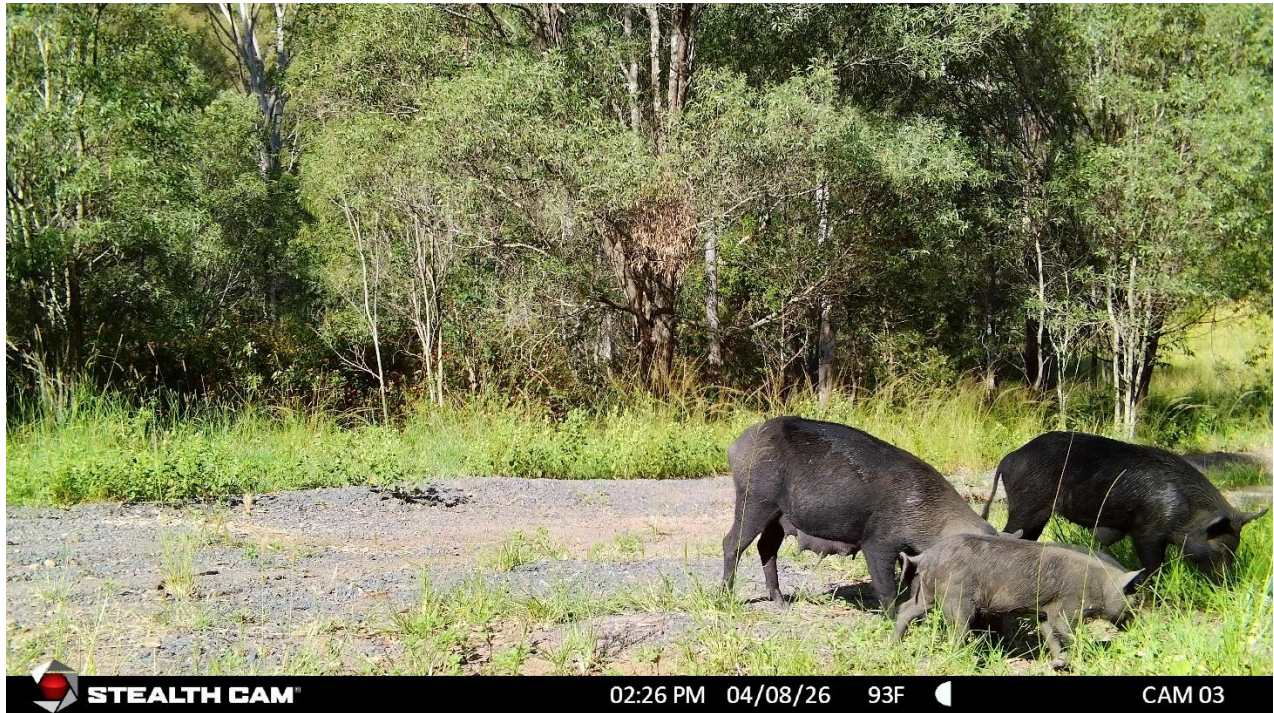


Photo Plate 8: Feral Pig Sightings



A-3 Weather Report for Trapping Period



Beerburum, Queensland

April 2026 Daily Weather Observations



Australian Government
Bureau of Meteorology

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9am						3pm					
		Min	Max				Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C					km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
1	We	18.7	27.2	8.4			SSE	28	14:54	23.4	83		S	9		25.6	72		SSE	9	
2	Th	18.0	27.0	0.6			S	22	10:40	22.8	81		SW	6		24.9	71		S	7	
3	Fr	18.1	27.2	2.8			SSE	24	14:50	22.6	83		S	7		25.3	74		SSE	9	
4	Sa	18.9	27.5	1.4			SSE	31	11:51	24.4	76		S	7		26.4	56		SSE	9	
5	Su	18.1	26.8	0.8			S	37	14:12	23.5	79		SSW	7		23.9	66		SSE	11	
6	Mo	17.3	27.0	0			S	19	08:26	23.6	70		SSW	7		25.7	56		SSE	9	
7	Tu	16.0	30.0	0			SE	43	13:28	24.4	75		SSW	4		28.5	60		NNE	7	
8	We	16.7	32.5	0			NNE	17	17:13	26.0	69			Calm		30.4	58		E	6	
9	Th	17.2	30.2	0			ESE	17	13:46	25.3	75		N	7		27.4	66		ESE	7	
10	Fr	16.9	29.1	0.2			N	15	11:38	25.0	78		SSE	4		28.2	58		E	7	
11	Sa	17.5	31.7	0			NW	20	23:25	24.7	72		WNW	6		31.6	53		N	7	
12	Su	18.4	31.2	0			NW	26	00:28	26.1	43		SW	2		30.2	21		W	7	
13	Mo	15.1	27.4	0			ESE	17	12:35	22.3	45		S	6		26.2	50		SSE	7	
14	Tu	17.1	25.4	0			S	11	13:31	19.7	81			Calm		24.7	58		E	6	
15	We	14.6	28.2	0			N	50	17:33	23.6	70		SSE	4		26.5	60		E	7	
16	Th	15.6	28.8	0			NNW	17	13:16	23.6	74		SSW	4		27.4	56		ENE	7	
17	Fr	15.7	28.8	0.2			NNW	19	22:40	24.2	69		SW	4		28.4	58		N	9	
18	Sa	20.3	29.6	0			NNW	22	00:58	27.0	53		W	4		27.0	57		E	9	
19	Su	16.2	27.2	2.6			S	15	08:43	22.4	64		S	4		24.6	64		ENE	6	
20	Mo	15.8	26.7	0			E	19	15:10	22.3	62		S	9		25.7	44		SSE	6	
21	Tu	13.5	26.1	0			SSE	26	10:05	21.6	63		SSW	6		25.1	47		SE	6	
22	We	12.9	25.1	0			S	26	09:24	21.1	68		SSW	6		23.8	58		SSE	7	
23	Th	14.0	25.5	0			SE	26	14:55	21.5	61		SSW	7		24.1	51		SSE	11	
24	Fr	14.7	24.9	0.4			S	30	13:50	21.6	63		S	9		20.8	74		S	7	
25	Sa	15.6	21.4	16.4			S	30	11:01	18.6	98		SSW	4		17.9	96		SSW	6	
26	Su	14.8	24.5	13.2			S	24	10:42	20.7	81		S	7		23.0	69		S	9	
27	Mo	16.0	24.5	1.6			SE	28	10:42	20.2	86		SSW	6		19.9	81		S	7	
28	Tu	15.4	23.5	2.6			SSE	24	08:24	20.3	74		SSW	7		22.6	74		SSE	9	
29	We	15.8	25.4	4.0			SSE	30	11:54	21.4	85		S	7		23.8	62		S	9	
30	Th	16.2	22.5	6.6			S	24	12:56	19.0	97		SSW	4		21.1	94			Calm	
Statistics for April 2026																					
Mean		16.4	27.1							22.8	72			5		25.4	62			7	
Lowest		12.9	21.4							18.6	43			Calm		17.9	21			Calm	
Highest		20.3	32.5	16.4			N	50		27.0	98		S	9		31.6	96		SSE	11	
Total				61.8																	

Observations were drawn from Beerburum Forest Station {station 040284}

IDCJDW4010.202604 Prepared at 13:01 UTC on 21 May 2026

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Beerburum, Queensland

May 2026 Daily Weather Observations



Australian Government
Bureau of Meteorology

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9am						3pm					
		Min	Max				Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C					km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
1	Fr	17.0	25.0	12.8			S	33	11:56	20.1	89		SSW	4		23.6	68		S	11	
2	Sa	19.0	26.7	14.8			ESE	28	09:47	24.0	80		ESE	7		25.4	68		SSE	6	
3	Su	16.2	25.8	0.4			SSE	19	11:11	22.3	81		SW	4		24.4	74		SSE	7	
4	Mo	17.4	26.4	1.0			E	20	13:37	21.5	93		SSW	2		25.7	71		SE	7	
5	Tu	17.2	26.8	0			SSE	11	09:35	22.8	84		SSE	4		24.5	74		ESE	2	
6	We	18.2	26.9	0.2			S	19	12:32	22.3	84		SSW	7		25.6	64		S	6	
7	Th	17.4	26.4	0			W	20	11:02	21.9	84		SW	4		24.2	62		SW	2	
8	Fr	10.4	22.6	0			W	46	11:14	16.0	47		SSW	6		22.0	26		NW	4	
9	Sa	9.6	23.7	0			ESE	19	12:00	19.3	61		SW	4		23.1	54		SSE	4	
10	Su	11.9	23.9	0			S	20	11:28	19.4	77		SW	2		22.4	68		S	6	
11	Mo	15.6	25.0	0.4			S	31	14:05	21.1	76		SSW	7		20.5	79		SSW	6	
12	Tu	16.3	23.2	4.4			S	31	16:08	20.1	82		SSW	7		19.8	85		SE	9	
13	We	15.1	23.1	10.0			S	28	12:31	18.2	95		S	6		21.7	74		S	9	
14	Th	14.7	22.3	10.8			SSW	28	12:00	18.4	97		SSW	4		19.8	92		SW	4	
15	Fr	15.1	24.0	2.0			SSE	26	13:14	18.4	91		S	2		22.7	60		S	7	
16	Sa	15.4	23.4	1.8			SSW	20	09:19	20.1	82		S	7		21.7	81		S	7	
17	Su	16.5	24.5	2.2			E	17	12:16	20.7	90		SSW	6		22.3	87		S	4	
18	Mo	18.8	22.4	38.4			NNE	20	12:12	19.9	99			Calm		21.8	93		N	9	
19	Tu	19.5	21.6	21.0			NW	26	15:52	21.3	96		NW	4		19.0	93		WNW	7	
20	We	13.6	23.7	4.4			SSE	44	13:21	18.9	66		WSW	6		22.9	51		SSW	4	
21	Th	11.0	23.2	0			SW	26	10:32	18.4	67		SW	2		22.2	49		S	7	
22	Fr	13.2	23.3	0			SSW	28	14:31	19.7	70		SSW	6		22.1	52		SSW	11	
23	Sa	15.0	24.6	0			SSW	26	12:13	20.9	72		SSW	6		22.8	64		SSE	9	
24	Su	15.6	24.3	0			S	28	13:03	20.1	81		SSW	6		22.7	74		S	4	
25	Mo	17.4	24.2	1.2			ESE	17	11:41	21.2	92		S	4		22.0	81		SSE	4	
26	Tu	16.5	22.2	5.0			NNE	13	11:44	19.5	99			Calm		21.4	93			Calm	
27	We	18.8	23.1	6.6			NW	17	15:53	19.8	99			Calm		21.6	95			Calm	
28	Th	16.1	21.1	41.0			WNW	37	17:29	18.2	99		E	2		20.3	87		NE	2	
29	Fr	13.4	22.1	21.8			W	37	09:46	17.8	76		WNW	9		19.7	69		WSW	9	
30	Sa	13.0	22.1	0.2			SSW	28	19:55	18.4	68		WSW	6		21.0	51		SW	7	
31	Su	11.0	22.5	0			WSW	19	11:00	17.7	67		WSW	4		20.1	49		SW	2	
Statistics for May 2026																					
Mean		15.4	23.9							19.9	82			4		22.2	70			5	
Lowest		9.6	21.1							16.0	47			Calm		19.0	26			Calm	
Highest		19.5	26.9	41.0			W	46		24.0	99		WNW	9		25.7	95		#	11	
Total				200.4																	

Observations were drawn from Beerburum Forest Station {station 040284}

IDCJDW4010.202605 Prepared at 00:26 UTC on 1 Jun 2026

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A-4 Post-Trapping Results

WARNING: Sensitive Content Notice.

The below photos depict deceased animals. Viewer discretion is advised.



Table 9: Euthanised Target Pest Species

Trap Number	Species	Sex	Health Status	Photo Identification
9	Wild Dog	Male	Healthy	



VERTEBRATE PEST MANAGEMENT REPORT | NARANGBA QUARRY | JUNE 2026

Trap Number	Species	Sex	Health Status	Photo Identification
8	Red Fox	Male	Healthy	



VERTEBRATE PEST MANAGEMENT REPORT | NARANGBA QUARRY | JUNE 2026

Trap Number	Species	Sex	Health Status	Photo Identification
3	Feral Pig	Male	Healthy – 6kg	



S27 – C OPERATIONAL PRESCRIBED BURN PLAN

BURN NAME	FMU09 & FMU10	Lot/Plan/s No.	139/SL10320
Burn No.	FMU09 FMU10	(All approvals obtained) ☐ Yes	
Location	Narangba Quarry	Road Segment No.	NA
LGA	Moreton Bay City	Proposed Timing	Jan - Dec
Permit Number		Actual Date	

Prescribed Burn Planner	Adam Bruce, Fireland Officer	18/07/2025
	Name & position	Signature & date
	Burn Planning checklist complete	☐ Yes ☐ No
Burn Plan Reviewer	Ben Tidey	03/07/2026
	Name & position	Signature & date
	Burn Plan Review checklist complete	☐ Yes ☐ No

ATTACHMENTS (not all attached – see file)

- | | |
|---|--|
| ☐ Burn permit (Mandatory)
☒ Burn map (Mandatory)
☒ Complexity Rating (Mandatory)
☐ Pre-Burn Works order (if applicable)
☐ Vegetation & Habitat Map (if applicable)
☐ Traffic management plan (if applicable) | ☐ Map of notified residents (if applicable)
☐ Media advice (if applicable)
☐ Risk assessment (if applicable)
☐ Contingency map/s (if applicable)
☐ Other (if so what) |
|---|--|

KEY MESSAGES FOR CREW BRIEFING

(Further details contained within Burn Plan)

Management of significant values:

- 40 – 60% burnt area
- Koala – pre burn walk through. On going monitoring.
- Hollow bearing tress
- Casuarina – limit fire impacts
- Northern and eastern edge (FMU09) has grass breaks – adjust lighting accordingly
- FMU10 eastern edge along powerline is atv/foot access, may require hose line from top.
- High Voltage Powerlines – Eastern Edge
- Cattle Fencing

SITUATION (SMEACS)

PLANNING

Complexity Rating: (CR – 1), complexity [50].

SITE CHARACTERISTICS (refer to Operational Burn Map)

Area to be treated	~15Ha	Percentage aim:	40-60%	Last fire type:	Unknown	Last fire:	Unknown
Description of site (Topography, slope and aspect)	Two burn units separated by a central track which is the highest point, landscape falls to the northwest and southeast by an average of 40 meters. There is a drainage line located to north, west and southeast of the units. The aspects vary across the blocks, due to the peaks and contours, but is predominantly Northwest in FMU09 and southeast in FMU10.						

FUEL CHARACTERISTICS

Vegetation type (General description of vegetation & fuel type, height, fuel variability)	Eucalyptus forest with grassy near surface fuels at the north/northeast of unit 09 with a thickening midstory layer on lower moister slopes. Southern section and higher elevations are more leaf fuel dominated with lower wetter areas dominated by near surface grass and sedges. Lantana is prevalent across the northern section of the burn area..						
Overall fuel hazard rating	☐ Low	☒ Moderate	☒ High	☒ Very High	☐ Extreme	t/Ha	

VALUES ASSESSMENT

Significant Fauna/Flora on site. (Any values listed here that may be adversely affected by the planned fire to be included in the <i>Values Management</i> section.)	Species: Phascolarctos cinereus (Koala) Source of record: ☒ Veg Mgt Report ☐ Atlas of Living Australia ☒ Other Essential habitat present: ☒ Yes ☐ No NCA Status ☐ CE ☒ E ☐ V ☐ NT ☐ LC ☐ SLC ☐ NL Known identified location: ☐ Yes ☒ No Presence identified as likely: ☒ Yes ☐ No Value at threat from planned fire activities: ☐ No ☒ Yes – include in values assessment
	Species: Adelotus brevis (Tusked frog) Source of record: ☒ Veg Mgt Report ☐ Atlas of Living Australia ☐ Other Essential habitat present: ☒ Yes ☐ No NCA Status ☐ CE ☐ E ☒ V ☐ NT ☐ LC ☐ SLC ☐ NL Known identified location: ☒ Yes ☒ No Presence identified as likely: ☒ Yes ☐ No Value at threat from planned fire activities: ☐ No ☒ Yes – include in values assessment
	Species: Calyptorhynchus lathami (Glossy Black Cockatoo) Source of record: ☐ Veg Mgt Report ☐ Atlas of Living Australia ☒ Other (CEP – BMP v1.1) Essential habitat present: ☐ Yes ☒ No NCA Status ☐ CE ☐ E ☒ V ☐ NT ☐ LC ☒ SLC ☐ NL Known identified location: ☐ Yes ☒ No Presence identified as likely: ☒ Yes ☐ No Value at threat from planned fire activities: ☐ No ☒ Yes – include in values assessment

Regional Ecosystem code: 12.11.14

VMA Class: ☐ Not of Concern ☐ Least Concern ☒ Of Concern ☐ Vulnerable ☐ Endangered

Short Description: Eucalyptus crebra, E. tereticornis, Corymbia intermedia woodland on metamorphics +/- interbedded volcanics

Fire Management Guidelines:

SEASON: Summer to late-autumn.

INTENSITY: Low.

INTERVAL: 3-6 years.

INTERVAL_MIN: 3.

INTERVAL_MAX: 6.

STRATEGY: Aim to burn 40-60% of any given area. Spot ignition in cooler or moister periods encourages mosaics. ISSUES: The substrate is typically nutrient rich and grassy. Control of weeds (e.g., Lantana camara) with fire might be required. Maintain ground litter and fallen timber habitats by burning only with sufficient soil moisture. Burning should aim to produce fine scale mosaics of unburnt areas.

Value at threat from planned fire activities: ☒ No ☐ Yes – include in values assessment

Regional Ecosystem code: 12.11.9

VMA Class: ☐ Not of Concern ☒ Least Concern ☐ Of Concern ☐ Vulnerable ☐ Endangered

Short Description: Eucalyptus tereticornis subsp. tereticornis or E. tereticornis subsp. basaltica open forest on metamorphics +/- interbedded volcanics, usually on ridges, crests and upper slopes.

Fire Management Guidelines:

SEASON: Summer to winter.

INTENSITY: Plan for low to moderate. Unplanned occasional high intensity wildfire will occur.

INTERVAL: 4-8 years maintains a healthy grassy system. 8-20 years for shrubby elements of understorey.

INTERVAL_MIN: 4.

INTERVAL_MAX: 20.

STRATEGY: Aim for 40-60% mosaic burn. Needs disturbance to maintain RE structure (eucalypt overstorey with open understorey of predominantly non-rainforest species). ISSUES: Occurs on exposed ridges and crests but soils are heavy and retain moisture. May contain heath species in understorey. Frequent fire is needed to maintain understorey integrity, keeping more mesic species low in the profile of the understorey so that other species can compete. It is essential that wildfires are not the sole source of fire in this ecosystem. High intensity fires occur periodically through time, however frequent low to moderate intensity fires will create the disturbance required to keep the understorey diverse. A follow-up burn soon after a high intensity wildfire can be considered to reduce germinating/resprouting mesic species.

Value at threat from planned fire activities: ☒ No ☐ Yes – include in values assessment

Cultural Heritage. (Any values listed here that may be adversely affected by the planned fire to be included in the <i>Values Management</i> section.)	Value: No values listed or identified Source of record: ☒ Cultural Heritage Register ☐ Other (pls specify) Value at threat from planned fire activities: ☒ No ☐ Yes – include in <i>Values Management</i>. If a potential cultural heritage value is identified during the planned works, then the Cultural Heritage Chance Find protocol is to be implemented.
Built Assets & Utilities (Any values listed here that may be adversely affected by the planned fire to be included in the <i>Values Management</i> section.)	Value: Moorina Road (Northern and Northwest boundary of property) Source of record: ☒ Site inspection ☒ Imagery ☐ Other (pls specify) Value at threat from planned fire activities: ☐ No ☒ Yes – include in <i>Values Management</i>.
	Value: Boral Narangba Quarry Site Source of record: ☒ Site inspection ☒ Imagery ☐ Other (pls specify) Value at threat from planned fire activities: ☐ No ☒ Yes – include in <i>Values Management</i>.
	Value: Multiple Private Residents (1x NW of burn, 1x NE of burn) Source of record: ☐ Site inspection ☒ Imagery ☐ Other (pls specify) Value at threat from planned fire activities: ☐ No ☐ Yes – include in <i>Values Management</i>.
	Value: High Voltage Powerlines – Eastern Edge Source of record: ☒ Site inspection ☒ Imagery ☐ Other (pls specify) Value at threat from planned fire activities: ☐ No ☒ Yes – include in <i>Values Management</i>.
	Value: Cattle Fencing Source of record: ☒ Site inspection ☐ Imagery ☐ Other (pls specify) Value at threat from planned fire activities: ☐ No ☒ Yes – include in <i>Values Management</i>.

