Australian Government
Department of Climate Change, Energy, the Environment and Water

EPBC 2010/5566

Mr Andrew Wright
Superintendent – Group Biodiversity
Whitehaven Coal Limited
231 Conadilly Street,
Gunnedah NSW 2380
AWright@whitehavencoal.com.au

Approval of Offset Management Plan for Maules Creek Coal Mine, Boggabri, NSW

Dear Mr Wright

Thank you for your email dated 21 March 2025 to the Department of Climate Change, Energy, the Environment and Water (the department), seeking approval of a revision to the Offset Management Plan required under Condition 12A of the above project under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Officers of the department have advised me on the Offset Management Plan and the requirements of the conditions of the approval for this project. On this basis, and as a delegate of the Minister for the Environment and Water (the Minister), I have decided to approve the *Maules Creek Coal Mine Biodiversity Management Plan, Issue 3.3, 28 February 2025*.

Now this revised plan has been approved, it must be implemented.

As you are aware, the department has an active monitoring program which includes monitoring inspections, desk top document reviews and audits. Please ensure that you maintain accurate records of all activities associated with, or relevant to, the conditions of approval so that they can be made available to the department on request.

Should you require any further information, please contact Tony Dowd by email to PostApproval@dcceew.gov.au.

Yours sincerely

Kate Gowland
Branch Head
Nature Positive Regulation Division | Environment Assessments (NSW, ACT)

5 June 2025

Our ref: MP10_0138-PA-116

Tony Dwyer
Group Manager – Approvals and Biodiversity
Maules Creek Coal Pty Ltd

7 March 2025

Maules Creek Coal – Biodiversity Management Plan

Dear Mr. Dwyer

Thank you for submitting the Biodiversity Management Plan in accordance with Condition 52, Schedule 3 of the consent for the Maules Creek (MP10_0138-PA-116). I also acknowledge your response to the Department's review comments and request for additional information.

I note the Biodiversity Management plan

- has been prepared in consultation with Conservation Programs, Heritage & Regulation NSW Department of Climate Change, Energy, the Environment and Water
- revised to address an independent review commissioned by the Maules Creek Community Council; and
- contains the information required by the conditions of approval.

Accordingly, as nominee of the Planning Secretary, I approve the revised Biodiversity Management Plan (Rev.3, February 2025).

You are reminded that if there are any inconsistencies between the Plan and the conditions of approval, the conditions prevail.

Please ensure you make the document publicly available on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Charissa Pillay on 02 99955944.

Yours sincerely

Stephen O'Donoghue
Director Resource Assessments
As nominee of the Planning Secretary

MAULES CREEK COAL MINE

BIODIVERSITY MANAGEMENT PLAN

(for PA10_0138 & EPBC 2010/5566)

Whitehaven Coal Limited and Maules Creek Coal Pty Ltd
on behalf of Aston Coal 2 Pty Ltd ACN 139 472 567

28 February 2025

DOCUMENT HISTORY

Edition	Rev.	Comments	Author	Date
1	3	Approval of the BMP by DP&I (now DPHI)	Whitehaven Coal	21 June 2013
1	7	Approval of the BMP by DP&E (now DPHI)	Whitehaven Coal	14 May 2014
1	10	Approval of the BMP by DP&E (now DPHI)	Whitehaven Coal	23 October 2014
2	5	Approval of the BMP by DP&E (now DPHI)	Whitehaven Coal	26 April 2017
2	5	Approval of the BMP Addendum by DP&E (now DPHI)	Whitehaven Coal	24 August 2022
-	-	Approval of the OMP* by DAWE (now Cth DCCEEW)	Whitehaven Coal	20 December 2021
-	-	Submitted revised OMP* to include the additional offset areas approved by Condition 11A on 9 November 2023	Whitehaven Coal	8 December 2023
3	1	New edition of the BMP* to incorporate the approved OMP and additional offset areas, and to reflect Modification 9 (for stakeholder review)	Whitehaven Coal	13 June 2024
3	2	Revisions to the BMP* incorporating stakeholder review from consultation and submitted to NSW DPHI and Cth DCCEEW for approval	Whitehaven Coal	16 October 2024
3	3	Revisions to the BMP* incorporating NSW DPHI and Cth DCCEEW feedback	Whitehaven Coal	12 February 2025

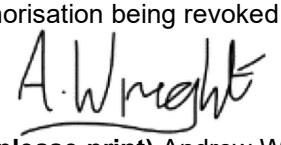
* Incorporated into this BMP

DECLARATION OF ACCURACY

In making this declaration, I:

a) am aware that section 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the *Environment Protection and Biodiversity Conservation Regulations 2000* (EPBC Regulations). The offence is punishable on conviction imprisonment or a fine, or both.

b) am authorised to bind Whitehaven Coal to this declaration and have no knowledge of that authorisation being revoked at the time of making this declaration.

Signature: 

Full name (please print) Andrew Wright (Group Superintendent - Biodiversity)

Organisation (please print) Whitehaven Coal Limited on behalf of subsidiary Aston Coal 2 Pty Limited as the Approval Holder for EPBC 2010/5566

Date: 28 February 2025

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LIST OF ABBREVIATIONS AND ACRONYMS

Acronym	Description
ASC	Australian Soil Classification
BBAM	Biobanking Assessment Method
BBS	Brigalow Belt South Interim Biogeographic Regionalisation for Australia Bioregion
BC Act	Biodiversity Conservation Act 2016
BCS	Biodiversity, Conservation and Science Group within NSW DCCEEW
BCT	Biodiversity Conservation Trust
BOA	Biodiversity Offset Area
BOMP	Biodiversity Offset Management Plan
BOS	Biodiversity Offset Strategy
CA	Conservation Agreement
Cth DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water (formerly Department of Agriculture, Water and the Environment [DAWE])
CEEC	Critically Endangered Ecological Community
DAWE	Former Commonwealth Department of Agriculture, Water and the Environment, now Commonwealth Department of Climate Change, Energy, the Environment and Water (CDCCEEW)
DNG	Derived Native Grassland
DPE	Former NSW Department of Planning and Environment, now NSW Department of Planning, Housing and Infrastructure (DPHI) and NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW)
EEC	Endangered Ecological Community
EP&A Act	NSW Environmental Planning and Assessment Act 1979
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
GSG	Greater Soil Group
ha	Hectares
HTE	Hight Threat Exotic
IBRA	Interim Biogeographic Regionalisation for Australia
KTP	Key Threatening Process
LGA	Local Government Area
NAN	Nandewar Interim Biogeographic Regionalisation for Australia Bioregion
Maules offset area	Encompassing the Offset Areas Subject to this Biodiversity Management Plan in Table 4-1
NCM	Narrabri Coal Mine
NCO	Narrabri Coal Operations Pty Limited
NET	New England Tablelands Interim Biogeographic Regionalisation for Australia Bioregion
NPWS	NSW National Parks and Wildlife Service
NSW	New South Wales
NSW DCCEEW	NSW Department of Climate Change, Energy, the Environment and Water
NSW DPHI	NSW Department of Planning, Housing and Infrastructure (formerly Office of Environment and Heritage [OEH])
NWRSWMP	North West Regional Strategic Weed Management Plan 2017 – 2022
OEH	Former Office of Environment and Heritage, now NSW Department of Planning, Housing and Infrastructure (DPHI)
OMP	Offset Management Plan
PCT	Plant Community Type
RBOS	Revised Biodiversity Offset Strategy
SSD	State Significant Development
TEC	Threatened Ecological Community
VCM	Vickery Coal Mine
VZ	Vegetation Zone
WHC	Whitehaven Coal Limited
WoNS	Weeds of National Significance

1 INTRODUCTION

1.1 BACKGROUND

The Maules Creek Coal Mine (MCCM) is located in the Gunnedah Basin approximately 18 kilometres (km) to the north-east of Boggabri in the north-west region of New South Wales (NSW) (Figures 1 and 2). The MCCM is a joint venture between Aston Coal 2 Pty Limited (a wholly owned subsidiary of Whitehaven Coal Limited [Whitehaven]) (75 percent [%]), ICRA MC Pty Ltd (an entity associated with ITOCHU Corporation) (15%) and J-Power Australia Pty Ltd (a wholly owned subsidiary of Electric Power Development Co., Ltd.) (10%). Maules Creek Coal Pty Ltd (MCC) is a wholly owned subsidiary of Whitehaven which manages the MCCM on behalf of Aston Coal 2 Pty Ltd, ICRA MC Pty Ltd and J-Power Australia Pty Ltd.

Project approval under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) was granted for the MCCM by the Planning Assessment Commission (PAC) under delegation of the Minister for Planning and Infrastructure on 23 October 2012 (Project Approval [PA] 10_0138). The Commonwealth Minister for the Environment granted approval for the MCCM under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 11 February 2013 (EPBC Act Approval 2010/5566). Both PA 10_0138 and EPBC Act Approval 2010/5566 have been modified / varied on several occasions subsequent to their grant. The most recent modification of PA 10_0138 occurred with the approval of Modification 9 on 20 March 2024, whereas the most recent variation of EPBC Act Approval 2010/5566 occurred with the approval of a variation on 21 October 2022.

Construction of the MCCM commenced in December 2013 and was substantially completed in 2015. Figure 2 shows the current extent of the MCCM and native vegetation within the Project area. Progressive rehabilitation is underway at the MCCM aiming to re-establish pre-mining native vegetation communities at the MCCM.

1.1.1 Obligation to Minimise Harm to the Environment

In accordance with PA 10_0138 Schedule 2 Condition 1; MCCM commit to implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation, or rehabilitation of the development.