Control Lines					
Control lines Refer to Operational Map Critical – 2WD Urban fire truck or water tanker etc. Strategic – 4WD Medium appliance Secondary – 4WD Light appliance (Echo or Isuzu etc.) Other - 4WD Utility UTV – Polaris Walking trail – not vehicle trafficable Creek / fuel moisture differential	Desired standard	Name	Location / Alphas	Prep required	
	UTV	Northwest Boundary	9.1 – 9.6	Yes	
	Secondary	Northeastern/eastern Boundary	9.6 – 9.9 & 10.1 – 10.3	Yes	
	Secondary	Centre track	9.9 – 9.6	No	
	Strategic	Western Boundary	9.14 – 9.9 & 10.12 – 10.7	No	
	Secondary	Southeastern	10.3 – 10.7	Yes	
Contingency control lines (Identify where a breach of containment could possibly occur. List fallback lines in the event of a breakout)	Desired standard	Name	Location / Alphas	Prep req.	Keys req.
	Critical	Moorina Road	North / Northwest of burn	No	Yes
	Secondary	Boral Internal track infrastructure – FMU08 Sothern boundary	South of burn	No	Yes
	Secondary	Boral Internal track infrastructure – FMU08 Southern boundary	East of burn	No	Yes
Control line and contingency prep works required	☒ Yes (If yes , has the <i>Pre burn works order</i> sheet been populated?) ☐ No				

MISSION

Aim & Objectives

Aim:	Implement a planned burn that supports the Offset Management Plan
Objective 1	Planned burn considering RE Guidelines for ecological outcomes
Objective 2	
Objective 3	

Measurables for each objective

Objective	Measure	How assessed
Objective 1	Burn is implemented within RE guidelines	Time since last burnt
Objective 2	Burn coverage is consistent with RE guidelines	Estimated % burnt visually and spatially
Objective 3	Fire effects are consistent with PB guidelines for RE	Visual assessment during and post implementation.

Effort required to implement and contain

Ignition and containment details	Hours	Shifts	Explanatory notes
Expected duration for ignition	4	1	Simple ignition and holding, small burn area.
Expected duration for containment	5	1	Ignition and containment to occur consecutively.
Expected duration for mop up till safe	8	2	Require check on second day

EXECUTION

PREFERRED FIRE/FUEL PARAMETERS

Weather conditions	Max temp	30°	Max wind speed & preferred direction	20 km S/SE influence	Min RH Max RH	30% 80%
Flame height	0.3m – 1.5m (average)		Scorch Height:	3 - 6m (average)		
Other guidelines (List any weather and fuel moisture conditions which will prohibit or restrict burning)	Burn with best possible soil moisture given implementation constraints.					
	Max fire danger index	12		Max KBDI	~120	
Suggested ignition method	☒ Ground ☐ Aerial ☐ Slingshot ☐ Other (if other what)					

Ignition pattern

(Describe the ignition method and sequence of lighting)

(Procedure may be modified on the day of the burn, based on conditions and test burn)

Given the preferred wind direction of a Southerly / South-Easterly influence:

FMU09 - Ignition commences at 9.14 to 9.1 securing containment.

Once ignition to 9.1, continue edge ignitions to point 9.6, simultaneously securing containment.

In collaboration with the eastern edge ignitions, considering containment, internal ignitions can commence across the burn area working to meet objectives of cover and fire effects communicating with the eastern edge lighting crew.

Ignition can be brought from 09.14 along the western side in conjunction with internal and eastern lighting teams to point 9.9.

Once ignition has reached point 9.6, it can then continue down to 9.9 collaborating with internal ignition crew.

All edges to be adequately contained.

FMU10 – Ignition point 10.1 down the powerline edge (temporary fireline) to point 10.7 considering fire behaviour. Internal ignitions across slope to be implemented simultaneously to manage fire behaviour.

Once eastern and across slope (from eastern edge) ignitions have commenced, edge ignitions from 10.1 to 10.12 can commence as required.

Ignition from 10.12 to 10.7 southwestern side can occur in collaboration with internal lighting to maintain containment.

RESOURCES

(Suggested resources for each sector - scale up/down pending site conditions)

Plant and Equipment

Sector	Type		Min Qty				Provider		
Northern fence	ULA		1				Fireland		
	LA		1						
Powerline	ULA		1				Fireland		
	LA		1						
Dam	LA		1				Fireland		
Internal lighting	-		-						
Totals:	ULA	2	LA	3	MA	0	Other	0	

Human Resources

(Suggested staffing resources for each sector - scale up/down pending site conditions)

Sector	Minimum Quantity			Provider		Total	Supporting notes
	SL	CL	CM				
Northern fence	1		1	SL	FC	1	Crews shared from Dam sector
				CL	FC	0	
				CM	FC	1	
Powerline		1	1	SL	FC		Crews shared from Northern Fence sector
				CL	FC	1	
				CM	FC	1	
Dam	1			SL	FC	1	
				CL	FC		
				CM	FC		
Internal lighting		1	1	SL	FC		Crews shared from Dam sector
				CL	FC	1	
				CM	FC	1	
Total						7	

Contingency Resources

(Describe/list additional types/quantity/availability of resource if required)

Plant & Equipment	Contractor as required	
Human		
Water points (Refer to operational map) (Describe the type e.g. hydrant, dam, static etc. & the location/s-grid reference)	Type	Location
	Hydrant	TBC
Patrol (outline patrol responsibilities, timeframe & resources)	Black out to 20m ground level and 50m elevated. No active flames or closed hot logs. No unburnt available fuels within 20m.	
Other (Include any other logistical arrangements. Gate keys?)	Site escort required for access to from main gate.	

ADMINISTRATION

Assembly area (Refer to Operational Burn Map) (Describe the location)	392 Moorina Road (apx) - Access Point gate
Catering (Describe location, time and supplier)	Self sufficient
Fuel (Describe location and type)	BP - New Settlement Road, Oakey Flat Rd, Narangba QLD 4504

NEIGHBOUR & LANDOWNER NOTIFICATIONS

- ☒ **Firecom must** be notified prior to lighting up, and at the completion of the day.
- ☐ All landowners **must** give consent for works to be carried out on their land.
- ☒ 72 hours' notice **must** be given to adjoining landowners/occupiers.

Stakeholder notification													
Agency/Neighbour	Location to burn	Immediately adjoining?	Contact type				Notification			Address	Email	Phone	Notes
			Phone	Email	Letter Box	Other	> 7 days	Day before	Day of				
			☐	☐	☐	☐	☐	☐	☐				
			☐	☐	☐	☐	☐	☐	☐				
Councillor			☐	☒	☐	☐	☐	☒	☒		tony.latter@moretonbay.qld.gov.au		
Honourable Member			☐	☐	☐	☐	☐	☐	☒				
QFD Media		No	☐	☒	☐	☐	☐	☐	☒		media@fire.qld.gov.au		
Dept of Health		No	☐	☒	☐	☐	☐	☐	☒		GCHHSDisaster@health.qld.gov.au		
Dept of Health			☐	☒	☐	☐	☐	☐	☒		SHECC@health.qld.gov.au		
Firecomm BNE			☒	☐	☐	☐	☐	☐	☒			1800 017 029	
			☐	☐	☐	☐	☐	☐	☐				
			☐	☐	☐	☐	☐	☐	☐				
			☐	☐	☐	☐	☐	☐	☐				
			☐	☐	☐	☐	☐	☐	☐				
			☐	☐	☐	☐	☐	☐	☐				
			☐	☐	☐	☐	☐	☐	☐				
			☐	☐	☐	☐	☐	☐	☐				
			☐	☐	☐	☐	☐	☐	☐				

COMMAND AND COMMUNICATIONS

Organisational Structure					
Sector	Personnel		Call sign	Radio channel	Other contact
Incident Controller					
Sector 31	SL				
	CL				
	CM				
Sector Name	SL				
	CL				
	CM				
Sector Name	SL				
	CL				
	CM				
Sector Name	SL				
	CL				
	CM				
Sector Name	SL				
	CL				
	CM				
Sector Name	SL				
	CL				
	CM				
Sector Name	SL				
	CL				
	CM				
Sector Name	SL				
	CL				
	CM				
Sector Name	SL				
	CL				
	CM				

COMMUNICATIONS	
Fire command	Network/Channel: FC - Channel 1
Fire ground	Network/Channel: FC - Channel 1
Aviation	Network/Channel:
Contingency communications (Describe arrangements if radio network fails)	Mobile phones, vehicle UHF

SAFETY

Crew briefing (Prior to lighting up all personnel are to be briefed using the SMEACS)	- Reassess hazard trees within a minimum of 1.5 tree lengths of all boundaries after the burn and prior to ignition. - Elevation of site – fatigue management and crews' hydration - Grassy breaks and increased patrol
Incidents	All incidents or near misses should be immediately reported to the IC and recorded in the Incident Log. Refer to Emergency and Incident Flow Chart. Start Incident Reporting as soon as practicable.
Escape routes (list locations) refer to operational burn map	Track to west of block- onto Moorina Road Track to East into quarry area.
Safe areas (list locations) refer to operational burn map	Point 9.14 East into quarry area.
Evacuation points (List location) refer to operational burn map	Moorina Road gate

BRIEFING UNDERTAKEN

Date	Time	Incident Controller's signature (IC)

INCIDENT CONTROLLER HANDOVER BRIEFING

Date	Time	Outgoing IC signature	Incoming IC name & signature

DEBRIEF UNDERTAKEN

Date	Time	Incident controller's signature (IC)

SAFETY BRIEFING – to be completed all burn days

VALUES MANAGEMENT

All burn prep tasks listed below are to be copied across into the *Burn Prep Task Register*.

Table 1: Burn Area Values Management						
This section to be used to identify threats to the identified values within (or adjacent) to the burn area from the planned fire event and recommended mitigation measures.						
Value Type Select from pulldown list.	Name of the feature/value	Location	Assets impacted (Species / buildings impacted)	Work type Select from pulldown list.	Impact Mitigation Strategy – Task/Constraint Must be a task or constraint. For fauna refer to the Standard Mitigation Actions sheet and insert relevant details. Any <i>tasks</i> to be transferred to the <i>Burn Prep Works Order</i> section.	Timing Select from pulldown list.
Utility	Example: Power poles	Refer to Ops Map	Koala	Asset protection	Task – remove fuels from within 1m of base of poles.	> 7 days before burn
Natural	All large hollow bearing trees, defined as live and dead trees greater than 80cm DBH having tree hollows with a diameter of more than 35cm that are a minimum of 6m above the ground.	Throughout site	- Glossy Black Cockatoo	Habitat tree prep	(T) Remove the fuel from within 1m of the base of the tree. <i>Extend this treatment area as required to allow for adjacent fuels and slope. Where located in fine fibrous barked trees extend this treatment area as required.</i>	> 3 days before burn
Natural	At risk moderate hollow bearing trees, defined as live or dead trees with a hollow/s 10 - 35cm in diameter located in either fine fibrous barked trees or trees with basal defects.	Throughout site	- Glossy Black Cockatoo	Habitat tree prep	(T) Remove the fuel from within 1m of the base of the tree. <i>Extend this treatment area as required to allow for adjacent fuels and slope. Where located in fine fibrous barked trees extend this treatment area as required.</i>	> 3 days before burn
Natural	Large to moderate size dead standing trees, defined as dead trees greater than 25cm DBH that have not been treated as hollow bearing trees.	Throughout site	- Glossy Black Cockatoo	Habitat tree prep	(T) Remove the fuel from within 30cm of the base of the tree. <i>Extend this treatment area as required to allow for adjacent fuels and slope. Where located in fine fibrous barked trees extend this treatment area as required.</i>	> 3 days before burn
Natural	Significant fauna species	Throughout site	- Koala	Fauna - search	(T) Conduct a walk-through assessment by a qualified Fauna Spotter Catcher on the day of the burn to identify the presence of any significant fauna (i.e. koala's, echidnas). <i>Where found, their location is to be assessed and specific mitigation measures (e.g. exclusion of fire from the area immediately adjacent to the animal) implemented based on the risk to each individual.</i>	Day of Burn
Natural	Large coarse woody debris, hollow bearing trees (live and dead) and riparian vegetation communities	Throughout site	- Koala - Glossy Black Cockatoo - Tusked Frog	Scheduling	(C) Undertake planned burns with suitable soil moisture conditions to reduce the likelihood of large coarse woody debris (logs, stumps), hollow bearing trees (live and dead) and riparian vegetation communities from being negatively impacted. KBDI < 120	Day of Burn
Natural	Riparian vegetation communities	Throughout site	- Glossy Black Cockatoo - Tusked Frog	Scheduling	(C) Minimise fire impacts and fire behaviour adjacent to and within riparian areas through selection of appropriate weather conditions and lighting patterns.	Day of Burn
Natural	Unburnt patches and fire severity	Throughout site	- Koala - Glossy Black Cockatoo - Tusked Frog	Execution and lighting	(C) Keep fire behaviour and burn extent as low as reasonably practical to achieve the identified objectives whilst maintaining safety and planned burn security. Aim for Low to Moderate fire severity class (Average flame height <3.0m, Average scorch height <6.0m as per QPWS PB Guideline). KBDI < 120	Day of Burn
Built	Cattle fencing	Along Northern boundary of burn unit	- Fencing	Execution and lighting	(C) Minimise fire impacts and fire behaviour adjacent to and within riparian areas through selection of appropriate weather conditions and lighting patterns.	Day of Burn
Built	Multiple Private Residents on Moorina Road – adjoining burn block	Northwest and Northeast of Burn	- Fencing	Execution and lighting	(C) Minimise fire impacts and fire behaviour adjacent to and within riparian areas through selection of appropriate weather conditions and lighting patterns.	Day of Burn

Table 2: Smoke Management						
Assessment (Describe what may be affected and the strategies to reduce the risk of adverse effects)						
This section to be used to assess values (relating to smoke) that may be threatened (adversely) from the planned fire event						
Value Type Select from pulldown list.	Name of the value	Location	Threat (from the activity)	Work type Select from pulldown list.	Mitigation – Task/Constraint Must be a task or constraint. Any tasks to be transferred to the Burn Prep Works Order section.	Timing Select from pulldown list.
Person	Example: Vulnerable persons	Hospital to SE of burn	Smoke impacts - health	Scheduling	Constraint – only burn with a northerly wind.	Day of burn
Built	Moorina Road	North / Northwest of Burn	Smoke impacts – Visibility	Scheduling	(C) Burn with suitable atmospheric conditions to allow smoke to rise and be disperse in upper air stream. (C) Burn under wind conditions that minimise smoke impacts.	Day of Burn
Built	Boral Narangba Quarry Site	South of Burn	Smoke impacts – Visibility	Scheduling	(C) Burn with suitable atmospheric conditions to allow smoke to rise and be disperse in upper air stream. (C) Burn under wind conditions that minimise smoke impacts.	Day of Burn
Built	Multiple Private Residents on Moorina Road	Northwest and Northeast of Burn	Smoke impacts – Visibility	Scheduling	(C) Burn with suitable atmospheric conditions to allow smoke to rise and be disperse in upper air stream. (C) Burn under wind conditions that minimise smoke impacts.	Day of Burn

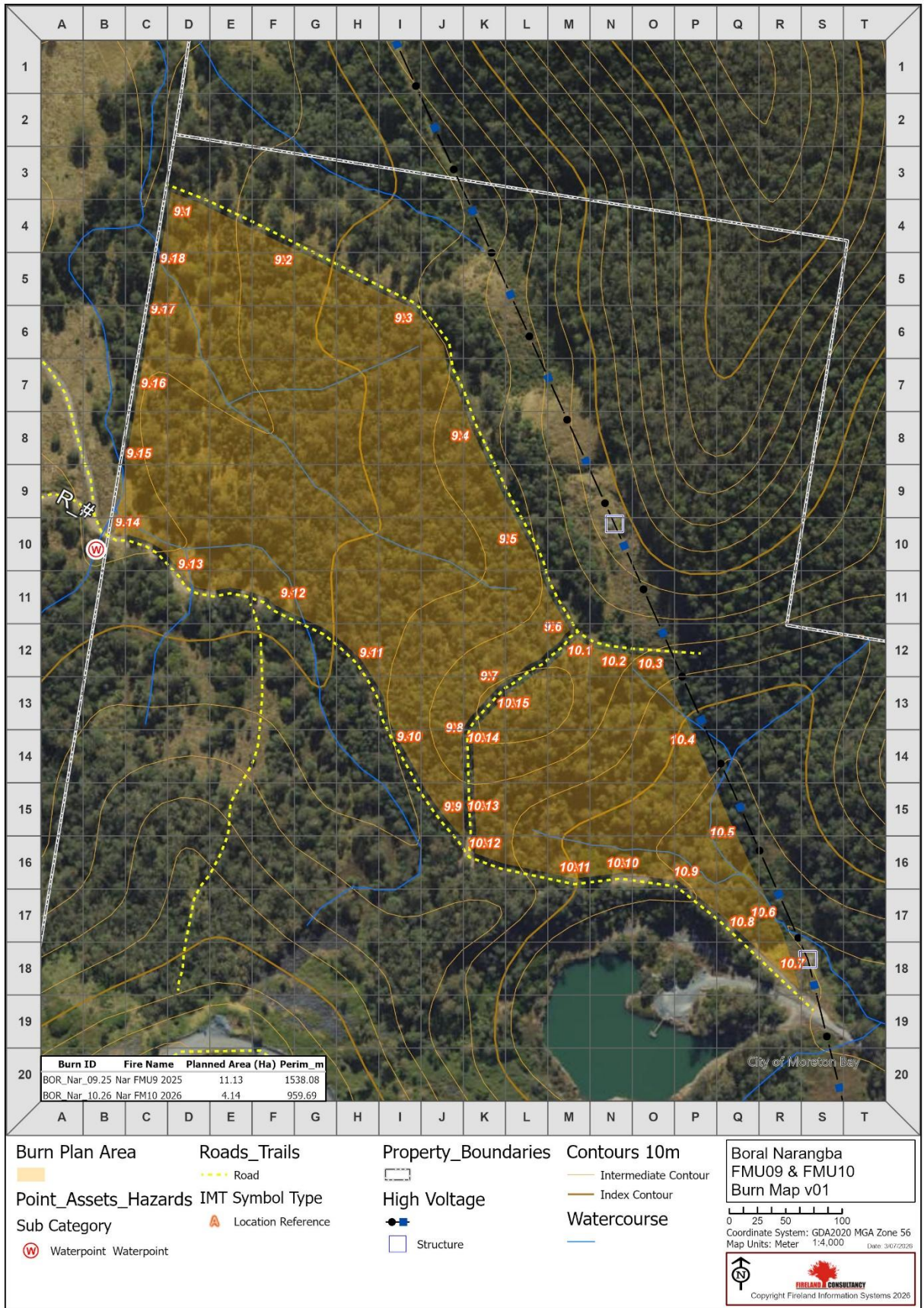
Table 3: Traffic Management						
Assessment (Describe what may be affected and the strategies to reduce the risk of adverse effects)						
This section to be used to assess values (in relation to traffic management) that may be threatened (adversely) from the planned fire event						
Value Type Select from pulldown list.	Name of the value	Location	Threat (from the activity)	Work type Select from pulldown list.	Mitigation – Task/Constraint Must be a task or constraint. Any tasks to be transferred to the Burn Prep Works Order section.	Timing Select from pulldown list.
Built	Moorina Road	North of Burn	Smoke impacts – Visibility	Scheduling	(C) Burn with suitable atmospheric conditions to allow smoke to rise and be disperse in upper air stream. (C) Burn under wind conditions that minimise smoke impacts.	> 3 days before burn

Table 4: Personal Safety Management						
Assessment (Describe what threats are present that may cause adverse effects to staff, contractors or site users from the planned activity)						
This section to be used to assess specific threats that exist that could adversely affect individuals from the activity.						
Value Type Select from pulldown list.	Name of the value	Location	Threat (from the activity)	Work type Select from pulldown list.	Mitigation – Task/Constraint Must be a task or constraint. Any tasks to be transferred to the Burn Prep Works Order section.	Timing Select from pulldown list.
Person	Fireland staff	Throughout burn unit	Personal harm from hazard tree strike.	Hazard tree prep	Any hazard tree within 1.5 tree lengths of any road, walking trail, building or critical infrastructure. Hazard tree is defined as any tree (including limbs or branches) that has the potential to become hazardous (through tree fall and impact) through exposure to fire during the planned burn. (T) Remove the fuel from within 1m of the base of the tree. <i>Extend this treatment area as required to allow for adjacent fuels and slope. Where located in fine fibrous barked trees extend this treatment area as required.</i>	> 3 days before burn
Person	Fireland staff	Adjacent quarry area	Person harm - injuries to crews	Planned Burning Activities	(C) No access into quarry area without an escort.	Day of Burn

Table 5: Control line and Contingency control line prep tasks

Assessment (Describe the current and desired Fireline standards that are required to deliver the planned activity)						
Current control line standard Select from pulldown list.	Desired control line standard Select from pulldown list.	Name of the control line	Location	Work type Select from pulldown list.	Mitigation – Task/Constraint Must be a task or constraint. Any tasks to be transferred to the Burn Prep Works Order section.	Timing Select from pulldown list.
Other	Other	Example: Northern control line	Pt A - D on Ops Map	Control line - slashing	Task – Slash to 4m width.	> 7 days before burn
Choose an item.	UTV	Powerline	10.3 – 10.7	Control line - mulching	Task – Mulch along powerline easement	> 7 days before burn
Choose an item.	Choose an item.			Choose an item		Choose an item

OPERATIONAL MAP



Appendix E

Weed Management Plan





Weed Management Plan - Summary

Offset Management Plan – Stage 1

Raynbird Road, Narangba
Prepared for Boral Resources Pty Ltd

Weed Management Plan – Stage One Offsets

Objectives and Management Measures

Completion criteria for the Stage One offset site are as follows:

- WONS reduced to less than 10% of baseline levels.
- Baseline weed mapping will be conducted before the weed removal program is initiated. Weed mapping is then to be conducted annually and reported in the Annual Compliance Report (ACR).
- Weed management within Stage 1 offset areas will commence within 12 months of the action commencing with remnant status to be achieved after 10 years.

Management measures for the control of WONS, specifically Lantana will include:

- All identified WONS will be treated within 12 months of the commencement of each stage of clearing for the quarry extension.
- A suitably qualified bush regeneration contractor will be engaged to undertake the necessary weed control.
- Control of infestations will utilise techniques that avoid disturbance to surrounding areas.
- WONS, and other high-risk weeds, will be monitored annually until they are not detected, at which point monitoring will be carried out every 2 years until they are consistently identified at densities less than 10% of the baseline infestation.

Timeline of OMP processes

Timing	Event
6-months post-commencement	Specific treatment techniques developed
Within 12-months post-commencement	Weed Management Plan developed
	All identified WONS will be treated within 12 months of the commencement of each stage of clearing for the quarry extension
Annually	WONS, and other high-risk weeds, will be monitored annually until they are not observed, at which point monitoring will be carried out every 2 years until they are consistently identified at densities less than 10% of the baseline infestation
General	Control of infestations will utilise techniques that avoid disturbance to surrounding areas.
	A suitably qualified bush regeneration contractor will be engaged to undertake the necessary weed control.

Weed Management

Stage one of the OMP is the first of a three-stage offset, located almost entirely on Lot 93 on SP193378. Stage one of the offsets site accounts for approximately 73.7 ha of this total offset area.

The Offsets Management strategy (OMS) which underpinned the OMP, outlined a detailed approach to the management of weeds, specifically Weeds of National Significance (WONS) onsite, involving strategic division of habitat into three management categories. Stage One of the Offsets site contains two of these categories including (1) habitat rehabilitation and (2) remnant vegetation management. As detailed in the OMS, the areas that are identified as suitable for habitat rehabilitation are those that are not mapped as remnant vegetation, but still retain relatively intact vegetation with high potential to return to quality habitat. These areas in their existing state are degraded due to weed invasion or past land uses requiring clearing of the ground layer.

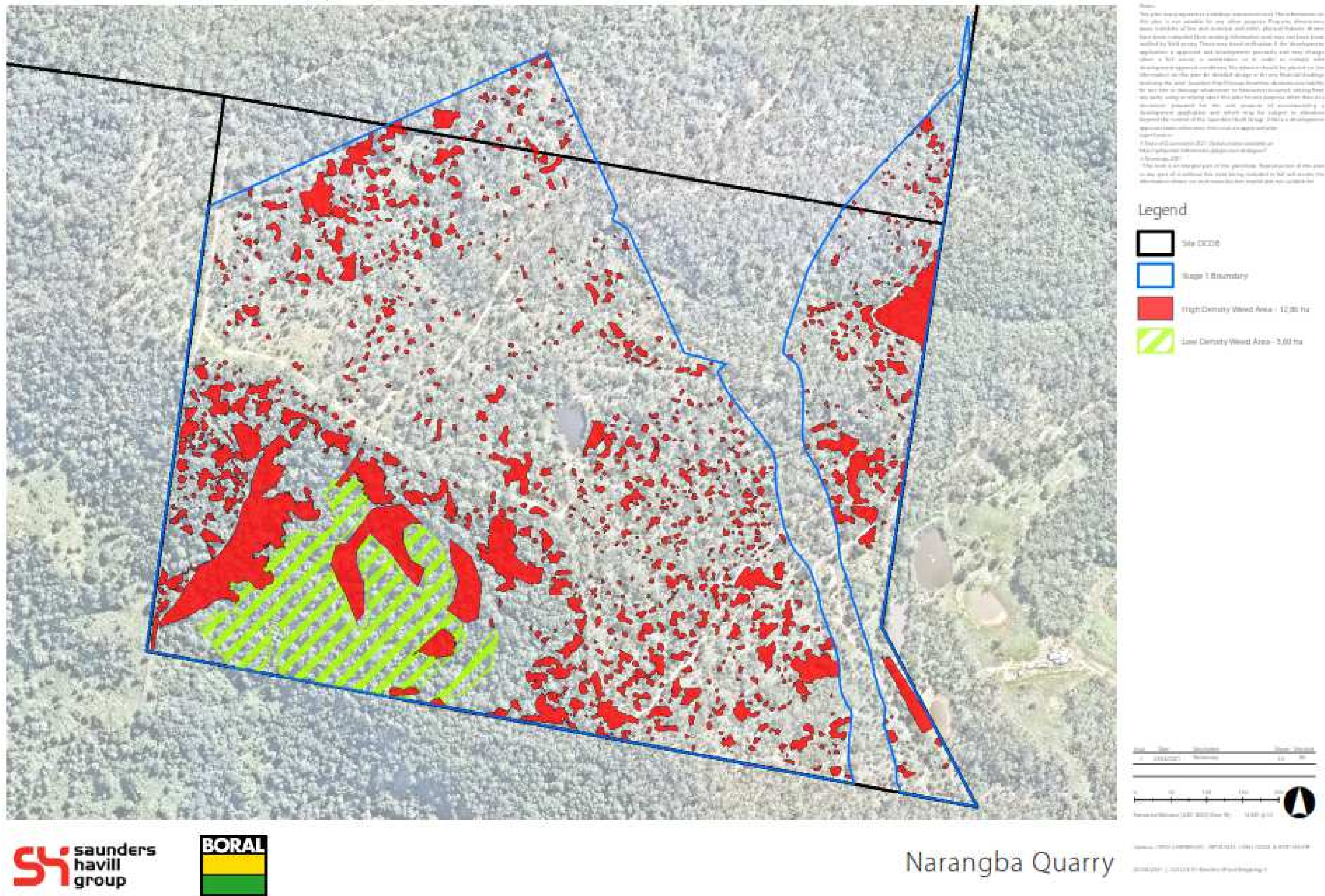
Remnant vegetation management areas are those identified as remnant vegetation are those areas of existing vegetation mapped under the *Vegetation Management Act 1999* (VMA) as remnant. These areas were observed as having the potential to experience some disturbance from surrounding land uses, understorey clearing and/or weed invasion. Remnant vegetation management areas account for 57.9 ha of the total offset site and habitat rehabilitation management areas account for 15.8ha across Stage One (**Figure 1**). **Figure 2** presents the baseline weed mapping results for the Stage One offsets area, mapped in September 2020. This Plan provides recommendations for guiding weed management onsite in regard to the achieving the objectives set out in the Offsets Management Plan. Details on the roles and responsibilities, monitoring processes and risk management supporting weed management within the offsets area are provided for reference within this onsite management plan.

Area	Size	Plot layout	Plots	Grassland
A	10000 (20 × 500)	20 × 500 m	500	500
B	10000 (20 × 50)	20 × 50 m	50	50
C	750 (10 × 75)	10 × 75 m	50	50

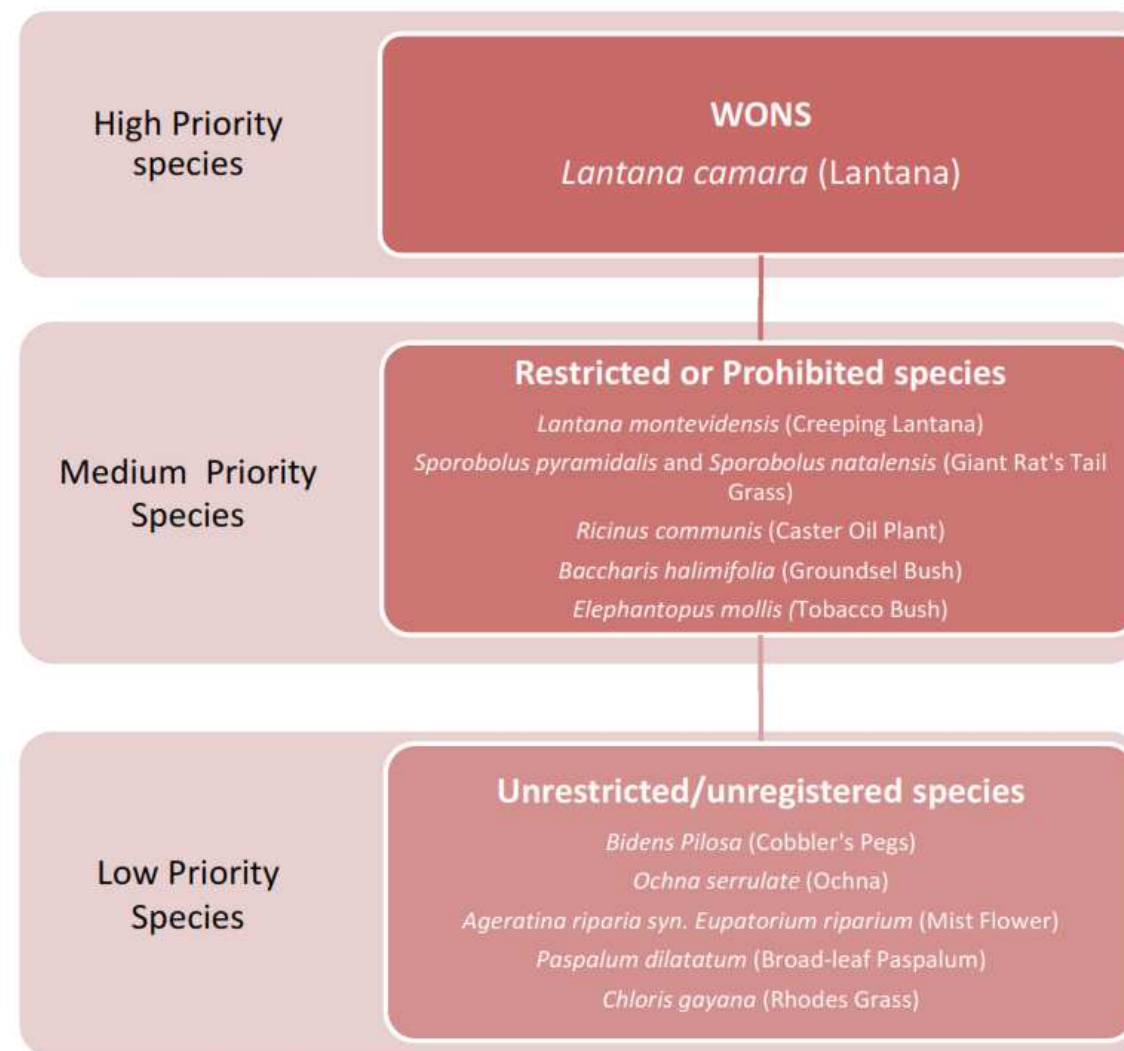
Grassland (1000 × 1000 m) (1000 × 1000 m) (1000 × 1000 m) (1000 × 1000 m)



Figure 2 – Baseline Weed Mapping across Stage One



Hierarchy of weed management – Stage One



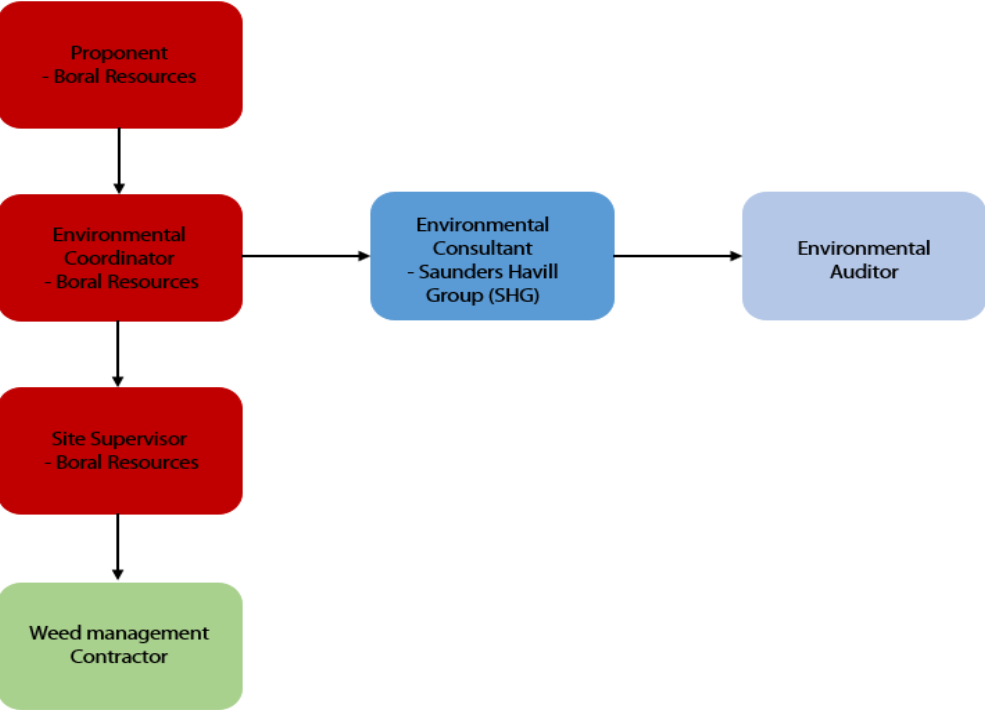
Control methods to be utilised within the offset site for treatment of *Lantana camara*

Infestation extent	Physical	Control Option Mechanical	Chemical
Low Infestation (Individual plants, small area)	Hand removal	Not suitable	Spot spray or cut and paste small infestations
Moderate Infestation (Multiple plants, moderate total area)	Not suitable	Slasher, brush cutter, hedger, stick-rake, etc. Increased disturbance from this method will likely result in significant germination of target weed species. Follow up treatment would be required. Not suitable for areas susceptible to erosion such as waterways or steep slopes.	More significant infestations may need to utilise high volume spraying devices to ensure suitable coverage and chemical uptake.
High Infestation (Many plants, large area)	Not suitable		

Control methods for weed management

Control method	Process	Use	Advantages	Disadvantages
Cut and paste	technique involves cutting the stem at ground level and then paint the open cut with suitable herbicide. Herbicide needs to be applied within 15 seconds of the cut or risk the plant not absorbing the chemical.	woody weeds (Lantana, Ochna, etc) and vines that are actively growing and not stressed.	accurate application of herbicide to target species reducing the likelihood of impacting native species in proximity	time consuming/labour intensive
Foliar spray (High volume and spot spray)	herbicide is diluted and sprayed over the target species which is absorbed through the leaves	used for grasses, herbs and shrubs (up to shoulder height) that are actively growing and not stressed	utilises a high-volume spray (such as a quick spray) for use on large infestations or using handheld applicators for more targeted spraying (spot spray). can be quickly applied to multiple weed species, grasses, shrubs, herbs, etc. allowing for larger areas to be treated	off target damage can be high particularly if weather conditions are not optimal. good coverage of herbicide on the target species can be difficult if the infestation is particularly dense or foliage is not at optimal growth stage
Cut and spray regrowth	involves large infestations of lantana being slashed, either by machinery or hand help power tools (brush cutter, hedger, etc) and then left to regrow. Regrowth and new shoots are then foliar sprayed	Large infestations of woody weeds (e.g. lantana)	Minimises the area requiring spray treatment (allowing for more direct application) while simultaneously improving the rate of uptake by the plant and leading to more successful treatment	Timing of follow-up spray - If sprayed prematurely then uptake of herbicide will be insufficient to kill target weeds. If time between initial treatment and follow up is too long, then the infestation will return to its original form

Chain of Responsibility



Identified Roles

Role	Nominated Person	Company	Contact ph./details
Proponent/ Project Coordinator	Paul West	Boral	0401 896 115
Environmental Coordinator	Matthew Allan	Boral	0466 405 885
Administering Authority	DAWE Compliance Monitoring Branch	DAWE	EPBCMonitoring@awe.gov.au
Site Supervisor	Quarry Manager	Boral	TBA
Site Contractor	TBA	TBA	TBA
Environmental Auditor	TBA	TBA	TBA

Roles and Responsibilities

Role	Responsibilities	Timeframe
Proponent/Project Coordinator	Liaise regularly with Environmental coordinator Ensure ACR is published to Boral website by 12th August	As required, ongoing. Annually
Environmental Coordinator	Coordinate and liaise with Environmental Consultant Oversee onsite work and ensure sufficient data is available to achieve annual compliance Identify onsite non-compliance events for early intervention Provide data for annual compliance to environmental consultant Report non-compliance events within 2 business days of detection	As required, ongoing. As required, ongoing. As required, ongoing. As required, ongoing. As required
Site Supervisor	Coordinate weed management contractor Ensure periodic inspection of site works is completed Ensure sufficient data is collected to inform compliance reporting Liaise with Environmental Coordinator regularly Identify onsite non-compliance events for early intervention	Annually, ongoing. As required, ongoing. As required, ongoing. As required, ongoing. As required, ongoing.
Site Contractor	Complete weed management (specifically WONS) works as specified under the OMP and as directed by Site Supervisor and Environmental Coordinator	Annually, ongoing. Restoration practices to be suitable documented and data and photographs provided to Site Supervisor
Environmental Consultant	Coordinate annual EPBC monitoring (weed presence and density, comparison with previous years results) Prepare and coordinate EPBC annual compliance reporting	Annually until WONS presence not recorded, then every 2-years subsequently Published to Boral website by 12th August each year
Environmental Auditor	Complete auditing of requirements conditioned under the EPBC approval	As required

Monitoring

Monitoring of weed infestations across the Stage One offsets area will be conducted annually by suitably qualified ecologists to provide data for systematic analysis required to determine the ongoing success of the WMP under the OMP. Monitoring will be conducted in **September** each year to ensure that the timing remains consistent and aligns with the baseline assessment. This annual monitoring will be conducted until WONS are not observed, at which point monitoring will be carried out every 2 years until WONS are consistently identified at densities less than 10% of the baseline infestation.

Periodic visual inspections of treated locations will take place following management onsite. Inspections will occur at the discretion of Boral, with the aim of minimising chance of regrowth following initial treatment. Details will be provided by onsite weed management contractors, to Boral's environmental coordinator who will initiate plans for supplementary weed control/management during suitable conditions, where necessary. The following measures will be utilised during monitoring events:

- GPS locate the presence of weeds either via a GPS waypoint or where a large weed infestation is present, create a GPS polyline and walk the extent of the infestation.
- On a field datasheet, detail the time of year of the monitoring event, list of observed WONS, photo location and direction and notes of any notable positive and/or negative changes in weed density and coverage.
- Carry the previous year's weed survey mapping, field datasheet and photos for noting changes in weed infestations and densities.
- Transfer GPS data to the necessary programs to generate weed survey mapping extent and collate all data in excel spreadsheets and save all digital photos to file for ongoing monitoring purposes.

Corrective Actions

- Where unplanned fires or flooding occurs during the monitoring interval, any negative impacts to ecological score will be noted and compared to unaffected monitoring sites of previously the same quality and resulting potential weed infestations following disturbance will be managed to ensure the weed control completion criteria are achieved.

Risk Assessment

A risk assessment of the potential contraindicative events which may occur during implementation of the WMP are outlined in the Table below. These events detail issues which may arise, negatively affecting the improvement of habitat onsite, through the increase or encroachment of WONS.

Objective	Contraindicative event	Likelihood	Consequence	Risk level	Trigger	Contingency	Associated events
Reduce WONS density to ≤10% baseline levels	Some WONS not treated throughout Stage One	Possible	High	Moderate	Annual Compliance Monitoring (weed density mapping) indicates an increase in weed density across Stage One	Audit and revision of weed management plan and consider increase in frequency of weed management. Revision of seasonal timing and frequency of weed treatment across Stage One.	Annual weed monitoring
Reduce WONS density to ≤10% baseline levels	Increase in Weeds of National Significance (WoNS) infestation impacting on ecological function and habitat quality score improvement across Stage One	Unlikely	Minor	Low	Annual Compliance Monitoring indicates a decrease or lack of increase in habitat score specifically due to WONS component	Cause of WONS infestation identified (e.g. external infestation present with seed travelling along drainages). Remediation actions - mapping of new infestation, revision of current control methods, revision and reassessment of frequency of current monitoring actions	Annual weed monitoring
Reduce WONS density to ≤10% baseline levels	Infrequent follow up to weed treatment leading to increase in density of WONS	Possible	High	Medium	Mismanagement of weed treatment timing	Audit and revision of weed management plan and consider increase in frequency of weed management. Revision of seasonal timing and frequency of weed treatment across Stage One.	Monthly contractor updates; Annual compliance report; annual weed mapping
Reduce WONS density to ≤10% baseline levels	High rainfall year causing site inaccessibility and leading to extended exclusion of weed treatment across site	Possible	Minor	Moderate	Exclusion from Stage One for greater than 2 months of the year	Revision of timeline of management across the year. Renew objective to achieve 80% WONS treatment across site by end of October each year.	Monthly contractor updates

Appendix F

Vertebrate Pest Management Plan



Vertebrate Pest Management Plan – Stage One Offsets

Objectives and Management Measures

Management measures for the control of feral or unwanted domestic dogs across the offset area include:

- Baseline and ongoing pest monitoring, including motion activated cameras and scat analysis (where necessary), to identify evidence of feral or unwanted dogs (and other pest species):
 - Development of a property wide feral animal management program specifying techniques (e.g., trapping, baiting, shooting) and ongoing monitoring methods (including datasheets) to be utilised, to be completed within 12 months of commencement of the action.
- Where practical and appropriate, participate cooperatively in pest management planning and implementation with local land managers (i.e., government departments, local governments, and utility providers) to ensure effective pest management in the locality of the offset area.
- Installation of appropriate signage informing the area is under feral control.

As the management of feral and pest species can only be achieved at a landscape level, management will be carried out over the entire offset area within 12 months of commencing Stage 1 of the quarry extension.