1.2 PURPOSE OF THIS BIODIVERSITY MANAGEMENT PLAN

The purpose of this Biodiversity Management Plan (BMP) is to provide a consolidated plan for the management of flora and fauna within the MCCM Project Boundary and the MCCM offset areas associated with the construction of the MCCM coal mine including the main potential and realised impacts of the approved action that require for those Matters of National Environmental Significance (i.e. White Box—Yellow Box—Blakely's Red Gum Grassy Woodland and Derived Native Grassland critically endangered ecological community, Regent Honeyeater, Swift Parrot and Greater Long-eared Bat) to have offsetting strategies documented in this OMP.

LEGEND

- MCCM Project Boundary
- Mine Site
- Local Government Boundary
- NPWS Estate
- State Forest
- Rail Line

Source: NSW Spatial Services (2021); Geoscience Australia (2011)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Regional Location

Figure 1

LEGEND

- MCCM Project Boundary
- MCCM Approximate Extent of Existing/Approved Surface Development
- NPWS Estate
- State Forest
- Rail Line
- MCCM Biodiversity Corridor

Source: NSW Spatial Services (2021); Orthophoto: Whitehaven Coal (2019)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Approved Maules Creek Coal Mine General Arrangement

Figure 2

This BMP addresses the relevant requirements outlined in the NSW PA 10_0138 (as modified), and the Offset Management Plan requirements set out in the Commonwealth EPBC Act Approval 2010/5566 (as varied). Upon its approval by the Commonwealth Department of Climate Change, Energy, the Environment and Water (Cth DCCEEW), this BMP will replace the Offset Management Plan approved in December 2021 and serve as a combined Offset Management Plan for all of the EPBC Act Approval 2010/5566 offset areas. This BMP supersedes any previous BMP (2017 and Addendum 2022) that was approved for the MCCM.

1.3 STRUCTURE OF THIS BIODIVERSITY MANAGEMENT PLAN

This BMP is divided into two primary parts. Part A of this BMP describes the management of flora and fauna within the MCCM Project Boundary and Part B of this BMP describes the management of flora and fauna within the offset areas. The structure of this plan is as follows:

Section 2	Requirements for this BMP.
Section 3	Description of the management actions to be undertaken at the mine site.
Section 4	Description of the existing environment relevant to the offset areas.
Section 5	Description of the management actions to be undertaken within the offset areas.
Section 6	Description of reporting and review requirements.
Section 7	List of relevant references.

The following are appended to this BMP:

Appendix A	MCCM Threatened Fauna Implementation Plan Supplementary Report and MCCM Box-Gum Woodland Endangered Ecological Community Implementation Plan Supplementary Report
Appendix B	Reconciliation of the Biodiversity Management Plan against the Leard Forest Mining Precinct Regional Biodiversity Strategy
Appendix C	Maules Creek Coal Mine Offset Area Vegetation Mapping Report
Appendix D	Maules Creek Coal Mine Additional Offset Areas Vegetation Mapping
Appendix E	Baseline Survey Sites and Photo Reference Points
Appendix F	Maules Creek *Tylophora linearis* Offset Package and *Tylophora linearis* Propagation and Translocation Program
Appendix G	*Pomaderris queenslandica* Propagation and Translocation Program
Appendix H	*Pultenaea imminuta* Propagation and Translocation Program
Appendix I	Completion Criteria for Key Biometrics of Vegetation Classes and Corresponding BVTs/PCTs Mapped Within the Offset Area
Appendix J	Annual Performance Criteria for Key Biometrics of Vegetation Classes Mapped Within the Offset Area
Appendix K	Offset Area Risk Assessment
Appendix L	Agricultural Suitability Assessment Supplementary Report

Appendix M	Review of Habitat for Regent Honeyeater, Swift Parrot and Corben's Long-eared Bat in the Existing Offset Areas
Appendix N	Maules Creek Coal Mine Additional Offset Areas Habitat Mapping
Appendix O	Biodiversity Corridor (Vegetated Buffer Corridor) Plan

This BMP was prepared in consideration of, among other documents, the *Environmental Management Plan Guidelines* (Cth DCCEEW, 2024).

1.4 RESPONSIBILITIES

MCC is responsible for monitoring, reviewing and implementing the BMP and responsible for biodiversity management on the mine site. On behalf of MCC, the Whitehaven Group Biodiversity Team is responsible for managing, monitoring and implementing the management activities for the external Offset Areas within biodiversity properties. In accordance with Condition 12C(f) of the EPBC Act Approval 2010/5566, Table 1-1 outlines the staff and contractors responsible for managing, monitoring and implementing the offset management activities identified in this BMP and well as the emergency contacts details responsible for managing biodiversity in accordance with this BMP.

Table 1-1
Responsible Parties

MCCM Mine Site Key Contact	MCCM Offset Areas Key Contact
Attention: MCC Superintendent - Environment mccenvironment@whitehavencoal.com.au and 0447 908 585	Attention: Whitehaven Group Superintendent - Biodiversity biodiversity@whitehavencoal.com.au and 0488 407 000

Organisation	Position	Status	Responsibilities
Whitehaven MCC	Group Manager/ General Manager	Employee	Obtain and provide adequate resources for the Group Superintendent - Biodiversity to implement this BMP.
Whitehaven - MCC	Group Superintendent - Biodiversity	Employee	To authorise this BMP and undertake associated compliance and reporting requirements. Implement the overall biodiversity strategy for the offset areas. Coordinate and supervise biodiversity management and monitoring activities on the offset areas.
Whitehaven - MCC	Biodiversity Specialist and Field Officers	Employees	Support the Group Superintendent - Biodiversity and supervise biodiversity management and monitoring activities on the offset areas.
Pest Management Consultant/ Contractor	Scientists and Field Technicians	Contractors	Undertake biodiversity management activities as directed by the Group Superintendent - Biodiversity and Biodiversity Specialist /Field Officers for feral and pest animal monitoring and management/control.
Land Management	Field Operators and Technicians	Contractors	Undertake biodiversity management activities as directed by the Group Superintendent - Biodiversity and Biodiversity

Organisation	Position	Status	Responsibilities
and Weed Spraying Contactor			Specialist /Field Officers for weed spraying, habitat augmentation, threatened species, revegetation ground preparation and other minor earthworks and waste/infrastructure removal, plus tree planting and maintenance activities.
Fire and Ecological Burn Contractor	Fire Fighters and Controlled Burn Practitioners	Contractors	Undertake biodiversity management activities as directed by the Group Superintendent - Biodiversity and Biodiversity Specialist /Field Officers for fire management planning, hazard reduction management and ecological burn implementation.
Ecological Consultant	Ecologists	Contractors	Undertake monitoring as directed by the Group Superintendent - Biodiversity and Biodiversity Specialist/Field Officers for threatened species and ecological communities assessment and flora/fauna surveys.

* Role/responsibilities can vary over time based on ongoing performance, compliance and commercial aspects that change as required.

1.5 CONSERVATION AND BIODIVERSITY BOND

MCC is responsible for funding the offset area management activities described in this BMP. In accordance with Condition 55 of Schedule 3 of PA 10_0138 and Condition 4 of EPBC Act Approval 2010/5566, the offset areas have an approved Conservation and Biodiversity Bond with the NSW Department of Planning, Housing and Infrastructure (DPHI). The Conservation and Biodiversity Bond ensures that the MCCM Biodiversity Offset Strategy could be implemented in accordance with the applicable performance and completion criteria if MCC were unable to continue to manage the offset areas. The sum of the Conservation and Biodiversity Bond is determined by calculating the full cost of implementing the MCCM Biodiversity Offset Strategy (other than land acquisition costs) and by employing a suitably qualified quantity surveyor to verify the calculated costs, to the satisfaction of the NSW Planning Secretary.

The latest Conservation and Biodiversity Bond value (February 2025) was calculated at $27,079,314.27, and verified by an independent suitably qualified quantity surveyor. The Conservation and Biodiversity Bond will be updated annually to account for findings made and a revised bond lodged. In accordance with Condition 55 of Schedule 3 of PA 10_0138, within 6 months of approval of any revision to the Biodiversity Management Plan, MCC will review and update the Conservation and Biodiversity Bond as necessary. The sum of the bond will include all management measures prescribed within this BMP and is based on third party rates for fencing, fire management, weed management, feral animal control, seed collection, replanting/revegetation, monitoring, auditing and reporting. Once the revised bond is lodged with NSW DPHI, MCC will notify the Cth DCCEEW (including providing the independent third-party report of the suitably qualified quantity surveyor) of the updated bond amount.

If the Biodiversity Offset Strategy is completed generally in accordance with the completion criteria in the BMP to the satisfaction of the Planning Secretary, the Planning Secretary will release the Conservation and Biodiversity Bond. If the Biodiversity Offset Strategy is not completed generally in accordance with the completion criteria in the BMP, the Planning Secretary will call in all or part of the conservation bond and arrange for the satisfactory completion of the relevant works. In accordance with Condition 55 of Schedule 3 of PA 10_0138, alternative funding arrangements for long term management of the Biodiversity Offset Strategy, such as provision of capital and management funding as agreed by

Biodiversity, Conservation and Science (BCS) Directorate as part of a Biobanking or Biodiversity Stewardship Agreement or transfer to conservation reserve estate, can be used to reduce the liability of the Conservation and Biodiversity Bond.

1.6 OFFSET AREA DIVESTMENT

As noted in the above section regarding the transfer to conservation reserve estate, the long-term securement for the MCCM offset areas will be for the ownership to be divested at an appropriate time in the future to another organisation best placed for in perpetuity management of lands for biodiversity conservation and restoration. One such divestment option that has been considered in the Approvals is the transfer to conservation reserve estate managed by NSW National Parks and Wildlife Service (NPWS). In a letter dated 16 August 2017, NPWS advised MCC of its interest in the transfer and reservation of offset areas including Wirradale and Wongala South, Mt Lindesay, Roseglass and Bimbooria, subject to payment of an in perpetuity management fee and based on a certain standard of biodiversity and property condition (i.e. fencing and fire trials constructed, advanced revegetation, infrastructure/waste removed and hazardous/contaminated material remediated). At the time, due to the elongated transfer period and imminent EPBC Act Approval 2010/5566 offset area securement due date, it was agreed to defer further transfer negotiations until after offset area securement had been achieved via conservation agreements. The NSW Biodiversity Conservation Trust (BCT) have advised that on 19 March 2024 the final offset area Conservation Agreement was registered on title and that all of the MCCM offset area was now secured in perpetuity; therefore MCC will reengage with NPWS regarding transfer to conservation reserve estate of those offset areas in respect of which NPWS has previously shown interest in, and to discuss if NPWS would now have interest in other MCCM offset areas.