Annual pest monitoring and outcomes will be detailed in the ACR. The ACR will contain details on detected pests, control efforts, and total trapped/baited individuals during the given management period and identified trends of the population of pest animals within the offset area.

Timeline of OMP processes

Timing	Event
Within 12-months post-commencement	Baseline monitoring of entire offset site completed
	Management will be carried out over the entire offset area within 12 months of commencing Stage 1 of the quarry extension
	Development of a property wide feral animal management program specifying techniques (e.g., trapping, baiting, shooting) and ongoing monitoring methods (including datasheets) to be utilised
Annually	Vertebrate pests (specifically wild dogs and koala predators), will be monitored annually until they are not observed for three consecutive years.
General	Installation of appropriate signage informing the area is under feral control
	Where practical and appropriate, participate cooperatively in pest management planning and implementation with local land managers
	GPSs will be used to record the location of pest animals present during regular monitoring and incidental detection. Feral dogs, cats and foxes are of high concern due to their known impact on koala and potential presence via notable tracks or scats will be recorded
	Where pest animal presence is detected, targeted trapping and baiting programs will be implemented on completion of the monitoring program
	Field datasheet detailing the time of the monitoring event, observed pest animal scats or tracks, photo location and notes of any evidence of positive and/or negative changes in pest animal occurrence
	Comparison of current and previous year's data, with photographic changes in pest animal occurrences
	Transfer GPS data to spatial data programs to generate pest animal occurrences and collate all data in excel spreadsheets and save all digital photos to file for ongoing monitoring and reporting purposes.

Vertebrate Pest Management

Stage one of the OMP is the first of a three-stage offset, located almost entirely on Lot 93 on SP193378. Stage one of the offsets site accounts for approximately 73.7 ha of this total offset area. As the management of feral and pest species can only be achieved at a landscape level, management will be carried out over the entire offset area within 12 months of commencing Stage 1 of the quarry extension. This management will be ongoing until completion criteria detailed within the OMP are met under the EPBC approval conditions, being that dogs or evidence of dog presence must not be detected on the offset area for a period of three years.

The control and prevention of invasive animal incursions is to 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*) incorporating control of pest animals by suitably qualified pest management contractors using approved ethical methods. Applicable legislation is detailed within the full VPMP. 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. Pest animal control is to be undertaken in a humane manner with details of all annual pest monitoring reported and included in the Annual Compliance Report (ACR).

Baseline monitoring with remote-triggered cameras was undertaken in 2020, with **Figure 1** detailing the locations of cameras. **Figure 2** shows the proposed updated monitoring site locations, using adaptive management (or "learning by doing"), which are recommended to increase detections of pests onsite from 2021 onwards in consideration of low detection rates in 2020.

This Plan provides recommendations for guiding vertebrate pest management onsite in regard to the achieving the objectives set out in the Offsets Management Plan. Details on the roles and responsibilities, monitoring processes and risk management supporting vertebrate pest management within the offsets area are also included within this onsite reference plan.

Figure 1 – Camera monitoring sites across offsets site in 2020

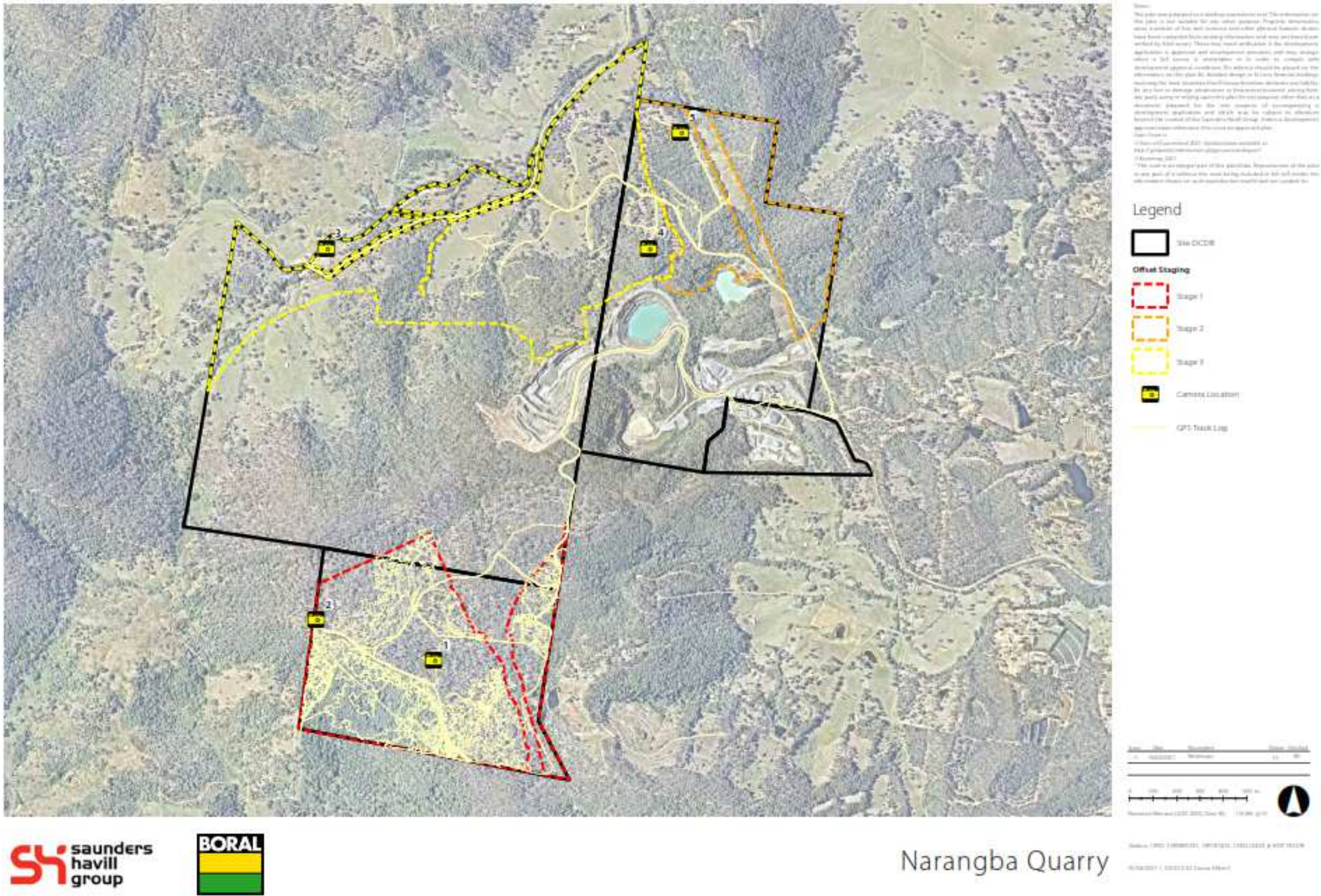
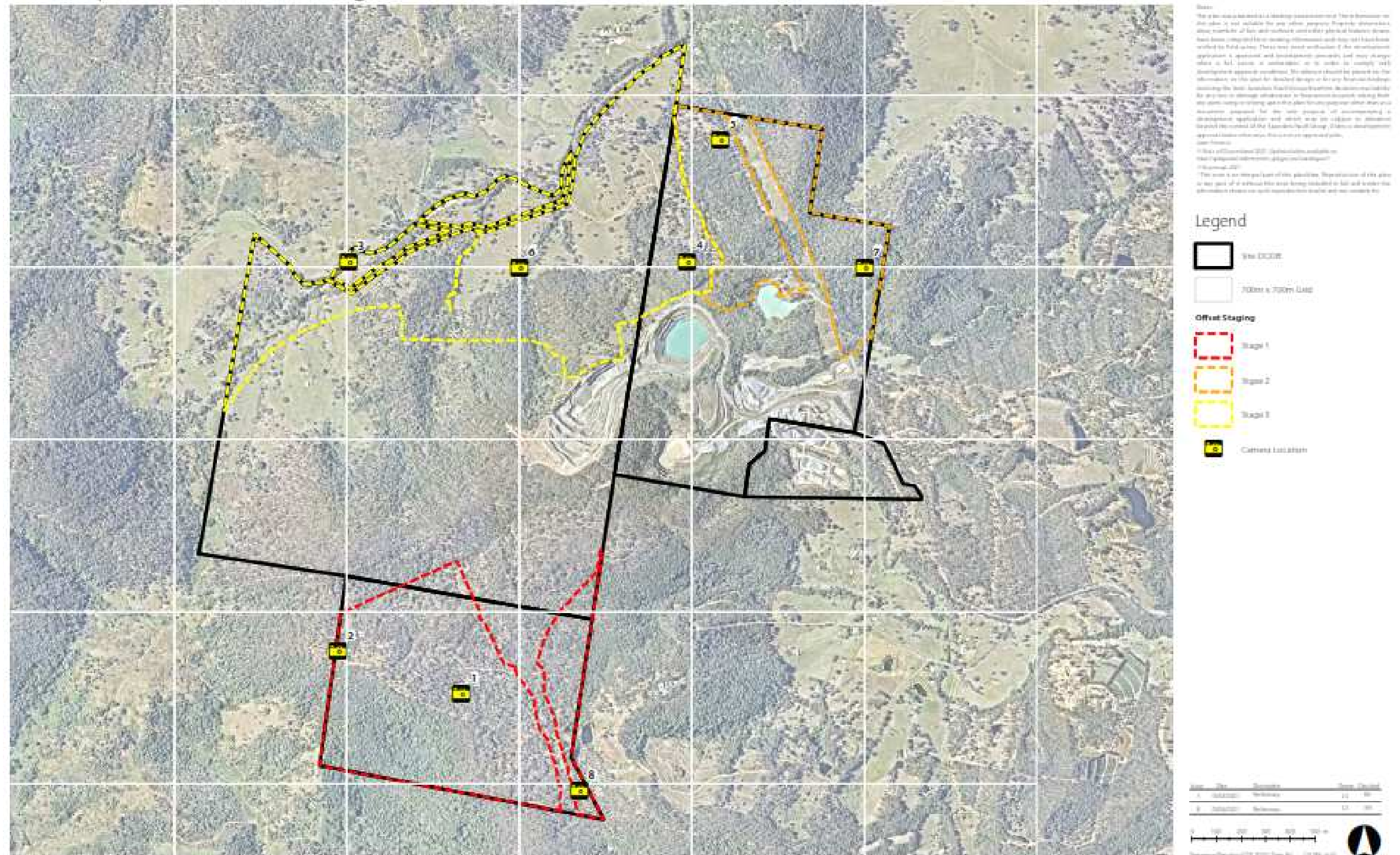
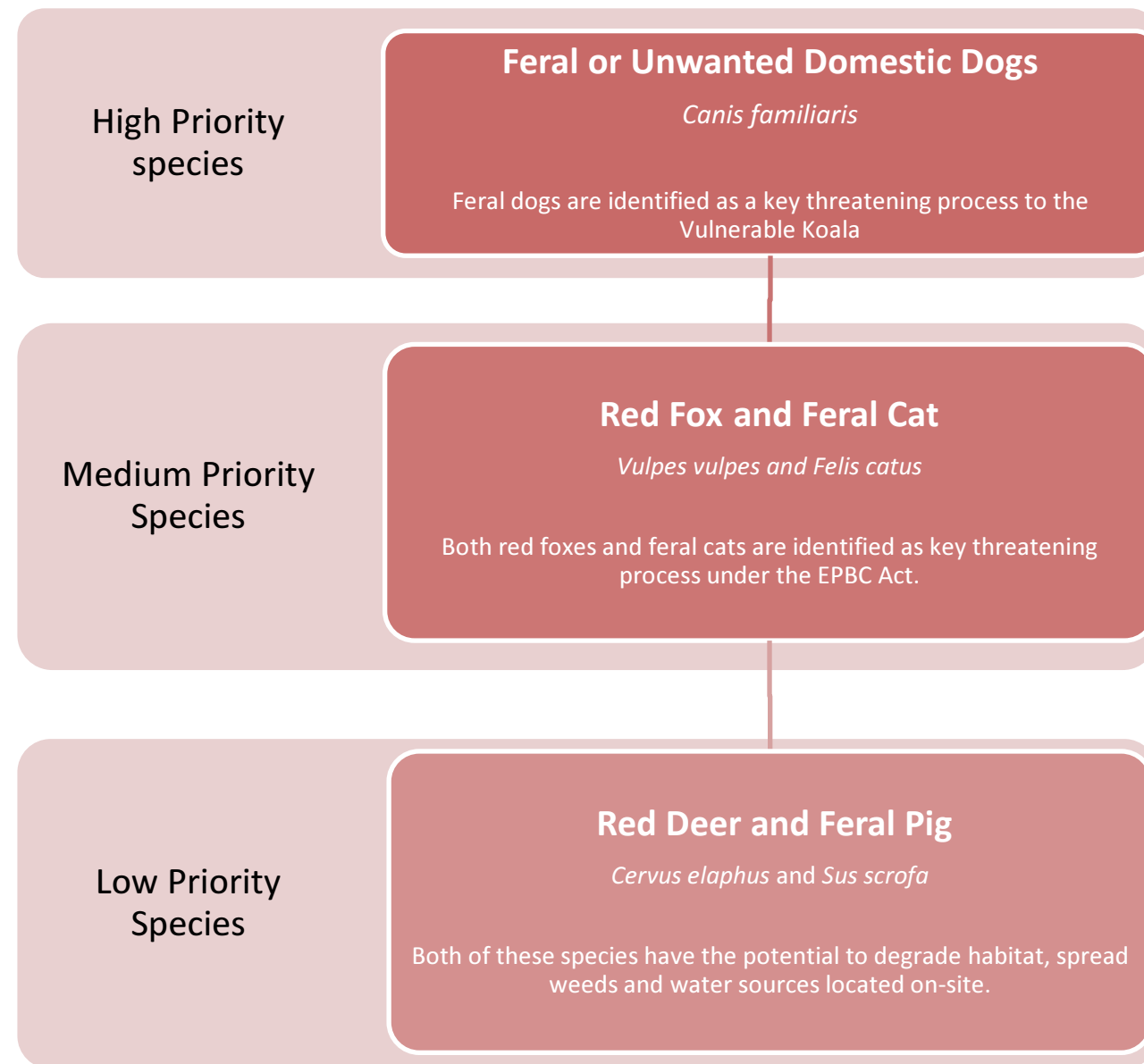


Figure 2. Proposed camera monitoring sites across offsets site – 2021 onwards



Hierarchy of vertebrate pest management – Stage One



Recommended control methods for pest species					
Scientific Name	Common Name	Baiting	Fencing	Shooting	Trapping
<i>Canis familiaris</i>	Feral Dog	Y	Y	Y	Y
<i>Cervus elaphus</i>	Red Deer	N	Y	Y	Y
<i>Felis catus</i>	Feral Cat	Y	Y	Y	Y
<i>Sus scrofa</i>	Feral Pig	Y	Y	Y	Y
<i>Vulpes vulpes</i>	Red Fox	Y	Y	Y	Y

*Y – Recommended, N- not recommended by the Queensland Government.

Feral species confirmed on-site

Scientific Name	Common Name	Biosecurity Act 2014 Category
<i>Canis familiaris</i>	Feral Dog	3, 4, 6
<i>Cervus elaphus</i>	Red Deer	3, 4, 6
<i>Felis catus</i>	Feral Cat	3, 4, 6
<i>Sus scrofa</i>	Feral Pig	3, 4, 6
<i>Vulpes vulpes</i>	Red Fox	3, 4, 5, 6

Vertebrate Pest Management Methods

Control method	Process	Advantages	Disadvantages
Baiting	It is important that when the baits are placed on-site that they reduce the likelihood of non-target species ingesting the bait. There are distance requirements and exclusions zones when using 1080 poison. Baits are not to be laid: - Within 5m of fenced boundary; - Within 20m of permanent or flowing water bodies; - Within 50m of the centreline of a declared road; - Within 150m of a dwelling.	cost effective, effective in reducing dog numbers.	can affect non-target species, requires qualified, trained officer to deploy and manage program onsite, primary threat to spot-tailed quoll.
Fencing	Fencing of areas of habitat where target pest species can be excluded effectively from an area.	highly effective where fully fenced areas can be installed and maintained.	labour-intensive and costly.

Control method	Process	Advantages	Disadvantages
Trapping	Specialised traps are set in the evening and checked after dawn the following morning, with any target pest species trapped, subsequently destroyed.	Species specific, with traps specialised to target different species and animal sizes. Non-target animals can be subsequently released unharmed.	labour-intensive and costly.
Shooting	vertebrate pests are typically trapped and shot onsite, or in large or remote locations, aerial shooting techniques may be utilised.	Can be effective when used in conjunction with other trapping methods.	health and safety concerns, highly trained and licensed officer required to conduct shooting program.

Trapping

Trapping is considered an effective tool when managing smaller pest animal populations, however, is very labour intensive. Department of Agriculture and Fisheries (DAF) recommended two types of traps for the management of feral dogs, with leg-hold traps now considered inhumane and less selective. Traps should be strategically placed along known wild dog pads or activity areas, with potential lures having potential to increase the effectiveness of traps. Traps must be set at the end of each day and checked the following morning. **This method is highly recommended for use on the Narangba Offsets site.**

Foot-hold traps:

Foot-hold traps are selected to match the foot size of the selected animal. The trap is designed to catch the animal across the tougher padded area of the foot. The objective of foot-hold traps is to hold the animal firmly at the foot but reduced the potential damage. Jaws of foot-holds can be rubber padded, offset, or laminated. These traps are considered effective in the control of feral dogs while reducing non-target animals captures and limiting animal welfare conditions.

Collarum™ neck restraint:

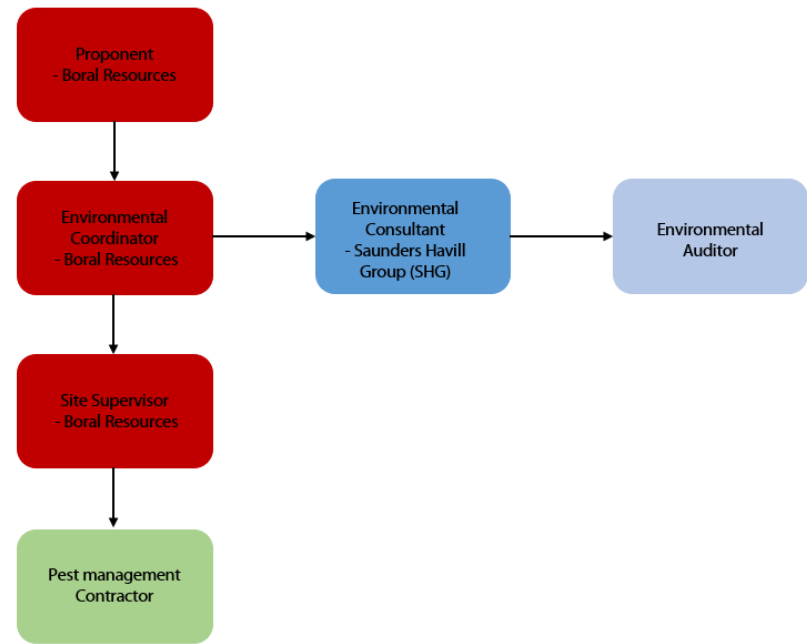
The Collarum™ neck restraint is also a recommended trap by DAF, however, requires a high level of training. While this type of trap is considered humane, the public may not be able to distinguish it from a snare, causing public concern.

The chosen contractor will implement a Predator Trapping Program at the Boral Offset Site. The trapping schedule will incorporate the following:

- Deployment of camera traps onsite to determine optimal trap placement;
- Subsequent trap deployment and monitoring of traps;
- Provision of pest management data to Boral representatives (Environmental Coordinator)

Data collated during the trapping events will be used to compare against previous numbers of vertebrate pests and reported within the Annual Compliance Report.

Chain of Responsibility



Identified Roles

Role	Nominated Person	Company	Contact ph./details
Proponent/ Project Coordinator	Paul West	Boral	0401 896 115
Environmental Coordinator	Matthew Allan	Boral	0466 405 885
Administering Authority	DAWE Compliance Monitoring Branch	DAWE	EPBCMonitoring@awe.gov.au
Site Supervisor	Quarry Manager	Boral	TBA
Site Contractor	TBA	TBA	TBA
Environmental Auditor	TBA	TBA	TBA

Roles and Responsibilities

Role	Responsibilities	Timeframe
Proponent/Project Coordinator	Liaise regularly with Environmental coordinator Ensure ACR is published to Boral website by 12th August	As required, ongoing. Annually
Environmental Coordinator	Coordinate and liaise with Environmental Consultant Oversee onsite work and ensure sufficient data is available to achieve annual compliance Identify onsite non-compliance events for early intervention Provide data for annual compliance to environmental consultant Report non-compliance events within 2 business days of detection	As required, ongoing. As required, ongoing. As required, ongoing. As required, ongoing. As required
Site Supervisor	Coordinate pest management contractor Ensure periodic inspection of site works is completed Ensure sufficient data is collected to inform compliance reporting Liaise with Environmental Coordinator regularly Identify onsite non-compliance events for early intervention	Annually, ongoing. As required, ongoing. As required, ongoing. As required, ongoing. As required, ongoing.
Site Contractor	Complete vertebrate pest management (specifically dogs, but in accordance with the hierarchy of pests) works as specified under the OMP and as directed by Site Supervisor and Environmental Coordinator	Annually, ongoing. Pest Management practices to be suitably documented and data, report and photographs provided to Site Supervisor.
Environmental Consultant	Coordinate annual EPBC monitoring (vertebrate pest presence, comparison with previous year’s results) Prepare and coordinate EPBC annual compliance reporting	Annually until vertebrate pest presence not detected for three years. Published to Boral website by 12th August each year
Environmental Auditor	Complete auditing of requirements conditioned under the EPBC approval	As required

Monitoring

To achieve optimal results, camera trap locations should be used repeatedly in a systematic approach, installed at the same locations during annual monitoring events. During baseline assessments (2020), the camera traps (except for one), were successful in identifying both native and introduced fauna species.

To analyse the camera trap locations, a square grid was overlayed on the offset site (approximately 700 x 700m). This provides rough indication of mean home range of wild dogs, as home range for the species has been found to vary substantially with differing environmental factors.

During the baseline studies, five cameras were installed however, using the adaptive management framework and aligning with the grid-based approach, an additional three cameras will be installed across the offsets site in subsequent years, potentially one within each offsets stage. For locations for ongoing monitoring across the site refer to **Figure 2**.

The following pest animal monitoring methodology will be implemented:

- GPSs will be used to record the location of pest animals present during regular monitoring and incidental detection. Feral dogs, cats and foxes are of high concern due to their known impact on koala and potential presence via notable tracks or scats will be recorded.
- Field datasheet detailing the time of the monitoring event, observed pest animal scats or tracks, photo location and notes of any evidence of positive and/or negative changes in pest animal occurrence.
- Comparison of current and previous year’s data, with photographic changes in pest animal occurrences.

- Transfer GPS data to spatial data programs to generate pest animal occurrences and collate all data in excel spreadsheets and save all digital photos to file for ongoing monitoring and reporting purposes.
- Where pest animal presence is detected, targeted trapping and baiting programs will be implemented on completion of the monitoring program.

Risk Assessment

A risk assessment of the potential contraindicative events which may occur during implementation of the VPMP are outlined in the Table below. These events detail issues which may arise, negatively affecting the improvement of habitat for koala onsite, through the increase of known vertebrate pests onsite, or the establishment of new pests.

Objective	Contraindicative event	Likelihood	Consequence	Risk level	Trigger	Contingency	Associated events
Remove vertebrate pests (specifically koala predators – wild dogs and foxes) from offsets site	Annual pest management delayed due to weather or unpredicted event	Possible	Minor	Moderate	Annual Compliance Monitoring (pest monitoring) indicates an increase in detection rates of vertebrate pests across the site.	Audit and revision of vertebrate pest management plan and consider change in timing of pest management. Revision of seasonal timing and frequency of pest monitoring and management events.	Annual vertebrate pest monitoring; onsite reports of vertebrate pests
Decrease and remove vertebrate pests (specifically koala predators – wild dogs and foxes) from offsets site	Increase in detection rates of vertebrate pest species impacting on ecological function and habitat quality score improvement across Stage One.	Unlikely	Minor	Low	Annual Compliance Monitoring indicates an increase in detection rates of vertebrate pests across the offsets site.	Reassessment of frequency of current monitoring and pest management events	Annual vertebrate pest monitoring; onsite reports of vertebrate pests
Remove vertebrate pests (specifically koala predators – wild dogs and foxes) from offsets site	Infrequent follow up to pest trapping event due to unpredicted weather event, leading to animals remaining in traps for more than one night.	Unlikely	High	Medium	Exclusion from one or more trap site locations for more than a single night, due to unpredicted weather event.	Revision of timeline of management across the year to exclude wet and/or storm season. Review protocol and process with pest management contractor.	Onsite weather updates; short- and long-term weather forecasts; pest contractor report
Remove vertebrate pests (specifically koala predators – wild dogs and foxes) from offsets site	High rainfall year causing site inaccessibility and leading to extended exclusion of vertebrate pest management across site	Possible	Minor	Medium	Exclusion from one or more offsets Stages for greater than 3 months of the year	Revision of timeline of management across the year. Renew objective to achieve pest monitoring and management outside of wet season October each year.	Onsite weather updates

Appendix G

Bushfire Management Plan



Bushfire management plan

Narangba Quarry | Queensland | Offset sites
Prepared for Boral Resources (Queensland) Pty Limited | 28 July 2021

Bushfire management plan

Final

Report 21041 | Boral Resources (Queensland) Pty Limited | 28 July 2021

Prepared by Robert Janssen

Position Managing principal

Signature



Date 28 July 2021

This report has been prepared in accordance with the brief provided by the client and has relied upon the information collected at or under the times and conditions specified in the report. All findings, conclusions or recommendations contained in the report are based on the aforementioned circumstances. The report is for the use of the client and no responsibility will be taken for its use by other parties. The client may, at its discretion, use the report to inform regulators and the public.

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Document control

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Table of contents

Contents

Table of contents	i
1 Introduction	1
1.1 Scope	1
1.2 Legislative requirements	2
1.3 Boral's requirements	2
1.4 Responsibility.....	2
1.5 Review	2
1.6 BMP outline	3
2 Offset area	4
2.1 Offset management areas	4
2.2 Offset area staging.....	4
2.3 Koala habitat improvement.....	4
2.4 Risk assessment	5
3 Bushfire analysis	6
3.1 Vegetation	6
3.2 Fire weather.....	6
3.3 Landscape slope.....	6
3.4 Bushfire hazard areas	6
3.5 Fire history.....	7
3.6 Vehicle access for bushfire management.....	7
3.7 Water supply for bushfire management	7
4 Bushfire management strategy	11
4.1 Fire breaks	11
4.2 Access tracks.....	11
4.3 Prescribed burning.....	11
4.3.1 Burn plan.....	17
4.3.2 Compliance with the FES Act.....	18
4.3.3 Appraisal.....	18
4.4 Other methods of hazard reduction	18
4.4.1 Mechanical hazard reduction.....	18
4.4.2 Use of domestic livestock for hazard reduction.....	18

4.5	Monitoring.....	18
4.5.1	Fuel hazard monitoring	18
4.5.2	Fire history records	19
5	Works program	19
6	Review and evaluation.....	22

Figures

Figure 3.1	Vegetation.....	8
Figure 3.2	Recommended fire intervals.....	9
Figure 3.3	Queensland bushfire hazard area map.....	10
Figure 4.1	Bushfire management strategy.....	13

Appendix

Appendix 1 Offset area

Appendix 2 Offset area staging

Appendix 3 Recommended fire regimes

1 Introduction

Land and Environment Consultants Pty Ltd (**LEC**) was engaged by Boral Resources (Queensland) Pty Limited (**Boral**) to prepare a bushfire management plan (**BMP**) for the offset area at Narangba Quarry, located at Raynbird Road, Narangba (**the site**).

The offset area was established as a condition of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (**EPBC Act**) approval for the Narangba Quarry expansion project. The Narangba Quarry expansion project was referred under the EPBC Act on 11 November 2014 and subsequently declared a 'controlled action' requiring assessment by 'preliminary documentation' pursuant to section 18 and 18A (listed threatened species and communities) (EPBC Act reference 2014/7351). The trigger for the controlled action was due to potential impacts on *Phascolarctos cinereus* (the Koala), which is listed as 'vulnerable' under the EPBC Act.

Condition 3a of the EPBC Act approval required the preparation of an offset management plan (**OMP**) for the offset area (SHG 2019).

Management action 4 of the OMP requires a BMP to be prepared for the offset area 'for the purpose of protecting the offset area from high intensity fires as well as for conducting ecological burns with the aim to enhance biodiversity in line with the Queensland regional ecosystem description database fire management guidelines'.

1.1 Scope

The scope of this BMP is limited to the offset area on the offset area plan at Appendix 1.

The OMP requires the BMP to identify management measures for the control of bushfires across the offset area including:

- Installation of firebreaks and access tracks.
- Annual inspection and maintenance of firebreaks and access tracks.
- Prescribed burning undertaken in consultation with, and under the guidance of the Queensland Rural Fire Brigade (**RFB**) and in compliance with the Queensland *Fire and Emergency Services Act 1990* (**FES Act**).
- Use of domestic livestock or other methods to reduce fuel loads in the event that a fire risk professional, eg representative of the Queensland Rural Fire Brigade, and a suitably qualified person deem that conditions are not suitable for an ecological burn and that grazing is appropriate to manage a high level of fire risk. Level of risk (and any need to repeat this grazing cycle) is to be reassessed by the aforementioned professional following the grazing event.

In addition to the above requirements, the OMP requires landscape level bushfire management to be carried out over the entire offset area within 12 months of commencing stage 1 of the Narangba Quarry expansion project and for the BMP to include a mechanism for regular review of fire breaks, access tracks, fuel loads and outcomes of prescribed burns or other management techniques such as use of domestic livestock.

This BMP does not supersede the bushfire hazard assessment and management plan that was prepared for the Narangba Quarry expansion project (BPA 2019) which provides a range of bushfire protection measures that are required for compliance with the bushfire hazard area performance or

acceptable outcomes of the Moreton Bay Regional Council Planning Scheme 2016 *Extractive industry zone code*.

1.2 Legislative requirements

Bushfire management operations by Boral and Boral's contractors are governed by the FES Act.

Section 62 of the FES Act requires Boral and/or Boral's contractors to apply to a fire warden (orally or in writing) for a permit to light a fire on any land.

Section 67 of the FES Act requires Boral and Boral's contractors to take all reasonable steps to extinguish or control unauthorised fire on the site and as soon as practical, report the existence and location of the fire to a fire officer or a fire warden.

Bushfire management operations could be subject to other Commonwealth and Queensland legislation relating to environment, heritage and workplace health and safety, including:

- EPBC Act;
- Commonwealth *Aboriginal and Torres Strait Island Heritage Protection Act 1984*;
- Queensland *Mining and Quarrying Safety and Health Act 1999*;
- Queensland *Planning Act 2017*;
- Queensland *Nature Conservation Act 1992*;
- Queensland *Vegetation Management Act 1999 (VM Act)*; and
- Queensland *Heritage Act 1992*.

1.3 Boral's requirements

Bushfire management measures are to be performed in accordance with Boral's health, safety and environment policies, procedures and standards, including:

- Health Safety Environment and Quality Standard – Emergency Preparedness and Response;
- Site Emergency Response Plan; and
- Site Induction.

1.4 Responsibility

Boral is responsible for the implementation of this BMP.

1.5 Review

To mitigate the risk of unplanned fire causing degradation of habitat quality in the offset area, the OMP requires the management measures in this BMP to be reviewed in the event of an unplanned fire adversely impacting the offset area.

'Adverse impacts' are not defined in the OMP but could mean, for example, management areas that are to be protected from fire are burnt and areas of active rehabilitation or revegetation are damaged.

1.6 BMP outline

This BMP includes the following sections:

- An introduction (this section).
- Description of the offset area.
- Description of the bushfire characteristics of the site.
- Bushfire management strategy.
- Works program.
- Review and evaluation.

2 Offset area

This chapter describes the offset area which includes remnant vegetation and areas requiring either rehabilitation or revegetation to provide suitable habitat for Koala usage.

The location of management areas and staging of rehabilitation or revegetation works is identified on the staging plan at Appendix 2.

2.1 Offset management areas

The OMP identifies 3 management areas across the offset area which are explained as follows:

- Remnant vegetation management area – areas identified as remnant vegetation are those areas of existing vegetation mapped under the VM Act as remnant. These areas were observed as having potential to still be disturbed from surrounding land uses, understorey clearing and/or weed invasion.
- Habitat rehabilitation area – areas identified as being currently degraded in some way through disturbance and/or weed invasion. Works are to be undertaken within these zones to improve the condition including weed management, natural regeneration, seeding and infill planting as required.
- Habitat revegetation area – areas identified as being mostly devoid of vegetation, where grazing and other agricultural practices occurred in the past, or are currently occurring. These areas require significant planting and on-ground works to establish vegetation communities reflective of the nearby remnant vegetation.

2.2 Offset area staging

The OMP identifies that the offset area will be delivered in 3 stages which coincide with the staging of the Narangba Quarry expansion project. Each stage of the offset area, ie stages 1-3, is shown on the staging plan at Appendix 2 and will indicatively commence in 10 years, 20 years and 40+ years, respectively. Notwithstanding the staging of the offset area, bushfire management will be carried out over the entire offset area.

2.3 Koala habitat improvement

Management measures in this BMP must support key actions of the OMP that will improve koala habitat values within the offset area. Considerations for the BMP in relation to the key actions of the OMP include:

- Remnant vegetation management areas - management measures will not result in the clearing of remnant vegetation, for example, new fire trails or fire breaks will not be established in remnant vegetation and grazing as a method of fuel hazard reduction will not occur.
- Habitat rehabilitation areas – management measures will be tailored to compliment investments into assisted regeneration including the seeding or planting of endemic canopy tree species. Grazing as a method of fuel hazard reduction will not occur in habitat rehabilitation areas.
- Habitation revegetation areas – management measures will seek to protect habitat revegetation areas from fire unless fire is being used as a tool to benefit natural regeneration. Grazing as a method of fuel hazard reduction will not occur in areas where revegetation has occurred.

2.4 Risk assessment

The OMP includes a risk assessment which identifies that 'unplanned fire causing degradation of habitat quality through the loss of native plant diversity and abundance within the offset area' is a medium level risk to 'maintaining or improving habitat quality' in the offset area.

3 Bushfire analysis

This chapter provides an analysis of the bushfire characteristics of the offset area.

3.1 Vegetation

Appendix 3 provides a summary of recommended fire regimes for the vegetation (QG 2021) and potential fuel loads (QFES 2019) for vegetation which occurs within the offset area based on regional ecosystem (RE) classifications.

REs which occurs within the offset area are shown on Figure 3.1 and recommended fire intervals for REs are shown on Figure 3.2.

3.2 Fire weather

The fire danger season at the Narangba Quarry starts in July, peaks in September and begins to fall in November, but will remain elevated until consistent summer rainfall occurs. Typically, the worst fire weather conditions will be experienced during the fire danger season when the wind direction is from the west.

Forest Fire Danger Index (**FFDI**) values represent the chance of a fire starting, its rate of spread, its intensity and the difficulty of suppression, according to various combinations of air temperature, relative humidity, wind speed and both the long and short-term drought effects. The severe fire weather map in Catalyst (QFES 2021) indicates the 5% annual exceedance probability FFDI for Narangba Quarry is 56.

Fire danger ratings (**FDR**) are based on the forecast weather conditions, ie FFDI, and other risk factors and give advice about the level of bushfire threat on a day. An FFDI of 56 correlates with a 'severe' FDR and will be associated with hot, dry and windy conditions. If a fire starts and takes hold under these conditions, it will be difficult to control in the remnant vegetation management areas and habitat rehabilitation areas.

3.3 Landscape slope

The landscape slope of the offset area is varied and ranges from plains to steep hills. In general, remnant vegetation management areas are aligned with steep hills, habitat rehabilitation areas are aligned with undulating land and rolling hills and habitat revegetation areas are aligned with plains and undulating land.

Landscape slope has a significant effect on the rate of spread and intensity of a fire, whereby a fire burning on 10° of upslope will have double the rate of spread and intensity of a fire burning on flat land.

3.4 Bushfire hazard areas

In Queensland, bushfire hazard areas are identified on the basis of landscape slope, vegetation type (as a surrogate for fuel load) and fire weather severity (Leonard et al., 2014). Spatial data for each of these attributes is used to calculate potential fire-line intensity, which is the basis for delineating bushfire hazard areas as follows:

- Very high potential fire line intensity > 40,000 kilowatts/m (**kW/m**).

- High potential fire line intensity 20,000-40,000 kW/m.
- Medium potential fire line intensity 4,000-20,000 kW/m.
- Non bushfire hazard areas < 4,000kW/m.

The bushfire prone area map for the offset area is presented in Figure 3.3 and indicates that remnant vegetation management areas are high to very high potential bushfire intensity areas (except for areas of RE 12.11.10/12.11.3 and RE 12.12.16), habitat rehabilitation areas are medium to high potential bushfire intensity areas and habitat revegetation areas are a non-bushfire prone hazard class.

3.5 Fire history

The fire history map in Catalyst (QFES 2021) indicates that there have been no fires within the offset area during the past 10 years. Therefore, habitat values of remnant vegetation management areas and habitat rehabilitation areas are potentially at risk due to inappropriate fire regimes, ie too long since the last fire.

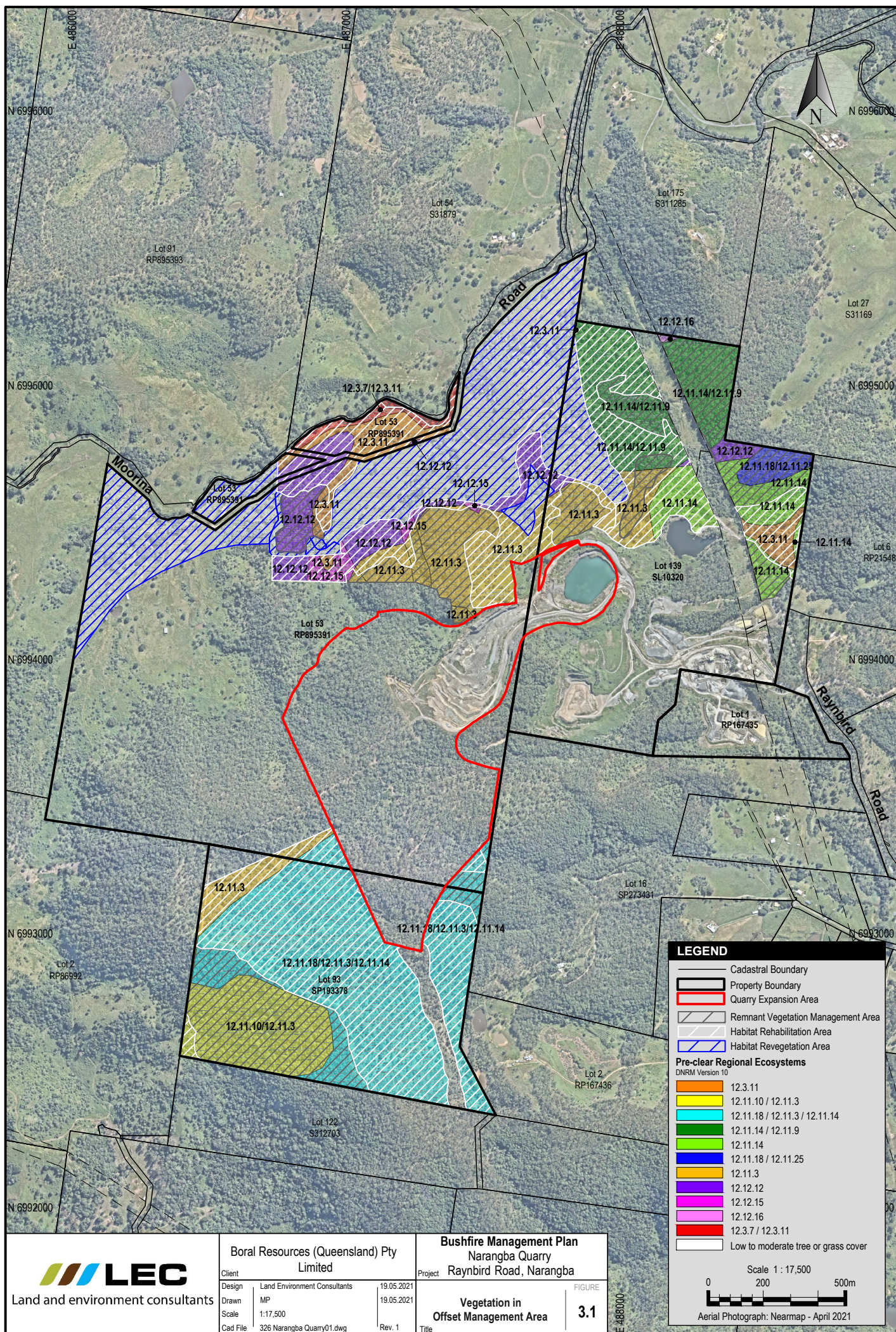
3.6 Vehicle access for bushfire management

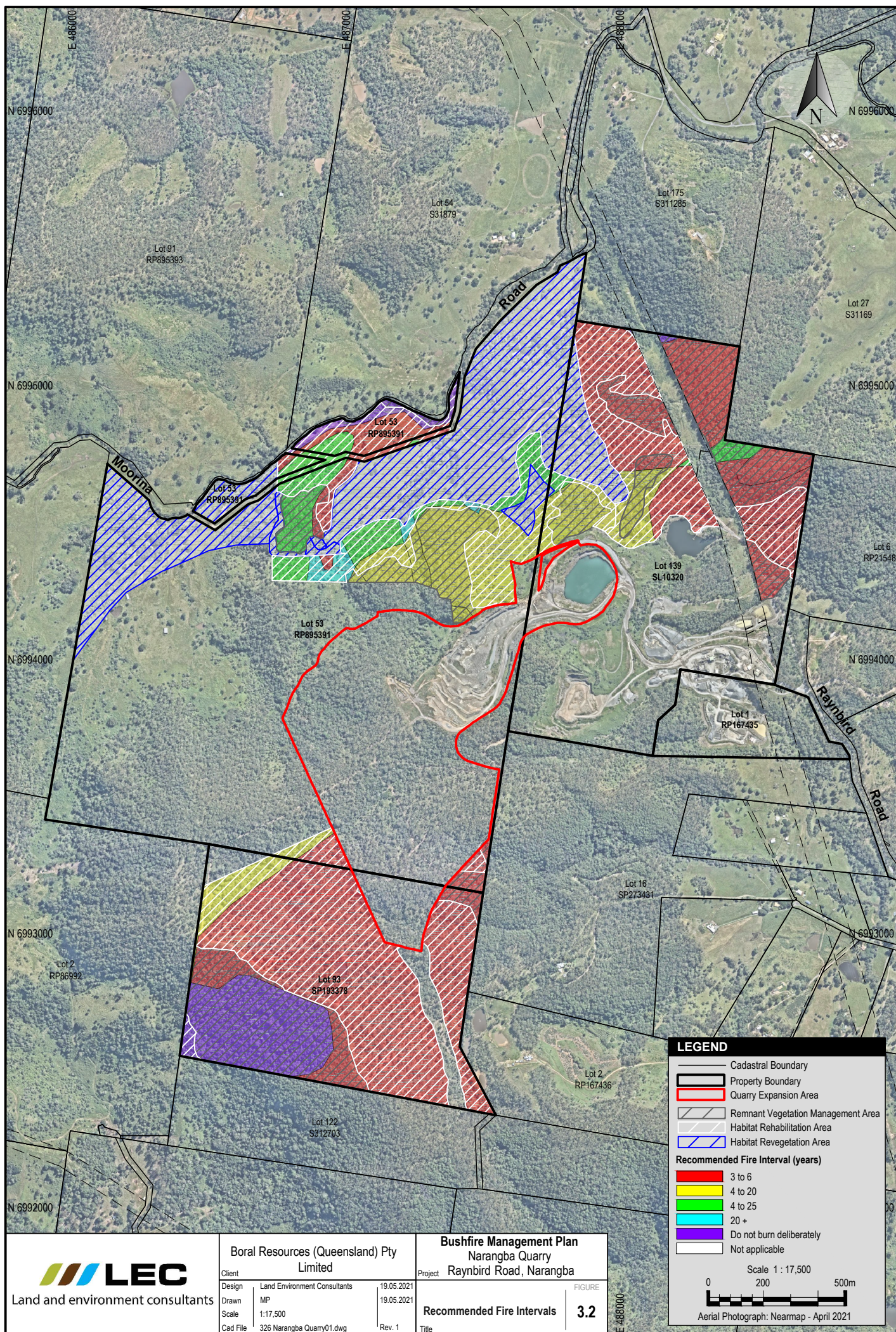
Vehicle access tracks within the offset area are trafficable by 4wd vehicles.