MCC will seek endorsement from DPHI, the NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW) and Cth DCCEEW when a transfer agreement is executed with NPWS, and this BMP will be revised accordingly. For any offset areas not transferred to conservation reserve estate for in perpetuity management by NPWS, MCC will continue to be responsible for the ongoing management in accordance with this BMP until another appropriate organisation best placed for in perpetuity management of lands for biodiversity conservation and restoration is identified (and suitable arrangements are made with that organisation for transfer of such responsibilities).

1.7 CONSULTATION

A draft of this BMP was provided to all of the below listed stakeholders in June 2024 for comment on those parts of the BMP which are relevant to the stakeholder:

- DPHI;
- BCS;
- Cth DCCEEW;
- North West Local Land Services; and
- MCCM Community Consultative Committee (CCC).

Comments have been received from BCS, Cth DCCEEW, North West Local Land Services and the CCC. All comments have been considered and addressed in this version of the BMP.

2 REQUIREMENTS FOR THE BIODIVERSITY MANAGEMENT PLAN

The State PA 10_0138 and Commonwealth EPBC Act Approval 2010/5566 have informed the structure and scope of this BMP. The key relevant conditions of PA 10_0138 are listed in Section 2.1 and the key relevant conditions of EPBC Act Approval 2010/5566 are listed in Section 2.2.

2.1 KEY RELEVANT STATE APPROVAL CONDITIONS

Conditions of PA 10_0138 relevant to this BMP are detailed in Table 2-1, together with a reference to where these conditions are addressed in this BMP.

Table 2-1
Project Approval 10_0138 Requirements

<table>
<tr><th>Condition Number</th><th colspan="3">Condition</th><th>Relevant BMP Section</th></tr>
<tr><td colspan="5">SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS</td></tr>
<tr><td colspan="5">Biodiversity Offset Strategy</td></tr>
<tr><td rowspan="20">44</td><td colspan="3">The Applicant must implement the biodiversity offset strategy summarised in Table 16 to the satisfaction of the Planning Secretary.</td><td rowspan="20">Sections 4.1 and 5</td></tr>
<tr><td colspan="3">Table 16: Summary of the Biodiversity Offset Strategy</td></tr>
<tr><td>Offset Area</td><td>Offset Type</td><td>Nominal Size of the Offset Area (ha)</td></tr>
<tr><td>Kelso</td><td rowspan="17">Existing native woodland/forest of approximately 10,547.8 ha to be protected and enhanced (including approximately 4,114.4 ha of Box-Gum Woodland [woodland form] and approximately 17.6 ha of Belah Woodland).
Restoration of woodland/forest within approximately 4,327 ha of derived native grassland and/or cleared land (including approximately 1,518 ha of Box-Gum Woodland CEEC [grassland form] and approximately 5 ha of Belah Woodland).</td><td>489</td></tr>
<tr><td>Velyama</td><td>703</td></tr>
<tr><td>Louenville</td><td>213</td></tr>
<tr><td>Teston South</td><td>336</td></tr>
<tr><td>Wollandilly</td><td>804</td></tr>
<tr><td>Thornfield</td><td>171</td></tr>
<tr><td>Onavale</td><td>558</td></tr>
<tr><td>Roseglass</td><td>1,465</td></tr>
<tr><td>Bimbooria</td><td>623</td></tr>
<tr><td>Wirradale and Wongala South</td><td>4,447</td></tr>
<tr><td>Mount Lindesay</td><td>2,337</td></tr>
<tr><td>Triangle</td><td>742</td></tr>
<tr><td>Neranghi North</td><td>567</td></tr>
<tr><td>Coonoor</td><td>574</td></tr>
<tr><td>Long Gully</td><td>353</td></tr>
<tr><td>Teston North</td><td>205</td></tr>
<tr><td>Tralee</td><td>294</td></tr>
<tr><td></td><td>Subtotal</td><td>14,881</td></tr>
</table>

Table 2-1 (Continued)
Project Approval 10_0138 Requirements

Condition Number	Condition			Relevant BMP Section
SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS				
Biodiversity Offset Strategy (Continued)				
44 (Cont.)	*Rehabilitation Area*	*Except for the area of the minimised final void, pre-mining native vegetation communities to be re-established (including 544 ha of Box-Gum Woodland CEEC) for a biodiversity conservation land use objective, with the area subject to finalisation of the Rehabilitation Management Plan as required under this approval.* *Note: the final mix and area of native vegetation communities is subject to the Rehabilitation Management Plan.*	*2,078* *(less the area of the minimised void approved under the closure plan required under this approval)*	Section 3.4
		Total	***16,959***	
Security of Offsets				
45	*By 30 March 2025, unless otherwise agreed by the Planning Secretary, the Applicant must make suitable arrangements to secure in perpetuity the Long Gully, Triangle, Neranghi North and Coonoor offset areas identified in Table 16, to the satisfaction of the Planning Secretary.* *Note: All other biodiversity areas in Table 16 have been secured under conservation agreements*			Sections 2.3.1 and 4.1
45A	*By the end of December 2034 unless otherwise agreed by the Planning Secretary, the Applicant must make suitable arrangements to secure in perpetuity the Rehabilitation Area identified in Table 16, to the satisfaction of the planning Secretary.*			Section 3.4
Agricultural Production in Offset Areas				
46	*Offset areas are to be managed primarily for the purposes of compensating for biodiversity impacts of the project, and improving regional biodiversity outcomes. However, to the extent that limited agricultural production on the lots purchased for offsets is compatible with these objectives, the Biodiversity Management Plan and other conditions of this approval, the Applicant must:*			Section 5.12 and Appendix K
	(a) include in the Biodiversity Management Plan (see condition 52 below) an agricultural suitability assessment of surplus land on the offset properties, in particular for proposed corridor enhancement zones; and			
	(b) maintain the agricultural productivity of the surplus areas.			
47	*For the vegetated buffer corridor required to be retained and protected under condition 7 of schedule 2 of this approval, the Applicant must:*			Section 3.14, Figure 2
	(a) use its best endeavours to work cooperatively with the Applicant of the Boggabri Coal Project to enhance the functioning of the area as a biodiversity corridor; and			
	(b) include in the Biodiversity Management Plan (see condition 52 below) the details as to how impacts on the corridor are to be minimised, to the satisfaction of the Planning Secretary.			

Table 2-1 (Continued)
Project Approval 10_0138 Requirements

Condition Number	Condition	Relevant BMP Section
SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS		
Threatened Species		
48	*For the White Box – Yellow Box – Blakely's Red Gum Grassy Woodland Endangered Ecological Community the Applicant must:*	Sections 2.3.3, 5 and Appendix A
	(a) ensure that the Biodiversity Offset Strategy and site Rehabilitation Strategy is focused on protection rehabilitation, re-establishment and long-term maintenance of viable stands of this community;	
	(b) investigate in consultation with BCS and the North West LLS, all factors likely to enhance or impede the effective long term restoration of degraded remnants of this EEC in offset areas or regeneration of this EEC on disturbed areas (both offset areas and the site);	
	(c) within 24 months of the date of this approval (and if possible in conjunction with Stage 2 of the Leard Forest Mining Precinct Regional Biodiversity Strategy), submit a report of this investigation and provide an implementation plan to maximise the prospects for rehabilitation and regeneration of this EEC on the offset areas and the site, for approval by the Planning Secretary; and	
	(d) incorporate the approved implementation plan into the revised Biodiversity Management Plan, required under condition 52.	
49	*For all threatened species on site, the Applicant must ensure that the Biodiversity Offset Strategy and Rehabilitation Strategy are focused on protection, rehabilitation and long-term maintenance of viable stands of suitable habitat for these species.* *Note: the threatened fauna species on site include: Regent Honeyeater, Fork Tailed Swift, White Throated Needletail, Rainbow Bee-eater, Satin Flycatcher, Speckled Warbler, Swift Parrot, Brown Treecreeper, Diamond Firetail, Grey-crowned Babbler, Hooded Robin, Little Lorikeet, Varied Sittella, White-browed Woodswallow, Black Chinned Honeyeater, Painted Honeyeater, Little Eagle, Spotted Harrier, Black Necked Stork, Square Tailed Kite, Turquoise Parrot, Barking Owl, Masked Owl, Eastern False Pipistrelle, Greater Long-eared Bat, Yellow-bellied Sheath Tail Bat, Eastern Cave Bat, Eastern Bent-wing Bat, Little Pied Bat and Koala.*	Sections 4.6 and 5
50	*The Applicant must:*	Sections 2.3.3, 5 and Appendix A
	(a) investigate, in consultation with BCS and the North West LLS, all factors likely to enhance or impede the effective long term provision of suitable habitat(s) for the following species: Regent Honeyeater, Speckled Warbler, Brown Treecreeper, Diamond Firetail, Grey-crowned Babbler, Hooded Robin, Little Lorikeet, Varied Sittella, Black Chinned Honeyeater, Painted Honeyeater, Little Eagle, Spotted Harrier, Turquoise Parrot, Barking Owl, Masked Owl, Eastern False Pipistrelle, Greater Long-eared Bat, Yellow-bellied Sheath Tail Bat and Little Pied Bat;	
	(b) within 24 months of the date of this approval (and if possible, in conjunction with Stage 2 of the Leard Forest Mining Precinct Regional Biodiversity Strategy), submit a report of this investigation and provide an implementation plan to ensure delivery of suitable areas of viable habitat for the species included in (a) above, for approval by the Planning Secretary; and	
	(c) incorporate the approved implementation plan into the revised Biodiversity Management Plan, required under condition 52.	

Table 2-1 (Continued)
Project Approval 10_0138 Requirements

Condition Number	Condition	Relevant BMP Section
SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS		
Biodiversity Management Plan		
52	*The Applicant must prepare and implement a Biodiversity Management Plan for the project to the satisfaction of the Planning Secretary. This plan must:* *(a) be prepared in consultation with BCS, Commonwealth DCCEEW, CCC, and the North West LLS, and be submitted to the Planning Secretary for approval prior to commencement of construction;*	Section 1.7
	(b) describe how the implementation of the biodiversity offset strategy would be integrated with the overall rehabilitation of the site.	Section 3.4
	(c) describe the short, medium, and long term measures that would be implemented to: - *manage the remnant vegetation and habitat on the site and in the offset area/s (if and when applicable); and* - *implement the biodiversity offset strategy (if and when applicable), including detailed performance and completion criteria;*	Sections 3 and 5
	(d) include detailed performance and completion criteria for evaluating the performance of the biodiversity offset strategy, and triggering remedial action (if necessary);	Sections 5.16 and 5.18
	(e) include a detailed description of the measures that would be implemented including the procedures to be implemented for:	
	- *enhancing the quality of existing vegetation and fauna habitat;* - *restoring native vegetation and fauna habitat on the biodiversity areas and rehabilitation area through focusing on assisted natural regeneration, targeted vegetation establishment and the introduction of naturally scarce fauna habitat features;*	Section 5
	- *maximising the salvage of resources within the approved disturbance area – including vegetative, top and sub-soils and cultural heritage resources – for beneficial reuse in the enhancement of the biodiversity areas or rehabilitation area;*	Sections 3.1.5, 3.1.6 and 5.6
	- *collecting and propagating seed;*	Sections 3.3 and 5.3
	- *minimising the impacts on fauna on site, including undertaking pre-clearance surveys;*	Section 3.1
	- *improving the connectivity and corridor function of the offset areas to provide an east/west corridor to the Namoi River and demonstrating that this corridor is enhanced and maintained;*	Section 5.4
	- *managing any potential conflicts between the proposed restoration works in the biodiversity areas and any Aboriginal heritage values (both cultural and archaeological);*	Section 5.7
	- *managing salinity;*	Sections 3.4 and 5.11
	- *controlling weeds and feral pests;*	Sections 3.5, 3.6, 5.8 and 5.9
	- *controlling erosion;*	Sections 3.7 and 5.11

Table 2-1 (Continued)
Project Approval 10_0138 Requirements

Condition Number	Condition	Relevant BMP Section
SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS		
Biodiversity Management Plan (Continued)		
52 (Cont.)	- *managing grazing and agriculture on site, including detailed assessment of the suitability of grazing for conservation management outcomes;*	Sections 3.8 and 5.12, Appendix K
	- *controlling access; and*	Sections 3.9 and 5.13
	- *bushfire management.*	Sections 3.11 and 5.14
	(f) include a seasonally based program to monitor and report on the effectiveness of these measures, and progress against the detailed performance and completion criteria.	Sections 3.13, 5.17 and 6
	(g) identify the potential risks to the successful implementation of the biodiversity offset strategy and include a description of the contingency measures that would be implemented to mitigate against these risks.	Section 5 (including, in particular, Section 5.18), Appendix J
	(h) include details of who would be responsible for monitoring, reviewing, and implementing the plan.	Section 1.4
	Note: The Biodiversity Management Plan and Rehabilitation Management Plan need to be substantially integrated for achieving biodiversity objectives for the rehabilitated mine-site.	Section 3.4
Conservation Bond		
55	*Within 6 months of approval of any revision to the Biodiversity Management Plan required under condition 52 above, the Applicant must review and update as necessary the Conservation and Biodiversity Bond lodged with the Department to ensure that the biodiversity offset strategy is implemented in accordance with the performance and completion criteria of the Biodiversity Management Plan. The sum of the bond must be determined by:*	Section 1.5
	(a) calculating the full cost of implementing the biodiversity offset strategy (other than land acquisition costs); and	
	(b) employing a suitably qualified quantity surveyor to verify the calculated costs, to the satisfaction of the Planning Secretary.	
	If the biodiversity offset strategy is completed generally in accordance with the completion criteria in the Biodiversity Management Plan to the satisfaction of the Planning Secretary, the Planning Secretary will release the bond. *If the biodiversity offset strategy is not completed generally in accordance with the completion criteria in the Biodiversity Management Plan, the Planning Secretary will call in all or part of the conservation bond and arrange for the satisfactory completion of the relevant works.* *With the agreement of the Planning Secretary, this bond may be combined with rehabilitation security deposit administered by the Resources Regulator.*	
	Note: Alternative funding arrangements for long term management of the Biodiversity Offset Strategy, such as provision of capital and management funding as agreed by BCS as part of a Biobanking or Biodiversity Stewardship Agreement or transfer to conservation reserve estate can be used to reduce the liability of the conservation and biodiversity bond.	

Table 2-1 (Continued)
Project Approval 10_0138 Requirements

Condition Number	Condition	Relevant BMP Section
SCHEDULE 3: ENVIRONMENTAL PERFORMANCE CONDITIONS		
Biodiversity Audit		
56	*By the end of December 2017 and then every 5 years, unless the Planning Secretary agrees otherwise, the Applicant must commission suitably qualified, experienced and independent person/s, whose appointment has been approved by the Planning Secretary, to undertake an audit of the revegetation of the rehabilitation area, management and restoration within the Biodiversity Offset Strategy areas to the satisfaction of the Planning Secretary. This audit must:*	Section 6.6.2
	(a) include consultation with BCS, North West LLS, DPHI Crown Lands, Commonwealth DCCEEW, CCC and the Resources Regulator;	
	(b) assess the performance of the revegetation in the rehabilitation area completed to date against the completion criteria in the Rehabilitation Management Plan;	
	(c) assess the performance of management and restoration in the off-site Biodiversity Offset Strategy areas completed to date against the completion criteria in the Biodiversity Management Plan;	
	(d) identify any measures that should be implemented to improve the performance of rehabilitation, management and restoration within the rehabilitation and biodiversity offset areas; and	
56 (Cont.)	*(e) if the completion criteria have not been met, or are not adequately trending towards being met, determine the likely ecological value of the rehabilitation and restoration once completed, and recommend additional measures to augment the Biodiversity Offset Strategy to ensure that it adequately offsets the project's impacts on biodiversity.*	Section 6.6.2
	If the audit recommends the implementation of additional measures to augment the Biodiversity Offset Strategy in accordance with (e) above, then within 6 months of the completion of the audit the Applicant must revise the Biodiversity Offset Strategy, in consultation with the Department, BCS and Commonwealth DCCEEW, and to the satisfaction of the Planning Secretary.	

Table 2-1 (Continued)
Project Approval 10_0138 Requirements

Condition Number	Condition	Relevant BMP Section
SCHEDULE 5: ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING		
3	***Management Plan Requirements*** *The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:*	As identified throughout the BMP, the BMP was prepared in accordance with relevant guidelines such as the *Environmental Management Plan Guidelines* (Cth DCCEW, 2024)
	(a) detailed baseline data;	Section 4
	(b) a description of: - *the relevant statutory requirements (including any relevant consent, licence or lease conditions);* - *any relevant limits or performance measures/criteria;* - *the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;*	Sections 2, 3 and 5
	(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria	Sections 2, 3 and 5
	(d) a program to monitor and report on the: - *impacts and environmental performance of the project;* - *effectiveness of any management measures (see c above);*	Sections 3.13, 5.17 and 6
	(e) a contingency plan to manage any unpredicted impacts and their consequences;	Section 5.18 and Appendix J
	(f) a program to investigate and implement ways to improve the environmental performance of the project over time;	Sections 5.18 and 6
	(g) a protocol for managing and reporting any: - *incidents;* - *complaints;* - *non-compliances with statutory requirements; and* - *exceedances of the impact assessment criteria and/or performance criteria; and*	Section 6
	(h) a protocol for periodic review of the plan.	Section 6

2.2 KEY RELEVANT COMMONWEALTH APPROVAL CONDITIONS

As stated above, this BMP addresses the Offset Management Plan requirements set out in the Commonwealth EPBC Act Approval 2010/5566 (as varied) and will serve as a combined Offset Management Plan for all of the EPBC Act Approval 2010/5566 offset areas.

Key conditions under EPBC Act Approval 2010/5566 that are relevant to the management of the offset areas are presented in Table 2-2 and addressed in Part B of this document.

In addition to the conditions presented in Table 2-2, it is noted that EPBC Act Approval 2010/5566 also contains conditions which regulate the management of biodiversity at, and rehabilitation of, the MCCM site. For example, conditions 1, 2, 3 and 5-8 of EPBC Act Approval 2010/5566 regulate disturbance within the MCCM "project area".