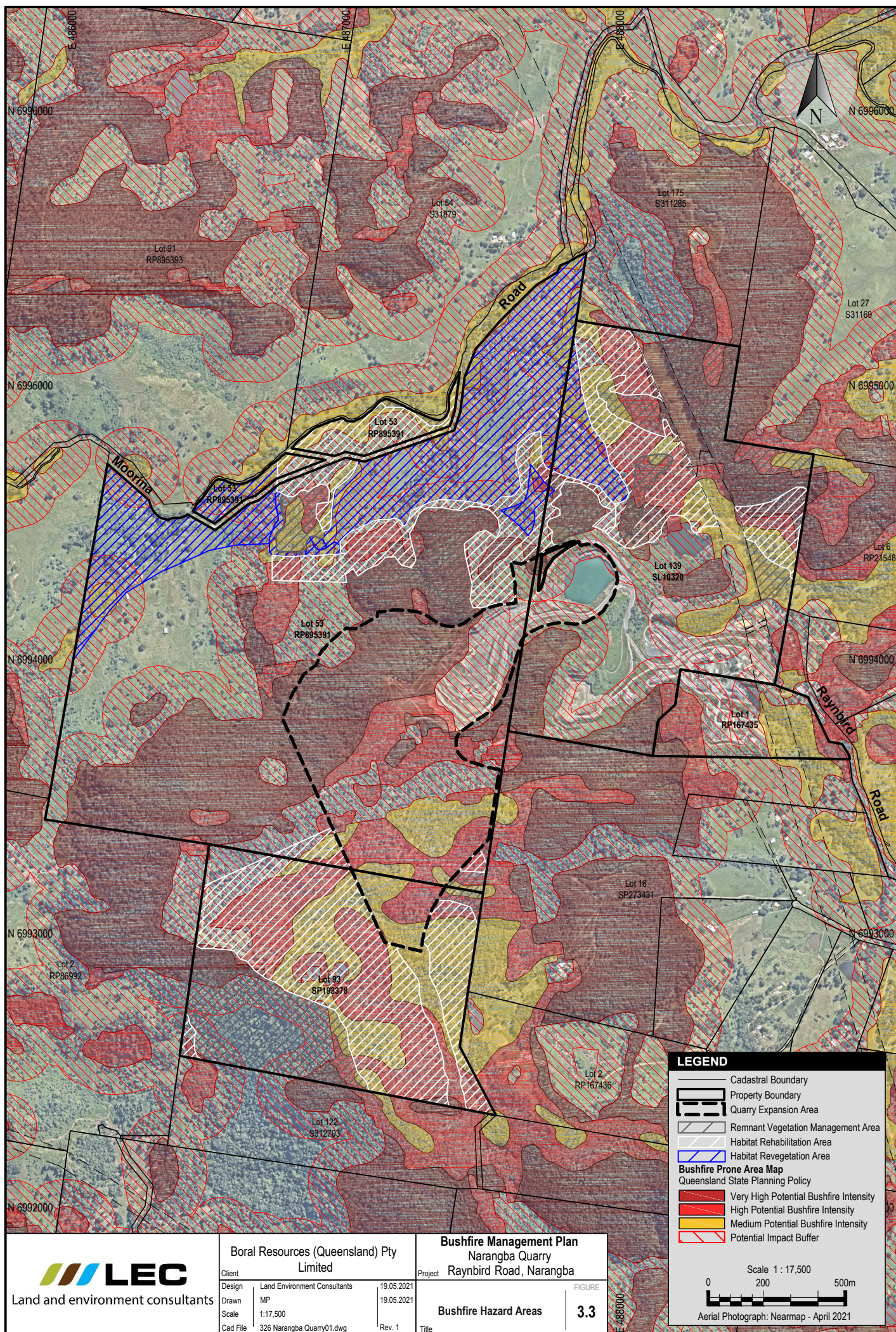
There is no vehicle access to the offset area on the east side of the Powerlink easement or along the offset area boundary in the south-west corner of the site.

3.7 Water supply for bushfire management

There are numerous water supply points within the site which could be used for bushfire management.







LEGEND

- Cadastral Boundary
- Property Boundary
- Quarry Expansion Area
- Remnant Vegetation Management Area
- Habitat Rehabilitation Area
- Habitat Revegetation Area
- Bushfire Prone Area Map**
- Queensland State Planning Policy
- Very High Potential Bushfire Intensity
- High Potential Bushfire Intensity
- Medium Potential Bushfire Intensity
- Potential Impact Buffer

Scale 1:17,500

0 200 500m

Aerial Photograph: Nearmap - April 2021

LEC

Land and environment consultants

Boral Resources (Queensland) Pty Limited		
Client	Land Environment Consultants	19.05.2021
Design	MP	19.05.2021
Drawn	1:17,500	
Cad File	326 Narangba Quarry01.dwg	Rev. 1

Bushfire Management Plan	
Narangba Quarry	
Raynbird Road, Narangba	
Project	
Bushfire Hazard Areas	
Figure	3.3

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4 Bushfire management strategy

This chapter provides the bushfire management strategy for the 3 management areas within the offset area.

4.1 Fire breaks

Fire breaks will be established and maintained around rehabilitation works within the habitat revegetation areas.

Fire breaks are low fuel hazard areas that are cleared and maintained to slow or stop the progress of a fire, or to perform burning operations. They will be 6-10 metres (m) wide and established by clearing woody vegetation and slashing or ploughing. Their width can be reduced to 4 m over a short distance, ie nominally 20 m in length, where site features prevent a 6-10 m wide fire break from being established. Subsequent maintenance will be required annually in May or June, ie prior to the annual fire danger season.

Fire breaks will continue to be maintained around rehabilitation works within the habitat revegetation areas until the ecological consultant undertaking the habitat quality monitoring advises Boral that the rehabilitation works have reached a state of maturity which can tolerate fire.

4.2 Access tracks

Access tracks shown on Figure 4.1 and located outside of the operational areas of the quarry, will be inspected and maintained annually in May/June or as otherwise required to implement bushfire management operations. Maintenance will seek to ensure that access tracks are easily trafficable by 4wd vehicles and safe to perform bushfire management operations.

Access track maintenance will include:

- slashing tall grass within the vehicle surface and 1 m wide verges (relevant to access tracks located in the grassy plains of the site);
- clearing woody regrowth and fallen trees and branches from the vehicle surface and 1 m wide verges;
- removing low overhanging branches which are < 4 m above the vehicle surface; and
- repairing the vehicle surface when its condition hinders efficient access and egress, eg washouts, etc.

4.3 Prescribed burning

To assist with assigning bushfire management actions, the offset area has been divided into fire management units (**FMUs**) which are shown on Figure 4.1 and described in Table 4.1. Where possible, the boundaries of FMUs have been aligned with existing access tracks which will provide containment lines for performing prescribed burns. As a result, some of the FMUs cover land outside of the offset area but all are within the boundaries of the site.

Prescribed burning will be undertaken to achieve fuel hazard reduction, ecological outcomes and to assist with rehabilitation or restoration works. However, it should be noted that prescribed burning is not recommended for all FMUs. Where prescribed burning is recommended for an FMU, it must be

planned to support key actions of the OMP which are outlined in Chapter 2 and based on the recommended fire regimes for regional ecosystems which are provided in Appendix 3.

Table 4.1 Fire management units

FMU	Offset management areas	Regional ecosystems	Notes
FMU 1	Habitat revegetation area	N/A	Prescribed burning is permissible for fuel hazard reduction and to assist with the implementation of rehabilitation or restoration works. Fuel hazard reduction should occur if there are uniform levels of tall grass cover, ie a subjective assessment which determines that there is greater than 30 % coverage of grass which is over 0.5 m tall. Revegetation works within FMU 1 must be protected from fire.
FMU 2	Habitat revegetation area	N/A	Prescribed burning is permissible for fuel hazard reduction and to assist with the implementation of rehabilitation or restoration works. Fuel hazard reduction should occur if there are uniform levels of tall grass cover, ie a subjective assessment which determines that there is greater than 30 % coverage of grass which is over 0.5 m tall. FMU 3 and revegetation works within FMU 2 must be protected from fire.
FMU 3	Habitat rehabilitation area	RE 12.3.7/12.3.11, RE 12.3.11 and RE 12.12.12	Prescribed burning is permissible for ecological outcomes and to assist with the implementation of rehabilitation or restoration works. Rehabilitation or restoration works in FMU 3 must be protected from fire. Recommended fire intervals range from 3-6 years for RE 12.3.11 and 4-25 years for RE 12.12.12. Do not deliberately burn vegetation fringing the watercourse along the north boundary of FMU 3, ie RE 12.3.7/12.3.11.
FMU 4	Remnant vegetation management area and habitat rehabilitation area	RE 12.3.11 and RE 12.12.12	Prescribed burning is permissible for ecological outcomes and to assist with the implementation of rehabilitation or restoration works. Rehabilitation or restoration works in FMU 4 must be protected from fire. Recommended fire intervals range from 3-6 years for RE 12.3.11 and 4-25 years for RE 12.12.12.

FMU	Offset management areas	Regional ecosystems	Notes
FMU 5	Remnant vegetation management area and habitat rehabilitation area	RE 12.3.11, RE 12.11.3, RE 12.12.12 and RE 12.12.15	Prescribed burning is permissible for ecological outcomes and to assist with the implementation of rehabilitation or restoration works. Rehabilitation or restoration works in FMU 5 must be protected from fire. Recommended fire intervals range from 3-6 years for RE 12.3.11, 4-20 years for RE 12.11.3, 4-25 years for RE 12.12.12 and 20+ years for RE 12.12.15.
FMU	Offset management areas	Regional ecosystems	Notes
FMU 6	Habitat revegetation area	N/A	Prescribed burning is permissible for fuel hazard reduction and to assist with the implementation of rehabilitation or restoration works. Fuel hazard reduction should occur if there are uniform levels of tall grass cover, ie a subjective assessment which determines that there is greater than 30 % coverage of grass which is over 0.5 m tall. Revegetation works within FMU 6 must be protected from fire.
FMU	Offset management areas	Regional ecosystems	Notes
FMU 7	Habitat revegetation area	N/A	Prescribed burning is permissible for fuel hazard reduction and to assist with the implementation of rehabilitation or restoration works; otherwise allow to burn with FMU 7 if rehabilitation or restoration works have not commenced. If restoration works have commenced in FMU 7, they must be protected from fire.
FMU	Offset management areas	Regional ecosystems	Notes
FMU 8	Remnant vegetation management area and habitat rehabilitation area	RE 12.11.3, RE 12.11.14, RE 12.12.12 and RE 12.12.15	Prescribed burning is permissible for ecological outcomes and to assist with the implementation of rehabilitation or restoration works. Rehabilitation or restoration works in FMU 8 must be protected from fire. Recommended fire intervals range from 3-6 year for RE 12.11.14, 4-20 years for RE 12.11.3, 4-25 years for RE 12.12.12 and 20+ years for RE 12.12.15.
FMU	Offset management areas	Regional ecosystems	Notes
FMU 9	Remnant vegetation management area and habitat rehabilitation area	RE 12.11.14/12.11.9	Prescribed burning is permissible for ecological outcomes and to assist with the implementation of rehabilitation or restoration works. Rehabilitation or restoration works in FMU 9 must be protected from fire. The recommended fire interval for RE 12.11.14/12.11.9 is 3-6 years.

FMU	Offset management areas	Regional ecosystems	Notes
FMU 10	Remnant vegetation management area and habitat rehabilitation area	RE 12.11.14, RE 12.11.14/12.11.9 and RE 12.11.3	Prescribed burning is permissible for ecological outcomes and to assist with the implementation of rehabilitation or restoration works. Rehabilitation or restoration works in FMU 10 must be protected from fire. Recommended fire intervals range from 3-6 years for RE 12.11.14 and RE 12.11.14/12.11.9 and 4-20 years for RE 12.11.3.
FMU	Offset management areas	Regional ecosystems	Notes
FMU 11	Remnant vegetation management area and habitat rehabilitation area	RE 12.11.14/12.11.9, RE 12.11.18/12.11.5, RE 12.11.14, RE 12.3.11 and RE 12.12.12	Prescribed burning is permissible for ecological outcomes and to assist with the implementation of rehabilitation or restoration works. Rehabilitation or restoration works in FMU 11 must be protected from fire. There are no access tracks that can be used to perform burning operations. Therefore, it is recommended that FMU 11 is allowed to burn with the adjoining landscape if site neighbours in this area wish to undertake a prescribed burn. Recommended fire intervals range from 3-6 years for RE 12.11.14, RE 12.11.14/12.11.9, RE 12.11.18/12.11.25 and RE 12.3.11 and 4-25 years for RE 12.12.12.
FMU	Offset management areas	Regional ecosystems	Notes
FMU 12	Habitat rehabilitation area	RE 12.11.3 and RE 12.11.18/12.11.3/12.11.14	Prescribed burning is permissible for ecological outcomes and to assist with the implementation of rehabilitation or restoration works. Rehabilitation or restoration works in FMU 12 must be protected from fire. Recommended fire intervals range from 3-6 years for RE 12.11.18/12.11.3/12.11.14 and 4 -20 years for RE 12.11.3.
FMU	Offset management areas	Regional ecosystems	Notes
FMU 13	Remnant vegetation management area and habitat rehabilitation area	RE 12.11.18/12.11.3/12.11.14	Prescribed burning is permissible for ecological outcomes and to assist with the implementation of rehabilitation or restoration works. Rehabilitation or restoration works in FMU 13 must be protected from fire. Prescribed burn planning in FMU 13 must include a note advising that FMU 15 is sensitive to fire and requires protection from unplanned ignitions. The recommended fire interval for RE 12.11.18/12.11.3/12.11.14 is 3-6 years.

FMU	Offset management areas	Regional ecosystems	Notes
FMU 14	Habitat rehabilitation area	RE 12.11.18/12.11.3/12.11.14	Prescribed burning is permissible for ecological outcomes and to assist with the implementation of rehabilitation or restoration works. Rehabilitation or restoration works in FMU 14 must be protected from fire. Prescribed burn planning in FMU 14 must include a note advising that FMU 15 is sensitive to fire and requires protection from unplanned ignitions. The recommended fire interval for RE 12.11.18/12.11.3/12.11.14 is 3-6 years.
FMU	Offset management areas	Regional ecosystems	Notes
FMU 15	Remnant vegetation management area and habitat rehabilitation area	RE 12.11.10/12.11.3 and RE 12.11.18/12.11.3/12.11.14	Prescribed burning is not permitted in FMU 15. The majority of FMU 15 consists of fire sensitive vegetation being RE 12.11.10/12.11.3.

The OMP requires 'prescribed burning to be undertaken in consultation with, and under the guidance of the RFB and in compliance with the FES Act. The RFB is a voluntary organisation and there is no guarantee that RFB volunteers will be available for consultation or to provide guidance and resources for the implementation of prescribed burns. Therefore, reliance on the RFB is considered a risk to the implementation of this BMP and the improvement of koala habitat values within the offset area.

To mitigate the abovementioned risk, Boral will engage a contractor (**burn contractor**) to plan and implement the prescribed burns and hazard reduction burns recommended in this BMP. To comply with the OMP requirements, the burn contractor will be responsible for liaising with the RFB regarding the planning and implementation of prescribed burns and for inviting the RFB to participate in prescribed burn operations.

If Boral is unable to engage a suitable burn contractor, they should seek the assistance of the RFB to plan and implement the prescribed burns and hazard reduction burns recommended in this BMP.

4.3.1 Burn plan

The burn contractor (or the RFB and Boral) will prepare a burn plan for each prescribed burn or hazard reduction burn. The burn plan will be reviewed and approved by Boral prior to its implementation. A burn plan should contain the following elements (as a minimum):

- a statement of burn objectives;
- an operations map of the area;
- prescriptions or limits for fuel and weather conditions;
- ignition patterns and techniques;
- identification of assets and values within the burn area that require protection and measures for their protection;
- resourcing requirements;
- health and safety issues (for burn personal, quarry staff and the public);

- notifications; and
- guidance on implementation.

4.3.2 Compliance with the FES Act

The burn contractor (or Boral) will also be responsible for obtaining a permit to light a fire from a fire warden and for taking all reasonable steps to contain a prescribed burn or hazard reduction burn within containment lines (as detailed in the burn plan).

The information in the burn plan will be required by the fire warden to issue a permit to light a fire.

4.3.3 Appraisal

The burn contractor will prepare a brief appraisal report for each prescribed burn or hazard reduction burn which includes a map of the burn area and evaluates the outcomes of the burn against the planned objectives, lessons learnt and continuous improvement.

If the burn is done by the RFB then Boral must retain the details of the burn, eg location, date, objectives, burn intensity, weather conditions, etc.

4.4 Other methods of hazard reduction

Other methods of hazard reduction will be applied to grassland areas within habitat revegetation areas, ie FMU 1-2 and FMU 6-7, if prescribed burning for fuel hazard reduction is not feasible.

4.4.1 Mechanical hazard reduction

Mechanical hazard reduction, ie slashing or ploughing, is the preferred strategy for fuel hazard reduction within habitat revegetation areas that have uniform levels of tall grass cover. It can also be used within revegetation work areas if required.

4.4.2 Use of domestic livestock for hazard reduction

Domestic livestock will only be used for fuel hazard reduction within parts of the habitat revegetation areas that have no revegetation works.

Temporary fencing will be used to contain domestic livestock and they will be monitored and immediately removed from remnant vegetation management areas, habitat rehabilitation areas and revegetation work areas within habitat revegetation areas if they escape.

The use of domestic livestock for fuel hazard reduction is a relatively slow process when compared to hazard reduction burning or mechanical hazard reduction. If domestic livestock are to be used for fuel hazard reduction, they must be released into the target area several months prior to the onset of the annual fire danger season in late July.

4.5 Monitoring

4.5.1 Fuel hazard monitoring

Fuel hazard monitoring will be undertaken within habitat revegetation areas, ie FMU 1-2 and FMU 6-7, once consistent summer rainfall has occurred. It will determine if these FMUs have uniform levels

of tall grass cover and require fuel hazard reduction. As stated in Table 4.1, uniform levels of tall grass cover means greater than 30 % coverage of grass which is over 0.5 m tall.

Fuel hazard monitoring is not required within remnant vegetation management areas and habitat rehabilitation areas, ie FMU 3-5 and FMU 8-15, for the purpose of identifying areas requiring prescribed burns. Prescribed burning within these FMUs will be based on the recommended fire regimes for the vegetation communities which occur within them and fire history data. Notwithstanding, the burn contractor will undertake fuel hazard monitoring within these FMUs when preparing a burn plan.

4.5.2 Fire history records

Boral will maintain records of prescribed burns, hazard reduction burns (including burn contractor appraisals) and unplanned fires within the offset area and broader site. This information can then be consolidated for review and preparation of the next BMP in 5 years.

Information required includes:

- spatial data of the fireground including areas within containment lines which did not burn;
- type of fire, eg prescribed burn, unplanned fire, etc
- year of fire;
- season;
- intensity, eg low, medium, high, etc;
- strategy, eg aim of burn, ignition strategy; and
- issues.

5 Works program

The works program for the implementation of this BMP is provided in Table 5.1 and will be updated after 5 years, ie 2026.

Table 5.1 Works program

Action	Responsibility	Timing/frequency	Notes
Administration			
Engage a burn contractor or the RFB to implement prescribed burns and hazard reduction burns scheduled in this works program.	Boral	October 2021	The successful burn contractor should have demonstrated experience implementing prescribed burning programs, eg prescribed burning programs within Department of Defence training areas.
Review works program	Boral	In the event of an unplanned fire adversely impacting the offset area or 2026.	Refer to Chapter 6.
Fire breaks and access tracks			
Establish and maintain fire breaks around rehabilitation works within	Boral	Annually in May/June or as otherwise required to	Refer to Section 4.1 for fire break standards.

Action	Responsibility	Timing/frequency	Notes
the habitat revegetation areas.		implement the bushfire management operations.	
Inspect and maintain access tracks located outside of the operational areas of the quarry.	Boral	Annually in May/June or as otherwise required to implement bushfire management operations.	Refer to Section 4.2 for access track standards.
<i>Prescribed burns in remnant vegetation management areas and habitat rehabilitation areas</i>			
Prescribed burn FMU 14	Burn contractor	2022	Prescription for prescribed burn should be in accordance with recommended fire regimes for RE 12.11.18/12.11.3/12.11.14 in Appendix 3.
Prescribed burn FMU 13	Burn contractor	2023	Prescription for prescribed burn should be in accordance with recommended fire regimes for RE 12.11.18/12.11.3/12.11.14 in Appendix 3.
Prescribed burn FMU 12	Burn contractor	2024	Prescription for prescribed burn should be in accordance with recommended fire regimes for RE 12.11.3 and RE 12.11.18/12.11.3/12.11.14 in Appendix 3.
Prescribed burn FMU 9	Burn contractor	2025	Prescription for prescribed burn should be in accordance with recommended fire regimes for RE 12.11.14/12.11.9 in Appendix 3.
Prescribed burn FMU 10	Burn contractor	2026	Prescription for prescribed burn should be in accordance with recommended fire regimes for RE 12.11.14, RE 12.11.14/12.11.9 and RE 12.11.3 in Appendix 3.
Delivery of burn plan to Boral for review and approval (unless the burn is to be done by the RFB).	Burn contractor	Annually, December	Refer to Section 4.3.1 for burn plan specifications
Consultation with local RFB regarding implementation of burn plan.	Burn contractor	Annually, January.	-
Obtain permit to light a fire.	Burn contractor	Annually, prior to prescribed burn.	A copy of the approved burn plan is to be provided to the fire warden.
Deliver appraisal report and prescribed burn data.	Burn contractor	Annually, within 8 weeks of the prescribed burn.	Refer to Section 4.3.3 for requirements.
<i>Hazard reduction in habitat revegetation areas</i>			
Implement fuel hazard reduction within areas of FMU 1-2 and FMU 6-7 that	Burn contractor (burns) or	March-June or as otherwise required to implement	Refer to Section 4.3 for hazard reduction burn specifications and

Action	Responsibility	Timing/frequency	Notes
have uniform levels of tall grass cover.	Boral (mechanical or domestic livestock)	bushfire management operations.	Section 4.4 for use of mechanical or domestic livestock methods.
<i>Monitoring</i>			
Fuel hazard monitoring within habitat revegetation areas FMU 1-2 and FMU 6-7.	Boral	Annually, after consistent summer rainfall	Refer to Section 4.5.1 for monitoring method.
Maintain a fire history records	Boral	From January, 2022	Refer to Section 4.5.2 for fire history database specifications

6 Review and evaluation

Review and evaluation of this BMP will be undertaken in the event of an unplanned fire adversely impacting the offset area or after 5 years, ie 2026.

The review and evaluation will consider the appraisal of prescribed burns, analysis of fire history data and annual compliance reports for the offset area which will detail the outcomes and recommendations of weed management, feral and pest fauna species management and koala habitat monitoring within the offset area.

References

Bushfire Planning Australia (BPA) 2019, *Bushfire Hazard Assessment and Management Plan – Boral Quarry Plant Upgrade, Narangba Quarry*, reference 1939, prepared for Boral Resources (QLD) Pty Limited, 1 October 2019

Leonard J, Newnham G, Opie K, and Blanchi R (2014). *A new methodology for state-wide mapping of bushfire prone areas in Queensland*, CSIRO, Australia, 2014

Queensland Fire and Emergency Services (QFES) 2019, *Bushfire Resilient Communities Technical Reference Guide for the State Planning Policy State Interest 'Natural Hazards, Risk and Resilience – Bushfire'*, 2019

Queensland Fire and Emergency Services (QFES) 2021, *Catalyst – online mapping system*, accessed online at <https://catalyst.qfes.qld.gov.au/>, May 2021

Queensland Government 2021, *Regional ecosystem descriptions*, accessed online at <https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/descriptions>, 12 May 2021

Saunders Havill Group (SHG) 2019, *Offset Management Plan – Narangba Quarry Expansion*, EPBC 2014/7351, job number 7139, prepared for Boral Resources (QLD) Pty Limited, 6 November 2019

Appendix 1 Offset area

1. Offset Area



Notes:
This plan shows the proposed offset area, which is intended to compensate for the loss of native vegetation and habitat due to the proposed development. The offset area is located on the same site as the proposed development and is intended to provide a similar level of ecological value to the area that will be lost. The offset area is located on the same site as the proposed development and is intended to provide a similar level of ecological value to the area that will be lost.

Legend:
Qld DCDB
Boral landholdings
Impact site
Amended offset area (220.9ha)

NOTE - Houses, sheds, environmental monitoring stations, Koala fodder plantation and relevant access is excluded from offset areas

Area	ha	ha	ha	ha
1. 127.8	127.8	127.8	127.8	127.8
2. 19.5	19.5	19.5	19.5	19.5
3. 63.0	63.0	63.0	63.0	63.0
4. 220.9	220.9	220.9	220.9	220.9

Appendix 2 Offset area staging

The major aim of the study was to establish the prevalence of the following risk factors for the transmission of hepatitis B virus: (i) sexual contact, (ii) intravenous drug use, (iii) transfusion and (iv) vertical transmission. The study was carried out in a tertiary care hospital in the city of Pune, India.

Age	Sex	Frequency	Age - 10	Age - 15
0	Male	1	1	1
0	Female	1	1	1
1	Male	1	1	1
1	Female	1	1	1
2	Male	1	1	1
2	Female	1	1	1
3	Male	1	1	1
3	Female	1	1	1
4	Male	1	1	1
4	Female	1	1	1
5	Male	1	1	1
5	Female	1	1	1
6	Male	1	1	1
6	Female	1	1	1
7	Male	1	1	1
7	Female	1	1	1
8	Male	1	1	1
8	Female	1	1	1
9	Male	1	1	1
9	Female	1	1	1
10	Male	1	1	1
10	Female	1	1	1
11	Male	1	1	1
11	Female	1	1	1
12	Male	1	1	1
12	Female	1	1	1
13	Male	1	1	1
13	Female	1	1	1
14	Male	1	1	1
14	Female	1	1	1
15	Male	1	1	1
15	Female	1	1	1
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41	Female	1	1	1
42	Male	1	1	1
42	Female	1	1	1
43	Male	1	1	1
43	Female	1	1	1
44	Male	1	1	1
44	Female	1	1	1
45	Male	1	1	1
45	Female	1	1	1
46	Male	1	1	1
46	Female	1	1	1
47</				

Appendix 3 Recommended fire regimes

Vegetation	Recommended fire regime ^{1, 2}	Potential fuel load (t/ha) ³	Notes
Remnant vegetation management area (Remnant vegetation)			
Regional Ecosystem (RE) 12.3.11 <i>Eucalyptus tereticornis</i> +/- <i>E. siderophloia</i> , <i>Corymbia intermedia</i> open forest on alluvial plains usually near coast (RE 12.3.11)	SEASON: Summer to late-autumn INTENSITY: Low INTERVAL: 3-6 years STRATEGY: Aim to burn 40-60% of any given area. Spot ignition in cooler or moister periods encourages mosaics. ISSUES: Control of weeds is a major focus of planned burning in most areas. Maintain ground litter and fallen timber habitats by burning only with sufficient soil moisture. Burning should aim to produce fine scale mosaics of unburnt areas.	16	Does not occur in combination with other REs
RE 12.11.3 <i>Eucalyptus siderophloia</i> , <i>E. propinqua</i> +/- <i>E. microcorys</i> , <i>Lophostemon confertus</i> , <i>Corymbia intermedia</i> , <i>E. acmenoides</i> open forest on metamorphics +/- interbedded volcanics (RE 12.11.3)	SEASON: Summer to winter INTENSITY: Plan for low to moderate. Unplanned occasional high intensity wildfire will occur. INTERVAL: 4-8 years maintains a healthy grassy system. 8-20 years for shrubby elements of understorey. STRATEGY: Aim for 40-60% mosaic burn. Needs disturbance to maintain RE structure (eucalypt overstorey with open understorey of predominantly non-rainforest species). Any moist sclerophyll that is relatively open with a mixture of grasses and shrubs should be a priority for fire management to retain RE structure. ISSUES: Frequent fire is needed to maintain understorey integrity, keeping more mesic species low in the profile of the understorey so that other species can compete. A grassy system is especially important for species such as the eastern bristlebird and its habitat. It is essential that wildfires are not the sole	24.2	Occurs on its own and sub-dominant in other RE combinations

Vegetation	Recommended fire regime ^{1, 2}	Potential fuel load (t/ha) ³	Notes
	source of fire in this ecosystem. High intensity fires occur periodically through time, however frequent low to moderate intensity fires will create the disturbance required to keep the understorey diverse. A follow-up burn soon after a high intensity wildfire can be considered to reduce germinating mesic species. This 'of concern' RE may contain a high number of rare and threatened plant species, eg <i>Acomis acoma</i>, <i>Corchorus cunninghamii</i>, <i>Marsdenia coronata</i> and <i>Sophora fraseri</i>, which require appropriate fire management.		
RE 12.11.9 <i>Eucalyptus tereticornis</i> subsp. <i>tereticornis</i> or <i>E. tereticornis</i> subsp. <i>basaltica</i> open forest on metamorphics +/- interbedded volcanics, usually on ridges, crests and upper slopes (RE 12.11.9)	SEASON: Summer to winter INTENSITY: Plan for low to moderate. Unplanned occasional high intensity wildfire will occur. INTERVAL: 4-8 years maintains a healthy grassy system. 8-20 years for shrubby elements of understorey. STRATEGY: Aim for 40-60% mosaic burn. Needs disturbance to maintain RE structure (eucalypt overstorey with open understorey of predominantly non-rainforest species). ISSUES: Occurs on exposed ridges and crests but soils are heavy and retain moisture. May contain heath species in understorey. Frequent fire is needed to maintain understorey integrity, keeping more mesic species low in the profile of the understorey so that other species can compete. A grassy system is especially important for species such as the eastern bristlebird and its habitat. It is essential that wildfires are not the sole source of fire in this ecosystem. High intensity fires occur periodically through time, however frequent low to moderate intensity fires will create the disturbance required to keep the understorey diverse. A follow-up burn soon after a high intensity wildfire can be considered to reduce germinating mesic species. This 'of	24.2	Occurs sub-dominant in one RE combination

Vegetation	Recommended fire regime ^{1, 2}	Potential fuel load (t/ha) ³	Notes
	concern' RE may contain a high number of rare and threatened plant species which require appropriate fire management.		
RE 12.11.10 Notophyll vine forest +/- <i>Araucaria cunninghamii</i> on metamorphics +/- interbedded volcanics (RE 12.11.10)	STRATEGY: Do not burn deliberately. Protection relies on broad-scale management of surrounding country. May need active protection from wildfire in extreme conditions or after prolonged drought. Planned burns should not create a running fire into vine forest. Ensuring conditions of good soil moisture and moisture of litter in surrounding communities will limit fire behaviour/intensity. ISSUES: Fire sensitive and not normally flammable. Some preliminary work suggests rainforest seedling germination from planned burning activities will assist the establishment of seedlings in newly burnt areas, especially due to smoke. There may be issues with lantana and other weeds from fire and other disturbance. Remnants may be limited by frequent fire at the margins; this requires further research.	3.5	Occurs dominant in one RE combination
RE 12.11.14 <i>Eucalyptus crebra</i> , <i>E. tereticornis</i> , <i>Corymbia intermedia</i> woodland on metamorphics +/- interbedded volcanics (RE 12.11.14)	Same as RE 12.3.11	14.4	Occurs on its own and both dominant and sub-dominant in other RE combinations
RE 12.11.18 <i>Eucalyptus moluccana</i> woodland on metamorphics +/- interbedded volcanics (RE 12.11.18)	Same as RE 12.3.11 and RE 12.11.14	14.4	Occurs dominant in RE combinations
RE 12.11.25 <i>Corymbia henryi</i> and/or <i>Eucalyptus fibrosa</i> subsp. <i>fibrosa</i> +/- <i>E. crebra</i> , <i>E. carnea</i> , <i>E. tindaliae</i> woodland on metamorphics +/- interbedded volcanics (RE 12.11.25)	SEASON: Summer to winter INTENSITY: Low to moderate INTERVAL: 4-25 years	18	Occurs sub-dominant in one RE combination

Vegetation	Recommended fire regime ^{1, 2}	Potential fuel load (t/ha) ³	Notes
	STRATEGY: Aim for 40-60% mosaic burn. Burn with soil moisture and with a spot ignition strategy so that a patchwork of burnt/unburnt country is achieved. ISSUES: The fire regime should maintain a mosaic of grassy and shrubby understoreys. Control of weeds is a major focus of planned burning in most areas. Careful thought should be given to maintaining ground litter and fallen timber habitats by burning only with sufficient soil moisture. Burning should aim to produce fine scale mosaics of unburnt areas. Variability in season and fire intensity is important, as well as spot ignition in cooler or moister periods to encourage mosaics.		
RE 12.12.12 <i>Eucalyptus tereticornis</i> , <i>Corymbia intermedia</i> , <i>E. crebra</i> +/- <i>Lophostemon suaveolens</i> woodland on Mesozoic to Proterozoic igneous rocks (RE 12.12.12)	Same as RE 12.11.25	17.2	Does not occur in combination with other REs
RE 12.12.16 Notophyll vine forest on Mesozoic to Proterozoic igneous rocks (RE 12.12.16)	Same as RE 12.11.10	3.5	Does not occur in combination with other REs
	Habitat rehabilitation areas (Non-remnant vegetation)		
Regional ecosystem (RE) 12.3.7 <i>Eucalyptus tereticornis</i> , <i>Casuarina cunninghamiana</i> subsp. <i>cunninghamiana</i> +/- <i>Melaleuca</i> spp. fringing woodland (RE 12.3.7)	STRATEGY: Avoid intentionally burning this fringe vegetation. Burn surrounding ecosystems in conditions that would minimise fire incursion. ISSUES: Protection relies on broad-scale management of surrounding country. However, fire exclusion is not necessary. <i>Casuarina cunninghamiana</i> is sensitive to fire and germination after fire is typically low. Triggers unrelated to fire appear to maintain a healthy ecosystem. Issues with lantana and other weeds may result from fire and other disturbance.	11.6	Occurs dominant in one RE combination
Pre-clearing RE 12.3.11		As above	Same as RE 12.3.11

Vegetation	Recommended fire regime ^{1, 2}	Potential fuel load (t/ha) ³	Notes
Pre-clearing RE 12.11.3	STRATEGY: Do not burn sections of the 'habitat rehabilitation areas' that have been seeded or planted unless the rehabilitation has reached a mature state that is deemed to be able to withstand a fire. Otherwise, implement fire regimes as listed for remnant vegetation above.	35	Same as RE 12.11.3
Pre-clearing RE 12.11.9			Same as RE 12.11.9
Pre-clearing RE 12.11.14			Same as RE 12.11.14
Pre-clearing RE 12.11.18			Same as RE 12.11.18
Pre-clearing RE 12.12.12			Same as RE 12.12.12
Pre-clearing RE 12.12.15 <i>Corymbia intermedia</i> +/- <i>Eucalyptus propinqua</i> , <i>E. siderophloia</i> , <i>E. microcorys</i> , <i>Lophostemon confertus</i> open forest on Mesozoic to Proterozoic igneous rocks (RE 12.12.15)	SEASON: Late summer to autumn INTENSITY: Moderate to high INTERVAL: Minimum 20 years, maximum unknown, requiring further research. STRATEGY: Do not burn sections of the 'habitat rehabilitation areas' that have been seeded or planted unless the rehabilitation has reached a mature state that is deemed to be able to withstand a fire. Otherwise, aim for 40-60% mosaic burn. Needs disturbance to maintain RE structure (eucalypt overstorey, rainforest dominated but mixed species understorey). It is unlikely that mosaic burns will be achievable because fire would most likely be of higher intensity, ie likely to be a wildfire, and is only likely to occur at long intervals (at least 20+ years) during prolonged dry periods. In exceptional circumstances, different localities containing this ecosystem could be burnt to ensure a continuum of habitat availability across the broader landscape. Using this strategy maximises the probability of spatial mosaics in the landscape. ISSUES: Frequent fire is needed to maintain understorey integrity, keeping more mesic species low in the profile of the understorey so that other species can compete. It is essential that wildfires are not the sole source of fire in this ecosystem. High intensity fires occur periodically through time, however	35	Does not occur in combination with other REs

Vegetation	Recommended fire regime ^{1, 2}	Potential fuel load (t/ha) ³	Notes
	frequent low to moderate intensity fires will create the disturbance required to keep the understorey diverse. A follow-up burn soon after a high intensity wildfire can be considered to reduce germinating mesic species. This RE may contain a high number of rare and threatened plant species which require appropriate fire management. Operationally there will be many areas of wet sclerophyll that cannot be safely burnt, and will only burn in wildfire. There is evidence that suggests that infrequent high intensity fires sustain the eucalypt overstorey. Wet sclerophyll has been shown to be a moving ecotone between vine forest and moist/dry sclerophyll. Habitat revegetation areas		
Cleared land consisting of low to moderate tree or grass cover that will be subject to revegetation	STRATEGY: Do not burn sections of the 'revegetation areas' that have been planted unless the revegetation has reached a mature state that is deemed to be able to withstand a fire.	5-8 (prior to revegetation reaching a mature state)	Land which has been previously cleared of vegetation

Notes 1 Queensland Government regional ecosystem descriptions accessed online at <https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/descriptions>, 12 May 2021
2 When planning fuel hazard reduction burns use minimum fire 'interval' for remnant and non-remnant REs
3 *Bushfire Resilient Communities Technical Reference Guide for the State Planning Policy State Interest 'Natural Hazards, Risk and Resilience – Bushfire'* (QFES 2019)

Koala Habitat Management Plan

Appendix H





Koala Habitat (Rehabilitation) Management Plan - Summary

Offset Management Plan – Stage 1

Raynbird Road, Narangba
Prepared for Boral Resources Pty Ltd

Koala habitat Rehabilitation Plan – Stage One Offsets

Overall Objectives

Completion criteria for the Stage One offset site are as follows:

- WONS reduced to less than 10% of baseline levels.
- Offset zones reach the habitat quality scores identified in the Amended Offsets Strategy (values below) within 10 years of commencement of action:
 - Remnant areas improve from a habitat quality score of 7/10 to 8/10
 - Rehabilitation and revegetation areas improve from a habitat quality score of 6/10 to 8/10
 - Koala habitat quality will be assessed using the modified habitat quality assessment method detailed in the Amended Offsets Strategy.
Any alternate methodology would require prior agreement between Boral and DAWE.
- Dogs or evidence of dog presence are not detected on the offset area for a period of three years.
- Koala habitat quality remains at target values (7/10 – remnant areas, 6/10 – rehabilitation areas) or better for two consecutive five-year monitoring events.