Table 2-2
EPBC Act Approval 2010/5566 Offset Related Requirements

Condition Number	Requirement	Relevant BMP Section
4	*The person taking the action is required to submit a Conservation and Biodiversity Bond under condition 55 of the NSW state government project approval dated 23 October 2012 (Application 10_0138). It is noted that this bond may be combined with the rehabilitation security deposit as required under the NSW Mining Act 1992. The person taking the action must submit details of this bond and the rehabilitation security deposit, to the **Minister**. If the **Minister** is not satisfied that the bond and the rehabilitation security deposit lodged by the person taking the action is adequate to provide for the implementation of the requirements referred to under conditions 3, 12A, 12B, 25-28 the **Minister** may require the person taking the action establish an additional bond or equivalent financial instrument in trust, under conditions approved in writing by the **Minister**.*	Section 1.5
9	*Direct Offsets* *The person taking the action must register a legally binding conservation covenants over offset areas containing, to the satisfaction of the Minister, of no less than:* *(a) 9,334 ha that must be managed to achieve equivalent or better quality of habitat for the regent honeyeater, swift parrot and greater long-eared bat; and* *(b) 5,532 ha of the White Box—Yellow Box—Blakely's Red Gum Grassy Woodland and Derived Native Grassland critically endangered ecological community, that must be managed to achieve equivalent or better quality.* *Note: the 5,532 ha of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland ecological community may be included within the 9,334 ha of offset area for the threatened species if it meets the listing criteria for the EPBC-listed critically endangered ecological community as defined in the EPBC listing advice for that community and the requirements of condition 9.*	Sections 4.3 and 4.5 respectively address the extent of Box-Gum Woodland CEEC and extent of relevant potential habitat within the offset areas. Section 5 provides for the management of the offset areas to achieve the outcomes identified in condition 9.

Table 2-2 (Continued)
EPBC Act Approval 2010/5566 Requirements

Condition Number	Requirement	Relevant BMP Section
10	*The person taking the action must verify through independent review the quantity and condition class of White Box—Yellow Box—Blakely's Red Gum Grassy Woodland and Derived Native Grassland critically endangered ecological community and the quantity and quality of habitat for the regent honeyeater, swift parrot and greater long-eared bat within all offset areas proposed in the Environmental Assessment, as specified at Attachment B of these conditions, and any additional offsets as required under condition 11. Details of all independently verified offset areas proposed in the Environmental Assessment must be submitted to the Minister for approval by 30 December 2013. The findings of the independent review must be published on the website of the person taking the action and remain published until the expiry of this approval.*	Section 4.1
11	*If the independent review finds that the offset areas proposed in the Environmental Assessment do not meet the requirements of condition 9, then additional areas must be included in the offset areas until the independent review finds that the relevant criteria under these conditions are met.*	Section 4.1
11A	*Replacement and new offsets* *For the purpose of condition 9, the offset areas may include additional offset areas to the offset areas which were the subject of independent review under conditions 10 and 11 if:* *(a) the person taking the action submits a report to the Minister for approval, which has been subject to additional independent review, that identifies and verifies the quantity and condition classes of White Box—Yellow Box— Blakely's Red Gum Grassy Woodland and Derived Native Grassland critically endangered ecological community and the quantity and quality of habitat for the regent honeyeater, swift parrot and greater long-eared bat within the additional offset areas;* *(b) that report is submitted to the Minister for approval by 30 June 2022, unless otherwise agreed by the Minister in writing; and* *(c) the Minister has approved that report.* *The person taking the action must publish the report on its website within 30 days of the Minister's approval, unless otherwise agreed by the Minister in writing.*	Section 4.1

Table 2-2 (Continued)
EPBC Act Approval 2010/5566 Requirements

Condition Number	Requirement	Relevant BMP Section
12A	***Offset Management Plans*** *The person taking the action must submit to the **Minister** for approval an Offset management plan for all of the offset areas proposed in the **Environmental Assessment**, specified in Attachment B, within 12 months of this approval. The approved Offset management plan must be implemented for all of the offset areas proposed in the **Environmental Assessment**, specified in Attachment B, and any offset areas agreed as a result of independent verification process as specified in conditions 10 and 11, unless the **Minister** agrees to the removal of any specific properties as an offset area under this approval.* *If, after 31 October 2021, the **Minister** informs the person taking the action that the submitted Offset management plan is not suitable for approval, the **Minister** may, after 30 December 2021, approve a version of the Offset management plan revised by the **Department**.* *Note: for consistency, the person taking the action may develop a Biodiversity Management plan that includes the requirements set for managing offsets and set out in these conditions, to align with the requirements of the NSW state government Project Approval dated 23 October 2012 (application number 10_0138) and this approval.*	The Maules Creek Coal Mine Offset Management Plan (OMP) (5 November 2021) submitted pursuant to this condition was approved by a delegate of the Commonwealth Minister for the Environment on 20 December 2021. This BMP replaces the OMP and serves as a combined OMP for the purpose of this condition and condition 12B.
12B	*The person taking the action must submit to the **Minister** for approval an Additional Offset management plan for the additional offset areas within 6 months of their approval under condition 11A. The person taking the action must implement the approved Additional offset management plan.* *If, after a further 3 months, the **Minister** informs the person taking the action that the submitted Additional Offset management plan is not suitable for approval, the **Minister** may, after a further 3 months, approve a version of the Additional Offset management plan revised by the **Department.*** *Notes:* *(1) for consistency, the person taking the action may develop a Biodiversity Management plan that includes the requirements set for managing offsets and set out in these conditions, to align with the requirements of the NSW state government Project Approval dated 23 October 2012 (application number 10_0138) and this approval.* *(2) with the agreement of the Minister, the person taking the action may combine the Offset management plan and the Additional Offset management plan.*	A draft version of the Additional OMP was submitted to the Cth DCCEEW pursuant to this condition. This BMP serves as a combined OMP for the purpose of this condition and condition 12A.

Table 2-2 (Continued)
EPBC Act Approval 2010/5566 Requirements

Condition Number	Requirement	Relevant BMP Section
12C	*Each offset management plan must include, but not be limited to, the following:*	
	*(a) a text description and map which clearly defines the location and boundaries of the offset areas. This must be accompanied by the **offset attributes** and **shapefiles;***	Section 4.1 and Figure 3 This BMP will be accompanied by the "offset attributes" and "shapefiles".
	*(b) a description of the methodology and results of the surveys measuring the baseline ecological conditions in the offset areas. This must be consistent with the **State and Transition Model** and include but not be limited to:*	Section 4
	i. the extent and condition of all vegetation communities, including a description of the structure, floristics and tree age class representation of each community;	Section 4.2, Figures 5a to 5h, Appendices C and D
	*ii. the extent and **condition class** of all areas of the White Box—Yellow Box—Blakely's Red Gum Grassy Woodland and Derived Native Grassland critically endangered ecological community;*	Section 4.3, Figures 5a to 5h, Appendices C and D
	iii. surveys targeting the regent honeyeater, swift parrot and greater long-eared bat;	Section 4.4
	iv. the extent and quality of all areas of habitat for the regent honeyeater, swift parrot and greater long-eared bat;	Section 4.5, Figures 7a to 7h, Appendices L and M
	v. the location of all survey sites (including co-ordinates);	Appendix E
	vi. photo reference points at survey sites.	Appendix E
	(c) clearly defined ecological management objectives for the offset areas;	Section 5.1
	(d) detailed description of all ecological management activities proposed to be undertaken, including maps and/or diagrams showing areas to be managed and the timing of proposed activities;	Section 5, Figures 6a-g, Figures 7a-h, 8a-h, 9 and 10a-h

Table 2-2 (Continued)
EPBC Act Approval 2010/5566 Requirements

Condition Number	Requirement	Relevant BMP Section
12C (Cont.)	*(e) details of ongoing ecological monitoring programs, performance criteria, targets and provisions for adaptive management, including but not limited to:*	Section 5
	i. a set of measurable ecological indicators for detecting changes to the White Box—Yellow Box—Blakely's Red Gum Grassy Woodland and Derived Native Grassland critically endangered ecological community, including those that may be ascribed to ongoing water stress;	Section 5.16.1
	ii. a monitoring plan to assess the success of the management activities measured against the baseline condition. The monitoring must be statistically robust and able to quantify change in the extent and condition of the White Box—Yellow Box—Blakely's Red Gum Grassy Woodland and Derived Native Grassland critically endangered ecological community and habitat for the Regent Honeyeater, Swift Parrot and Greater Long-eared Bat. This should include the use of control sites and periodic ecological surveys to be undertaken by a qualified ecologist;	Section 5.17, Figures 11a-h
	iii. a list of performance criteria based on the ecological management objectives for the White Box—Yellow Box—Blakely's Red Gum Grassy Woodland and Derived Native Grassland critically endangered ecological community and habitat for the regent honeyeater, swift parrot and greater long-eared bat;	Section 5.16
	iv. measures to exclude weeds from all offset areas for the period covered by this approval;	Section 5.8
	v. a description of the potential risks to successful management against the performance criteria, and a description of the contingency measures that will be implemented to mitigate against these risks;	Section 5.18
	vi. a process by which to report to the department the progress of management activities undertaken in the offset areas and the outcome of those activities, including identifying any need for improved management and activities to undertake such improvement.	Section 6
	(f) details of all parties responsible for management, monitoring and implementing the management activities, including their position or status as separate contractor.	Section 1.4
	(g) details of the funding requirements for the ongoing management activities, including an estimate of the costs of the activities and details of the parties responsible for funding the activities.	Section 1.5
12D	*Unless otherwise agreed to in writing by the **department**, the baseline surveys for threatened species must be undertaken in accordance with the department's Survey Guidelines for Australia's Threatened Birds and the Survey Guidelines for Australian Threatened Bats. Subsequent monitoring must be carried out annually at the same time of year as the baseline surveys unless otherwise agreed to in writing by the **department.***	Sections 4.4 and 5.17.2

Table 2-2 (Continued)
EPBC Act Approval 2010/5566 Requirements

Condition Number	Requirement	Relevant BMP Section
13	***Mechanisms to protect offset areas*** *The mechanism/s for registering a legally binding covenant must provide protection for the offset areas proposed in the **Environmental Assessment** as specified at Attachment B of these conditions, in perpetuity and be registered by 30 June 2021, unless the **Minister** agrees in writing to removal of any specific properties.* *Evidence of compliance with condition 13 must be provided to the **Department** within 30 days of registering a legally binding covenant.* *The person taking the action must report on progress meeting these requirements in each annual compliance report required under condition 34 and as otherwise requested by the **Department**.*	Section 4.1
13A	*For any approved replacement and new offset area, the person taking the action must:*	This BMP serves as a combined OMP for the purpose of this condition and condition 12A.
	(a) implement an approved offset management plan (as per condition 12B);	
	*(b) submit an application to establish legally binding covenants that provide protection for the offsets areas in perpetuity within 60 **business days** of securing the **Minister's** approval of the report prepared pursuant to condition 11A of these approval conditions; and*	Section 4.1
	(c) by 31 March 2024, register the legally binding covenants that provide protection for the offset areas in perpetuity.	
	*The approval holder must report on progress meeting these requirements in each annual compliance report required under condition 34 and as otherwise requested by the **Department**.*	Section 6.3
15	***Indirect Offsets*** *To compensate for the loss of the White Box—Yellow Box—Blakely's Red Gum Grassy Woodland and Derived Native Grassland critically endangered ecological community and habitat for the regent honeyeater, swift parrot and greater long-eared bat the person taking the action must submit to the **Minister** for approval, within 2 years of the date of this approval, a project plan to invest $1 million for research that will identify effective methodologies for achieving rehabilitation and restoration of functioning White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland endangered critically ecological community on mining sites. The research must be undertaken by a third party and be available to industry and governments generally. The approved project plan must be implemented.*	Section 4.1

Table 2-2 (Continued)
EPBC Act Approval 2010/5566 Requirements

Condition Number	Requirement	Relevant BMP Section
16	*To compensate for the loss of the habitat for the regent honeyeater, swift parrot and greater long-eared bat the person taking the action must provide $1.5 million over the life of the approval (comprising $500,000 for each of the regent honeyeater, swift parrot and greater long-eared bat), to deliver activities that implement priority recovery actions for the regent honeyeater, swift parrot and greater long-eared bat. A detailed project plan governing the timing of the $1.5 million funding for the activities and outcomes must be developed. The project plan must be submitted to the **Minister** for approval by 30 April 2017, or otherwise agreed in writing by the **Minister**. The project plan should demonstrate consultation with relevant species experts and be consistent with approved National Recovery Plans where they are available, and as agreed with the relevant Recovery Planning Teams. The approved project plan must be implemented.*	Section 4.1
24	***Leard Forest Mining Precinct Regional Biodiversity Strategy*** *The person taking the action must implement the regional biodiversity strategy as required under condition 41 of the NSW state government project approval dated 23 October 2012 (application number 10_0138). The required scoping report for the development of the strategy must be submitted to the **Minister** for approval on or before 31 July 2013. The approved strategy must be implemented.*	Section 2.3.2
34	*By the end of March of each year after the commencement of the action, the person taking the action must publish a report on their website addressing compliance with the conditions of this approval over the previous 12 months, including implementation of any approved management plans as specified in the conditions. Non-compliance with any of the conditions of this approval must be reported to the **department** at the same time as the compliance report is published.*	Section 6.3
35	*Upon the direction of the **Minister**, the person taking the action 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 must be approved by the **Minister** prior to the commencement of the audit. Audit criteria must be agreed to by the **Minister** and the audit report must address the criteria to the satisfaction of the **Minister.***	Section 6.6.1
36	*If the person taking the action wishes to carry out any activity otherwise than in accordance with the approved plans, as specified in the conditions, the person taking the action must submit to the **department** for the **Minister's** written approval a revised version of that plan. The varied activity shall not commence until the **Minister** has approved the revised plan in writing. The **Minister** will not approve a revised plan, unless the revised plan would result in an equivalent or improved environmental outcome. If the **Minister** approves the revised plan that plan must be implemented in place of the plan originally approved.*	Section 6.5

Table 2-2 (Continued)
EPBC Act Approval 2010/5566 Requirements

Condition Number	Requirement	Relevant BMP Section
37	*If the **Minister** believes that it is necessary or convenient for the better protection of listed threatened species and communities or listed migratory species to do so, the **Minister** may request that the person taking the action make specified revisions to the management plan specified in the conditions and submit the revised plan for the **Minister's** written approval. The person taking the action must comply with any such request.* *The revised approved plan must be implemented. Unless the **Minister** has approved the revised plan then the person taking the action must continue to implement the originally approved plan, as specified in the conditions,*	Section 6.5
39	***Publication of plans*** *The person taking the action must maintain accurate records substantiating all activities and outcomes associated with or relevant to the above conditions of approval, including measures taken to implement the management plans 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 Environment Protection and Biodiversity Conservation Act 1999 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.*	Section 6.1
40	*Unless otherwise agreed to in writing by the **Minister,** the person taking the action must publish all approved management plans referred to in these conditions of approval on their website. Each management plan must be published on the website within 1 month of being approved and remain published until the expiry of the approval.*	Section 6.2 (see https://whitehavencoal.com.au/our-business/our-assets/maules-creek-mine/)

Relevant definitions include:

Condition class *– One of three states in which the White Box—Yellow Box—Blakely's Red Gum Grassy Woodland and Derived Native Grassland critically endangered ecological community may exist, as defined within the Commonwealth listing advice for the listing of this ecological community as critically endangered under the EPBC Act.*

Equivalent or better quality *means:*

a. for the White Box—Yellow Box—Blakely's Red Gum Grassy Woodland and Derived Native Grassland critically endangered ecological community:

i. offset areas meet the definition of the critically endangered ecological community described in the listing advice;

*ii. offset areas are of an overall equivalent or better **condition class** than the areas of White Box—Yellow Box—Blakely's Red Gum Grassy Woodland and Derived Native Grassland being cleared within the **project area**; and*

*iii. based on the proportion of each **condition class** represented and other relevant ecological attributes.*

b. for the threatened species:

*i. the overall quality of the **habitat** within the offset areas, taking account of the ecological requirements for the relevant threatened species, is equivalent to or better than the areas of relevant **habitat** being cleared within the **project area**.*

Habitat *– areas in which a species or community is known to occur or is thought to have the potential to occur based on the biophysical conditions prevailing in the area and the ecological requirements of the species or community*

Tylophora linearis, a small twining plant, was identified within the MCCM Project Boundary during pre-clearing flora surveys in 2014. The Commonwealth Department of the Environment (DotE) (now Cth DCCEEW) was notified in 2014 that *Tylophora linearis* had been found and MCC was requested to revise the then OMP to reflect the compensatory measures being undertaken for *Tylophora linearis* in accordance with Conditions 32 and 37. Accordingly, this BMP describes relevant measures for *Tylophora linearis* in accordance with the *Maules Creek Tylophora linearis Offset Package* (Hunter Eco Pty Ltd [Hunter Eco], 2021) approved on 28 September 2021 (Appendix F).

2.3 RELEVANT ENVIRONMENTAL MANAGEMENT PLAN GUIDELINES

As stated above, this BMP was prepared in consideration of the *Environmental Management Plan Guidelines* (Cth DCCEEW, 2024). The relevant environmental management plan guidelines are presented in Table 2-3.

Table 2-3
Environmental Management Plan Guidelines

Guideline	Relevant BMP Section
GENERAL PRINCIPLES FOR THE PREPARATION OF AN ENVIRONMENTAL MANAGEMENT PLAN	
Key principles	
An environmental management plan should:	
• *be balanced, objective and concise*	Throughout this BMP
• *state any limitations that apply, or should apply, to the use of the information in the environmental management plan*	None
• *identify any matter in relation to which there is a significant lack of relevant information or a significant degree of uncertainty*	None
• *include adaptive management strategies for managing uncertainty*	Section 5.18
• *be written in a way that is easily understood by other parties*	Throughout this BMP
• *clearly present how conclusions about risks have been reached*	Section 5.18 and Appendix J
• *ensure that the person taking the action takes full responsibility for the content and commitments contained in the plan.*	Section 1.4
Including commitments in management plans	
• *All commitments must be specific and auditable with measurable outcomes and clear timeframes.*	Throughout this BMP
• *To ensure readability, write clearly and avoid long sentences with complex clauses.*	
• *Always use the terms 'will' and 'must', rather than 'should' or 'may' when committing to carry out management actions.*	
• *Avoid use of ambiguous terminology such as 'where possible', 'as required', 'to the greatest extent possible'. If it is necessary to include ambiguous terminology, it should be explained and examples given.*	
• *Clearly explain any technical terms or acronyms used, and/or define them in a glossary.*	
It is also important that commitments or statements within the management plan are consistent with other relevant management plans or conditions of approval.	