Timeline of OMP processes

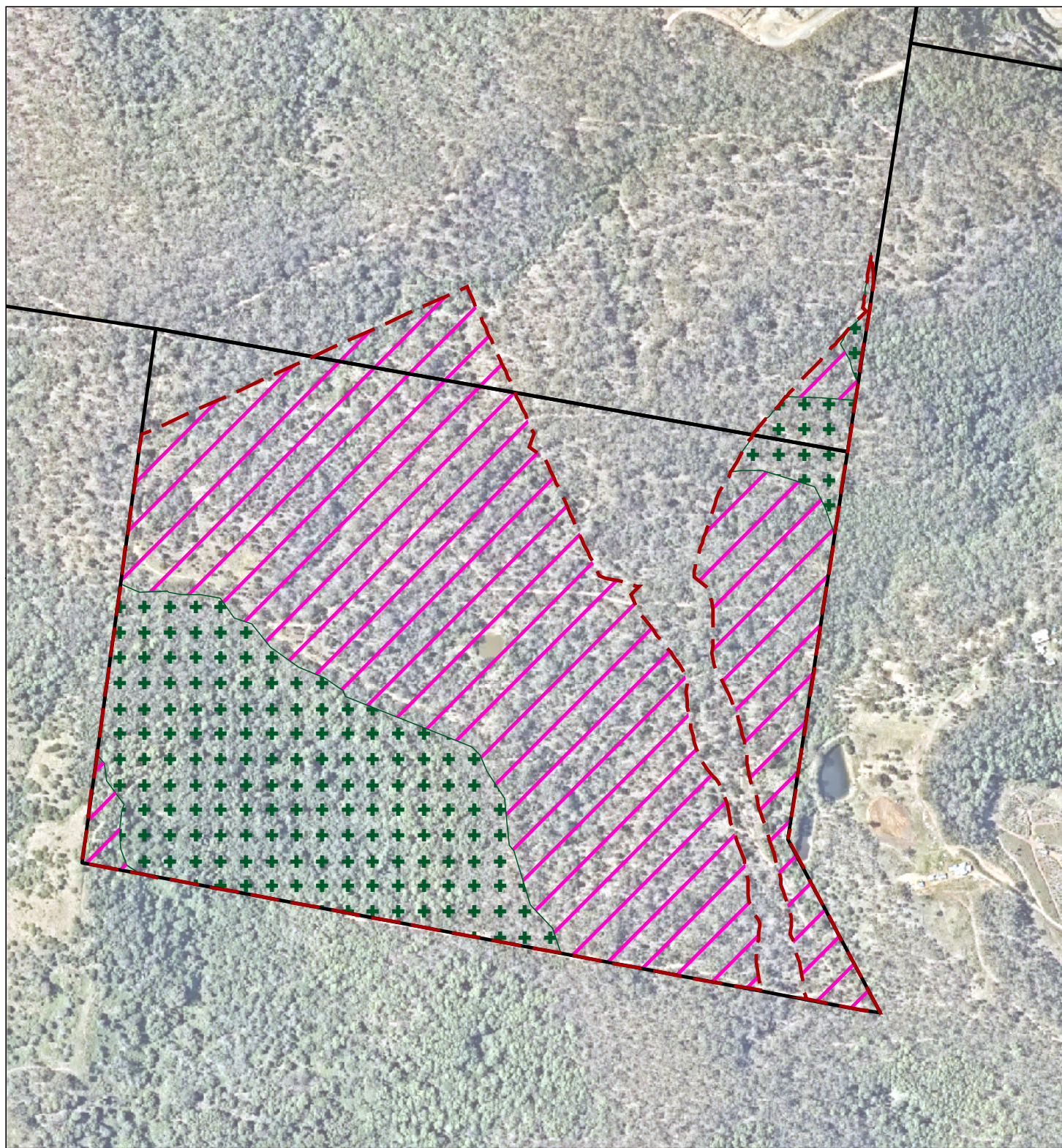
Timing	Event
6-months post-commencement	Rehabilitation Plan developed
12-months post-commencement	Restoration practices (seeding, natural regeneration, supplementary planting) to have commenced
	Habitat Quality monitoring to have been completed - baseline values maintained
	Supplementary planting survival rate is 90% at 12-months post-planting
Annual for initial 3-years post-commencement	Complete habitat quality monitoring
5-years post-commencement	Habitat quality shows signs of improvement from baseline scores – planting success rate above 90%
Every 5-years from year 3 post-commencement	Complete habitat quality monitoring
General	Areas allowed to regenerate will display signs of native vegetation regrowth at rates expected for those species

Koala Habitat Rehabilitation

Stage one of the OMP is the first of a three-stage offset, located almost entirely on Lot 93 on SP193378. Stage one of the offsets site accounts for approximately 73.7 ha of this total offset area.

The Offsets Management strategy (OMS) which underpinned the OMP, outlined a detailed approach to the management of koala habitat onsite, involving strategic division of habitat into three management categories. Stage One of the Offsets site contains two of these categories including (1) habitat rehabilitation and (2) remnant vegetation management. As detailed in the OMS, the areas that are identified as suitable for habitat rehabilitation are those that are not mapped as remnant vegetation, but still retain relatively intact vegetation with high potential to return to quality habitat. These areas in their existing state are degraded due to weed invasion or past land uses requiring clearing of the ground layer.

Remnant vegetation management areas are those identified as remnant vegetation are those areas of existing vegetation mapped under the *Vegetation Management Act 1999* (VMA) as remnant. These areas were observed as having the potential to experience some disturbance from surrounding land uses, understorey clearing and/or weed invasion. Remnant vegetation management areas account for 57.9 ha of the total offset site and habitat rehabilitation management areas account for 15.8ha across Stage One (**Figure 1**). Page three of this Plan details recommendations for guiding the restoration process onsite in regard to the achieving the objectives set out in the Offsets Management Plan. Pages four and five provide detail on the roles and responsibilities, monitoring processes and risk management supporting habitat rehabilitation on



Legend

-  Site DCDB
-  Stage 1
-  Remnant vegetation management area (Stage 1: 22.1 ha)
-  Habitat rehabilitation area (Stage 1: 51.5 ha)

Figure 1

Stage 1 Habitat Management Areas

File ref. 10232 E Figure 4 KMP Stage 1 A
Project Narangba Quarry

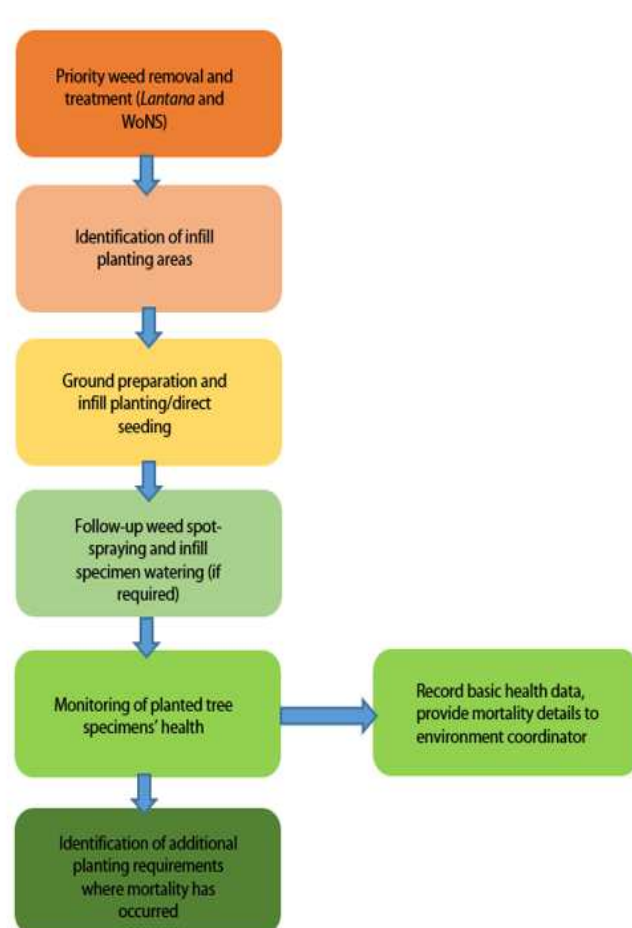
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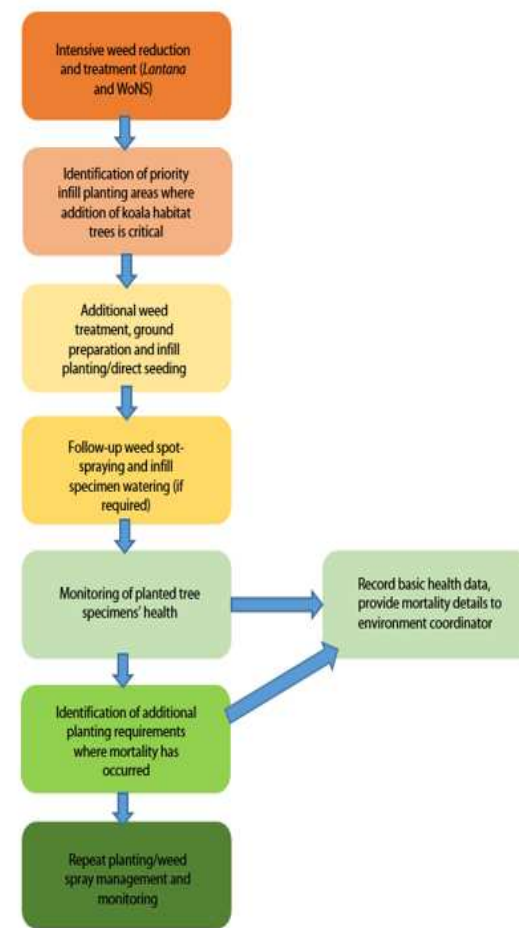


THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL GROUP CANNOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWING BY ANY THIRD PARTY.

Recommended site restoration process – Stage One



Remnant vegetation management process



Habitat Rehabilitation management process

Recommended target species for inclusion within restoration regime

Regional Ecosystem	Species	Strata	Koala habitat tree (Y/N)	Koala food tree (preferred)	Minimum spacing	Dominant species onsite
12.11.18/12.11.14	<i>Eucalyptus tereticornis</i>	Canopy	Y	Y	1.5m	Y
12.11.18	<i>Corymbia citriodora</i>	Canopy	Y		1.5m	Y
12.11.18	<i>Eucalyptus moluccana</i>	Canopy	Y	Y	1.5m	
12.11.18/12.11.3a	<i>Eucalyptus siderophloia</i>	Canopy	Y		1.5m	
12.11.18/12.11.14	<i>Eucalyptus crebra</i>	Canopy	Y		1.5m	
12.11.3a	<i>Eucalyptus propinqua</i>	Canopy	Y		1.5m	
12.11.18/12.11.14	<i>Angophora leiocarpa</i>	Canopy	Y		1.5m	
12.11.3a	<i>Allocasuarina torulosa</i>	Subcanopy			1.5m	Y
12.11.18	<i>Alphitonia excelsa</i>	Subcanopy			1.5m	Y
12.11.3a	<i>Lophostemon confertus</i>	Canopy/Subcanopy	Y		1.5m	

Targeted Regional Ecosystems for onsite restoration

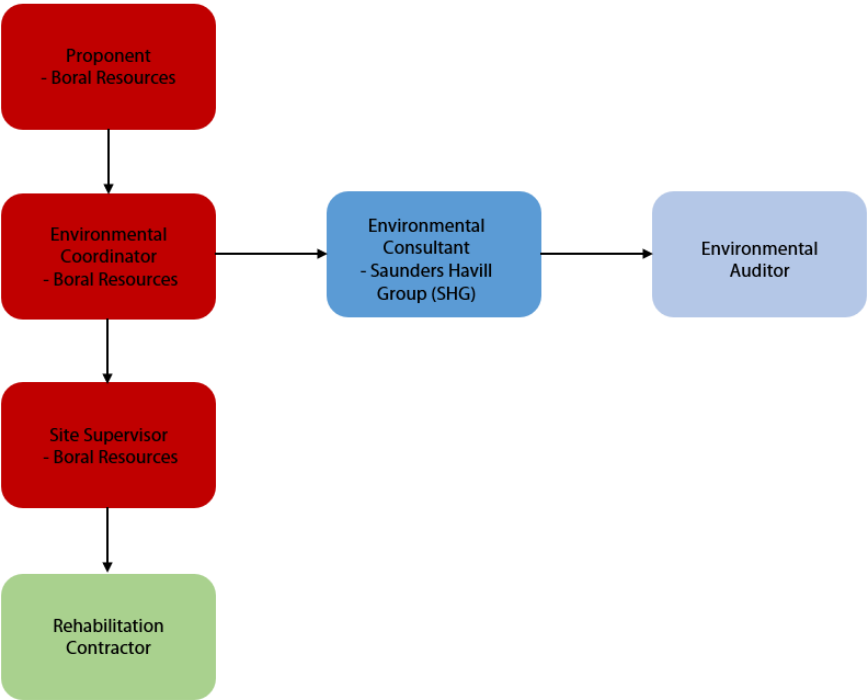
Regional Ecosystem	Structure category	Description
Least Concern RE12.11.18	Sparse	<i>Eucalyptus moluccana</i> woodland +/- <i>Corymbia citriodora</i> subsp. <i>variegata</i> , <i>E. tereticornis</i> , <i>E. siderophloia</i> or <i>E. crebra</i> , <i>E. longirostrata</i> , <i>C. intermedia</i> , <i>E. carnea</i> . Occurs on Palaeozoic and older moderately to strongly deformed and metamorphosed sediments and interbedded volcanics. Occurs as scattered occurrences in a range of topographic positions from ridgetops to lower slopes. (BVG1M: 13d)
Least Concern RE12.11.3	Mid-dense	<i>Eucalyptus siderophloia</i> and <i>E. propinqua</i> open forest +/- <i>E. microcorys</i> , <i>Lophostemon confertus</i> , <i>Corymbia intermedia</i> , <i>E. biturbinata</i> , <i>E. acmenoides</i> , <i>E. tereticornis</i> , <i>E. moluccana</i> , <i>Angophora leiocarpa</i> , <i>Syncarpia verecunda</i> with vine forest species and <i>E. grandis</i> or <i>E. saligna</i> in gullies. <i>Eucalyptus pilularis</i> and <i>E. tindaliae</i> sometimes present e.g. mid D'Aguilar Range, Conondale Range. Occurs predominantly on hills and ranges of Palaeozoic and older moderately to strongly deformed and metamorphosed sediments and interbedded volcanics. (BVG1M: 9a)
Of Concern RE12.11.14	Sparse	<i>Eucalyptus crebra</i> , <i>E. tereticornis</i> , <i>Corymbia intermedia</i> grassy woodland. Other species including <i>Eucalyptus melanophloia</i> , <i>Corymbia clarksoniana</i> , <i>C. erythrophloia</i> , <i>C. tessellaris</i> , <i>E. siderophloia</i> , <i>Angophora</i> spp. May be present in low densities or in patches. Mid-layer generally sparse but can include low trees such as <i>Vachellia bidwillii</i> , <i>Capparis</i> spp., <i>Dodonaea triquetra</i> , <i>Alphitonia excelsa</i> and <i>Xanthorrhoea</i> spp. Occurs on mid and lower slopes on Palaeozoic and older moderately to strongly deformed and metamorphosed sediments and interbedded volcanics. (BVG1M: 13c)

Land Zone 11

The prevailing landform is Land Zone 11, described below:

Metamorphosed rocks, forming ranges, hills and lowlands. Primarily lower Permian and older sedimentary formations which are generally moderately to strongly deformed. Includes low- to high-grade and contact metamorphics such as phyllites, slates, gneisses of indeterminate origin and serpentinite, and interbedded volcanics. Soils are mainly shallow, gravelly Rudosols and Tenosols, with Sodosols and Chromosols on lower slopes and gently undulating areas. Soils are typically of low to moderate fertility.

Chain of Responsibility



Identified Roles

Role	Nominated Person	Company	Contact ph./details
Proponent/ Project Coordinator	Paul West	Boral	0401 896 115
Environmental Coordinator	Matthew Allan	Boral	0466 405 885
Administering Authority	DAWE Compliance Monitoring Branch	DAWE	EPBCMonitoring@awe.gov.au
Site Supervisor	Quarry Manager	Boral	TBA
Site Contractor	TBA	TBA	TBA
Environmental Auditor	TBA	TBA	TBA

Roles and Responsibilities

Role	Responsibilities	Timeframe
Proponent/Project Coordinator	Liaise regularly with Environmental coordinator Ensure ACR is published to Boral website by 12th August	As required, ongoing. Annually
Environmental Coordinator	Coordinate and liaise with Environmental Consultant Oversee onsite work and ensure sufficient data is available to achieve annual compliance Identify onsite non-compliance events for early intervention Provide data for annual compliance to environmental consultant Report non-compliance events within 2 business days of detection	As required, ongoing. As required, ongoing. As required, ongoing. As required, ongoing. As required
Site Supervisor	Coordinate rehabilitation contractor Ensure periodic inspection of site works is completed Ensure sufficient data is collected to inform compliance reporting Liaise with Environmental Coordinator regularly Identify onsite non-compliance events for early intervention	Annually, ongoing. As required, ongoing. As required, ongoing. As required, ongoing. As required, ongoing.
Site Contractor	Complete rehabilitation and restoration works as specified under the OMP and as directed by Site Supervisor and Environmental Coordinator	Annually, ongoing. Restoration practices to be suitable documented and data and photographs provided to Site Supervisor
Environmental Consultant	Coordinate annual EPBC monitoring (MHQA) Prepare and coordinate EPBC annual compliance reporting	Annually - 2020 to 2023 Five-yearly from 2024 Published to Boral website by 12th August each year
Environmental Auditor	Complete auditing of requirements conditioned under the EPBC approval	As required

Monitoring

Monitoring of permanent transects established during baseline habitat quality score assessments within the Koala offset area will be conducted annually (for the first three years) by suitably qualified ecologists to provide data for systematic analysis required to determine the initial success of the KHMP. Monitoring will be conducted in September. This standardised monitoring will be conducted every five years following this initial three-year phase.

Visual inspections of planting sites will take place following direct seeding and planting onsite. Inspections will occur at a minimum, in accordance with those set out in the Table below. Inspection of new planting and seeding sites will include general health check of specimens, any weed encroachment or herbivory impacts and record any loss of individual plantings. Details will be provided to Boral’s environmental coordinator who will initiate plans for supplementary plantings during suitable conditions.

Event	Timeframe	
	Initial	Long-term
Planted site	Regular visual inspection for mortality	quarterly (first year); annually thereafter
Direct seeded site	Regular visual inspection for mortality	quarterly (first year); annually thereafter
MHQT site	Annually (initial three years)	every 5 years

Corrective Actions

- If habitat quality scores are not showing improvement, at year 5, rehabilitation techniques will be reviewed by an independent, suitably qualified ecological consultant and alternate techniques recommended and implemented.
- Where koala habitat rehabilitation has a success rate below 90% at year 5, the active regeneration measures will be repeated once. If the success rate remains below 90% techniques will be reviewed by an independent, suitably qualified ecological consultant and alternate techniques recommended and implemented in consultation with DAWE.

Risk Assessment

A risk assessment of the potential contraindicative events which may occur during implementation of the KHMP are outlined in the Table below. These events detail issues which may arise, negatively affecting the increase in koala habitat quality (measured by the koala habitat quality score).

Objective	Contraindicative event	Likelihood	Consequence	Risk level	Trigger	Contingency	Associated events
Increase koala habitat quality score	Increase in introduced vertebrate pest species impacting on ecological function and habitat quality score improvement across Stage One.	Unlikely	Minor	Low	Annual Compliance Monitoring (evidence via remote-triggered cameras) indicates an increase in frequency of detection of non-native koala predator and pest vertebrate	Audit and revision of vertebrate pest species management plan and consider increase in frequency of monitoring and/or trapping. Revision of seasonal timing and frequency of trapping across Stage One and entire Offset Area.	Annual vertebrate pest monitoring and trapping
Increase koala habitat quality score	Increase in Weeds of National Significance (WoNS) infestation impacting on ecological function and habitat quality score improvement across Stage One.	Unlikely	Minor	Low	Annual Compliance Monitoring indicates a decrease or lack of increase in habitat score specifically due to WONS component	Cause of WONS infestation identified (e.g. external infestation present with seed travelling along drainages) Remediation actions - mapping of new infestation, revision of current control methods, revision and reassessment of frequency of current monitoring actions	Annual weed monitoring
Increase koala habitat quality score	Unmanaged burn escalation.	Possible	High	Medium	Uncontrolled prescribed fire outbreak	Burning onsite is to be strictly by prescription only. The Offsets site Fire Management Plan (FMP) outlines the suitable prescription for fire management in each vegetation type in conjunction with fuel load levels, seasonal timing and suitable weather conditions. Tailored firebreaks will be maintained as a component of this FMP, which aims to provide protection from external sources of fire in addition to contain fires within the Offsets Area. Where a fire event negatively impacts habitat within the Offsets Area, the FMP and associated practices will be audited and updated to identify critical changes in fire management practice. Reviews will be conducted at the discretion of Boral in conjunction with critical stakeholders and fire management consultants.	Annual monitoring for fuel loads and fire breaks.
Increase koala habitat quality score	Wildfire affecting Stage One	Possible	Severe	Medium	Wildfire occurrence onsite	Burning onsite is to be strictly by prescription only. The Offsets site Fire Management Plan (FMP) outlines the suitable prescription for fire management in each vegetation type in conjunction with fuel load levels, seasonal timing and suitable weather conditions. Tailored firebreaks will be maintained as a component of the FMP, which aims to provide protection from external sources of fire in addition to contain fires within the Offsets Area. Where a fire event negatively impacts habitat within the Offsets Area, the FMP and associated practices will be audited and updated to identify critical changes in fire management practice. Reviews will be conducted at the discretion of Boral in conjunction with critical stakeholders and fire management consultants.	Annual monitoring for fuel loads and fire breaks. Annual fire management and prescription burn planning.
Increase koala habitat quality score	Extended drought (greater than 2 years).	Possible	Medium	Low	Declared drought for a period exceeding two consecutive years.	Revision of current and planned fire breaks in consultation with suitable external contractor and removal of grazing reduces the potential impact of drought.	Annual fire monitoring Ongoing weather monitoring

Objective	Contraindicative event	Likelihood	Consequence	Risk level	Trigger	Contingency	Associated events
							Soil and erosion monitoring on Quarry site (indicative of offsets site)
	Decrease in vegetation across the site due to incorrectly planned clearing for fire or access management.	Rare	Minor	Low	Unplanned vegetation clearing within Stage One	Accurate mapping and GIS enabled tools for contractors maintaining vegetation clear zones adjacent to offset areas. If additional vegetation clearing to what is specified in the respective management	Boral Quarry site access planning Annual fire monitoring Firebreak maintenance events
	Not achieving projected timeframe for koala habitat quality score improvement due to low planting survivorship	Possible	Medium	Medium	Planting rate mortality of greater than 10% in any one year	Detailed planting records kept; frequent monitoring of planted sites in initial pre-establishment phase; supplementary watering if required; spot spraying of weeds if required; ongoing regular inspections of planting and rehabilitation sites; identification of supplementary planting when required	Regular weed management Fire management and prescriptions burns Pest management and trapping