Table 2-3 (Continued)
Environmental Management Plan Guidelines

Guideline	Relevant BMP Section
GENERAL PRINCIPLES FOR THE PREPARATION OF AN ENVIRONMENTAL MANAGEMENT PLAN (Continued)	
Cross-referencing	
Where the plan refers to material in other documents, it should include cross-references that are clear, complete and that specify the document version and date. Use tables, diagrams and maps where their inclusion would provide a better understanding and implementation of the management plan. Link all tables, diagrams and maps into the text through cross-referencing.	Throughout this BMP and Section 7
CONTENT OF THE ENVIRONMENTAL MANAGEMENT PLAN	
Cover page and declaration of accuracy	
Cover page detailing:	Cover Page
• *EPBC number*	
• *project name*	
• *proponent /approval holder and ACN or ABN*	
• *the proposed/approved action*	
• *location of the action*	
• *date of preparation of the environmental management plan*	
• *person accepting responsibility for the environmental management plan – signed declaration (see below).*	Section 1.4
Document version control	
The document version control should be a simple system that ensures that details of all key changes to the document over time are properly recorded. Identified changes should include details of timings, persons responsible and reasons for changes.	Page i
Table of contents	
Table of contents page detailing:	Table of Contents
• *all section headings and page numbers*	
• *all figures, tables, plans and maps (should be numbered)*	
• *all appendixes (with meaningful titles, including for sub-appendixes if any). If the appendixes contain a collation of data, include summary of the contents.*	
Executive summary or introduction	
The executive summary should note the key elements of the project, the purpose of the document, the main potential impacts and the primary strategies planned to address these impacts.	Section 1.2
Conditions of approval reference table	
When an environmental management plan is prepared after the project has been approved under the EPBC Act, the management plan should include a table detailing the information noted below:	
• *The EPBC Act approval condition requirements the plan is intended to address. These are best presented broken down into each of the individual actions that the conditions require.*	Table 2.2
• *The section and page numbers which address the approval conditions.*	Section 2.2
• *A summary of the key commitments relating to each of the approval conditions.*	Section 5.16

Table 2-3 (Continued)
Environmental Management Plan Guidelines

Guideline	Relevant BMP Section
CONTENT OF THE ENVIRONMENTAL MANAGEMENT PLAN (Continued)	
Project description	
The environmental management plan should provide a description of the project as this provides context for the plan. The location of all project actions should be described and a map showing their location provided. Basic information on the environment at these locations should also be included as this helps provide the environmental context to which the environmental management plan applies. The plan should include a description of the activities that will be undertaken as part of the project including project details relevant to any approval conditions and with potential impacts on matters protected under the EPBC Act. The plan should distinguish between construction and operational activities, if relevant. A schedule of intended commencement and completion dates should be provided. Projects undertaken in stages should identify each stage in the schedule. Contingency schedules can also be included along with examples of events that could result in the use of the contingency schedules.	Section 1
Objectives	
The environmental outcomes of the plan should be defined. These should be tailored to the environmental issues outlined in the plan.	Section 1.2
Environmental management roles and responsibilities	
Once an action is approved, the approval holder is responsible for complying with the conditions of approval, including the commitments made in environmental management plans. The plan should define the roles and responsibilities of personnel in charge of the environmental management of the project. The roles and responsibilities of each relevant position should be documented, including the responsibilities of subcontractors. The names of the responsible personnel do not need to be included. Identification of the position titles, roles and responsibilities is sufficient. If the roles and responsibilities are expected to change over time the long-term variations should also be documented.	Section 1.4
Reporting	
An environmental management plan will usually require reporting arrangements for two purposes. Reporting arrangements assist with effective implementation and with external reporting. External reports may include reports on environmental incidences to the regulator, reports to stakeholders, reports to inform reviews of the plan and reports to meet the reporting requirements of the conditions of approval.	Sections 6.3
The description of reporting requirements should include:	
• *a list of required reports including where appropriate monitoring, environmental incidents, non-compliance, corrective action and auditing*	
• *a description of the standard report content*	
• *the schedule or triggers for preparing a report*	
• *who the report is provided to*	
• *document control procedures.*	
Reporting commitments should also be consistent with any reporting to us required by the conditions of approval.	
Environmental Training	
All people involved with the project should receive relevant environmental training to ensure they understand their responsibilities when implementing the environmental management plan. People to be trained include those at the site/s of all project activities and operations, including contractors, subcontractors and visitors. The training should be tailored to the role of the individual in the project.	Sections 3.12 and 6.9

Table 2-3 (Continued)
Environmental Management Plan Guidelines

Guideline	Relevant BMP Section
CONTENT OF THE ENVIRONMENTAL MANAGEMENT PLAN (Continued)	
Environmental Training (Continued)	
The environmental management plan should describe the training to be implemented and could include:	Sections 3.12 and 6.9
• *site inductions*	
• *identification of key points of environmental value and any relevant matters of national environmental significance*	
• *understanding the requirements of the environmental management plan and the individual's role*	
• *environmental incident emergency response procedures*	
• *site environmental controls*	
• *an outline of the potential consequences of not meeting their environmental responsibilities.*	
Records of all training conducted should be maintained and include:	
• *the person receiving the training*	
• *the date the training was received*	
• *the name of the person conducting the training*	
• *a summary of the training.*	
Emergency contacts and procedures	
The environmental management plan should identify the key emergency contacts responsible for managing environmental emergencies associated with the project and their contact details. These personnel should have the power to stop and direct works so that they can manage emergencies effectively. In addition, the plan should establish procedures for managing environmental emergencies and ensure that those procedures are implemented and maintained.	Sections 1.4, 6.10, 6.11 and 6.12
Potential environmental impacts and risks	
Threats to matters protected under the EPBC Act	Section 2.4.3
The environmental management plan should summarise all the identified threats to matters protected under Part 3 of the EPBC Act in the management plan. The matters protected by the EPBC Act include:	Section 5.18
• *the 9 matters of national environmental significance (listed in Appendix A)*	Appendix A
• *the environment in general (for actions by Commonwealth agencies or actions on Commonwealth land) or the environment on Commonwealth land (for actions outside Commonwealth land).*	
The plan should refer to relevant information provided in the EPBC Act assessment documentation, such as an environmental impact statement or preliminary documentation. If the project has already been approved, the plan should detail all new information relevant to the conditions placed on the approval. The key sensitivities of the environmental values potentially impacted by the action should be identified.	
Potential impacts	
The potential impacts section of the plan should focus on identifying, locating and quantifying the potential impacts (direct and indirect) of the project on the matters protected by the EPBC Act. It should discuss:	
• *the relevant impacts of the project*	
• *the nature and extent of the potential short-term and long-term effects*	
• *any uncertainties regarding the predicted impacts.*	
This may include a summary of any relevant information previously provided in assessment documentation, such as an environmental impact statement or preliminary documentation.	

Table 2-3 (Continued)
Environmental Management Plan Guidelines

Guideline	Relevant BMP Section
CONTENT OF THE ENVIRONMENTAL MANAGEMENT PLAN (Continued)	
Potential environmental impacts and risks (Continued)	
Impacts from relevant stages of the action (for example, pre-construction, construction and operation) should be delineated in this section and should reflect the relevant conditions of approval. It may be necessary to divide the potential impacts into subsections reflecting the stages of the project.	
Risk assessment *Once the potential impacts of the proposal are clearly identified a risk assessment should be undertaken for each potential impact. This means that the likelihood and consequences of each potential impact need to be estimated. An example of a methodology for risk assessment is at Evaluating risk.* *The function of the risk assessment is not to repeat or supersede the original assessment of a project or its conditions of approval. Rather it is to ensure that these risks are effectively translated into actual mitigation and management actions. Impacts with higher risk ratings usually require more management actions and controls. This minimises the likelihood of the risk occurring and reduces the consequences to acceptable levels.*	Appendix J
Environmental management measures	
The environmental management plan should clearly state how the potential impacts of the proposal will be managed and this information usually forms the bulk of the content of the plan. For each potential impact, the plan should address: • *environmental management activities, controls and performance targets* • *environmental management maps and diagrams* • *monitoring programs with trigger values for corrective actions* • *corrective actions and non-compliance reporting* • *environmental schedules* *These topics are described in more detail below. It is helpful if management plans present the information on these topics for one potential impact at a time. This ensures that all the management measures for each potential impact are in the same section of the document and easy to locate.*	Section 5
Environmental management activities, controls and performance targets *The environmental management plan should describe all the environmental management activities and control measures that will be implemented to avoid or minimise environmental impacts. The description of each measure should also specify the timeframes for implementation and the performance targets or outcomes to be achieved. The timing of measures is often best presented in a timetable. Performance targets and outcomes should be quantitative and auditable.*	Sections 5.16 and 5.17
Environmental management maps and diagrams *Environmental management maps and diagrams are useful visual tools that aid in environmental management activities. Maps can provide useful spatial information about areas that require environmental management. Diagrams can illustrate the design of environmental control measures and the flow of environmental management procedures. For example, a map could be used to show:* • *environmentally sensitive areas on or near a project site* • *vegetation that requires protection* • *buffer zones or 'no-go zones'* • *monitoring locations.*	Figures throughout the BMP

Table 2-3 (Continued)
Environmental Management Plan Guidelines

Guideline	Relevant BMP Section
CONTENT OF THE ENVIRONMENTAL MANAGEMENT PLAN (Continued)	
Environmental management measures (Continued)	
Environmental monitoring *The environmental management plan should specify how the effectiveness of environmental management measures will be monitored. It should include the methodology, frequency and duration of monitoring activities. It should also include trigger values or conditions under which corrective actions are taken. The plan should also specify if, and when, follow up action is required and how monitoring records will be maintained.*	Sections 5.16 and 5.17
Corrective actions *The environmental management plan should include procedures for addressing:* • *monitoring results which exceed the trigger values for corrective action* • *potential corrective actions* • *reporting non-compliance with approval conditions to the relevant authority* • *environmental incidents and emergencies.*	Section 5.18 Section 6
The plan should also identify who is responsible for implementing the above procedures. Auditable systems should be developed for recording the implementation of these procedures and their outcomes.	Section 1.4
Audit and review	
Environmental auditing *The environmental management plan should include the schedule or triggers for auditing the implementation and effectiveness of the plan. It should address both internal and external audit requirements including who is responsible for undertaking the audits and reporting the results.*	Section 6.7
Environmental management plan review *The environmental management plan should specify the schedule or triggers for reviews of the plan. A review should assess whether the plan is achieving its objectives and the requirements of any relevant approval conditions. A review should take into account environmental monitoring records, corrective actions and the results of any audits. The plan should also identify who will be responsible for undertaking the review. During the review process, any reasons for varying the environmental management plan should be documented.*	Sections 6.4 and 6.5
Review of an environmental management plan would typically be undertaken: • *following significant environmental incidents* • *when there is a need to improve performance in an area of environmental impact* • *periodically for actions undertaken over long timeframes such as one, two or five years.*	Section 6.7
However, if the person taking the action wishes to carry out any activity other than in accordance with the approved management plan specified in the approval conditions, the person taking the action is usually required to submit to us for the Minister's written approval a revised management plan. In these cases, the varied activity should not commence until the Minister has approved the varied management plan in writing. As a guiding principle, the Minister will not approve a varied management plan unless the revised management plan would result in an equivalent or improved environmental outcome over time.	Section 6
Glossary	
This should include any acronyms, all terms which are open to different interpretations or terms which are not in common use. Terms which are defined in the approval conditions should retain the same meaning as that used in the conditions.	Page viii

Table 2-3 (Continued)
Environmental Management Plan Guidelines

<table>
<tr><th>Guideline</th><th>Relevant BMP Section</th></tr>
<tr><td colspan="2">EVALUATING RISK</td></tr>
<tr><td>The following section sets out a qualitative risk assessment methodology that can be applied to the environmental risks associated with a wide range of projects. It is provided as an example of one approach to risk assessment and the Department does not require that this particular approach be used when preparing an environmental management plan. Further guidance on evaluating and managing risk can be found in AS ISO 31000:2018 Risk management – Guidelines (Standards Australia 2018).</td><td>Section 5.18 and Appendix J</td></tr>
<tr><td colspan="2">Likelihood and consequence</td></tr>
<tr><td>Each environmental risk should be given a rating in terms of likelihood and consequence using the criteria in the table 1 and table 2 below. These ratings are then combined using the risk rating table to generate a risk rating of low, medium, high or severe.

Table 1 Likelihood
<table>
<tr><th>Qualitative measure of likelihood</th><th>How likely is it that this event/issue will occur after control strategies have been put in place</th></tr>
<tr><td>Highly likely</td><td>Is expected to occur in most circumstances</td></tr>
<tr><td>Likely</td><td>Will probably occur during the life of the project</td></tr>
<tr><td>Possible</td><td>Might occur during the life of the project</td></tr>
<tr><td>Unlikely</td><td>Could occur but considered unlikely or doubtful</td></tr>
<tr><td>Rare</td><td>May occur in exceptional circumstances</td></tr>
</table>
Table 2 Consequences
<table>
<tr><th>Qualitative measure of consequences</th><th>What will be the consequence/result if this issue does occur rating</th></tr>
<tr><td>Minor</td><td>Minor incident of environmental damage that can be reversed</td></tr>
<tr><td>Moderate</td><td>Isolated but substantial instances of environmental damage that could be reversed with intensive efforts</td></tr>
<tr><td>High</td><td>Substantial instances of environmental damage that could be reversed with intensive efforts</td></tr>
<tr><td>Major</td><td>Major loss of environmental amenity and real danger of continuing</td></tr>
<tr><td>Critical</td><td>Severe widespread loss of environmental amenity and irrecoverable environmental damage</td></tr>
</table></td><td>Appendix J</td></tr>
<tr><td colspan="2">Risk rating</td></tr>
<tr><td>You should give each of your risks a likelihood rating and a consequence rating. Using the rating table below you can determine whether your risk is low, medium, high or severe.

The risk rating generated using the above table can be used as a guide to the amount of time and resources that will be required to manage each risk. Risks with 'low' risk ratings will usually require significantly less management than 'medium', 'high' and 'severe' risks.

This is usually reflected in the environmental management plan where issues with higher risk ratings require more detailed information regarding:
• the description of the risk
• the measures and commitments to minimise and manage the risk
• the performance objectives and monitoring programs
• trigger values for additional action, review and reporting.</td><td>Appendix J</td></tr>
</table>

Table 2-3 (Continued)
Environmental Management Plan Guidelines

<table>
<tr><th>Guideline</th><th>Relevant BMP Section</th></tr>
<tr><td>EVALUATING RISK (Continued)</td><td></td></tr>
<tr><td>Risk rating (Continued)</td><td></td></tr>
<tr><td>Table 3 Risk Rating
<table>
<tr><th></th><th colspan="5">Consequence</th></tr>
<tr><th></th><th>Minor</th><th>Moderate</th><th>High</th><th>Major</th><th>Critical</th></tr>
<tr><td>Highly Likely</td><td>Medium</td><td>High</td><td>High</td><td>Severe</td><td>Severe</td></tr>
<tr><td>Likely</td><td>Low</td><td>Medium</td><td>High</td><td>High</td><td>Severe</td></tr>
<tr><td>Possible</td><td>Low</td><td>Medium</td><td>Medium</td><td>High</td><td>Severe</td></tr>
<tr><td>Unlikely</td><td>Low</td><td>Low</td><td>Medium</td><td>High</td><td>High</td></tr>
<tr><td>Rare</td><td>Low</td><td>Low</td><td>Low</td><td>Medium</td><td>High</td></tr>
</table></td><td>Appendix J</td></tr>
<tr><td>FORMAT OF SUBMISSIONS</td><td></td></tr>
<tr><td>General</td><td></td></tr>
<tr><td>Each page of the environmental management plan should include the name of the project, the date of the environmental management plan and sequential page numbering. An environmental management plan can be submitted via standard post or electronically. Submissions should be titled ‘Environmental Management Plan’ with the project name and EPBC approval number.</td><td>Header and Footer of each page</td></tr>
<tr><td>General requirements for maps, plans and sections</td><td></td></tr>
<tr><td>All maps and sections should conform to the following standards.</td><td rowspan="6">Figures throughout the BMP</td></tr>
<tr><td>• Scale – an appropriate standard metric scale should be chosen to best represent the information required (for example 1:25 000, 1:10 000 and 1:5000).</td></tr>
<tr><td>• Datum – plans and cross sections should refer to Australian Height Datum.</td></tr>
<tr><td>• Title Block – plans should have a title block in the lower right-hand corner of the sheet with the following information:
– EPBC number and project name
– title and number of the plan
– author
– scale
– date
– source and date of data</td></tr>
<tr><td>• Legend – plans should have a clear and comprehensive legend to identify the symbols and colours used.</td></tr>
<tr><td>• Maps, plans, figures, images and sections should also:
– use metric measurements throughout
– show a graphic bar scale
– show any local grid lines and standards
– have a north point or orientation of sections
– include a key.</td></tr>
<tr><td>Maps may also be submitted in ESRI Shapefiles containing ‘.shp’, ‘.shx’ and ‘.dbf’ files.</td></tr>
</table>

2.4 OTHER REQUIREMENTS PERTAINING TO THE MANAGEMENT OF THE OFFSET AREAS

2.4.1 Conservation Agreements

All MCCM offset areas are secured under Conservation Agreements under the *National Parks and Wildlife Act 1974* (NP&W Act) or NSW *Biodiversity Conservation Act 2016* (BC Act) in accordance with Conditions 13 and 13A of EPBC Act Approval 2010/5566 and Condition 45 of Schedule 3 of PA 10_0138. Details are provided in Section 4.1. These Conservation Agreements are regulated by the NSW BCT and include requirements for the management of the offset areas.

2.4.2 Leard Forest Mining Precinct Regional Biodiversity Strategy

Conditions 41-43 of Schedule 3 of PA 10_0138 provide for a Leard Forest Mining Precinct Regional Biodiversity Strategy, and Condition 24 of EPBC Act Approval 2010/5566 requires MCC to implement this Strategy (as approved).

Condition 53 of Schedule 3 of PA 10_0138 relevantly provided for the BMP to be revised within a specified period after the completion of Stage 2 of the Strategy, and for this revised BMP to demonstrate consistency with the findings of the Leard Forest Mining Precinct Regional Biodiversity Strategy to the satisfaction of the Planning Secretary.

To the extent that the Leard Forest Mining Precinct Regional Biodiversity Strategy is relevant to this BMP, the BMP is considered to be consistent with the relevant findings of the *Leard Forest Mining Precinct Regional Biodiversity Strategy* (Umwelt Environmental & Social Consultants Pty Ltd [Umwelt], 2017).

In this regard, the reconciliation tables at Appendix B:

- set out the matters in Tables 2.1 (Strategic Biodiversity Offset Management Actions), 2.2 (Strategic Biodiversity Offset Monitoring Actions) and 2.3 (Strategic Biodiversity Performance Measures and Preliminary Completion Criteria) in the Leard Forest Mining Precinct Regional Biodiversity Strategy; and
- identify corresponding relevant content set out in this BMP.

In relation to Tables 2.1 - 2.3, the Leard Forest Mining Precinct Regional Biodiversity Strategy acknowledges that the detailed provisions as to management actions, monitoring actions and performance measures/completion criteria is to be provided in the BMPs for the individual project sites (rather than the Strategy).

2.4.3 Threatened Species and Box-Gum Woodland Implementation Plans

The *MCCM Threatened Fauna Implementation Plan* (Whitehaven, 2015a) and *MCCM Box-Gum Woodland Endangered Ecological Community Implementation Plan* (Whitehaven, 2015b) have been prepared by MCC in accordance with Conditions 48 and 50 of Schedule 3 of PA 10_0138. These implementation plans were approved by NSW Department of Planning and Environment (DP&E) (now DPHI) on 14 January 2015.

The *MCCM Threatened Fauna Implementation Plan* (Whitehaven, 2015a) was developed to maximise the likely prospects for the provision of suitable habitats for threatened fauna on the offset areas and on the post mining landform (including threatened species listed in Condition 49 of Schedule 3 of PA 10_0138). A Supplementary Report to the *MCCM Threatened Fauna Implementation Plan* (AMBS, 2024b) was prepared to contemporise threatened fauna management and inform preparation of this BMP including updating the 21 individual actions relating to the Biodiversity Offset Strategy and have been incorporated into this BMP (Appendix A).

The *MCCM Box-Gum Woodland Endangered Ecological Community Implementation Plan* (Whitehaven, 2015b) was developed to maximise the prospects for rehabilitation and regeneration of the Box-Gum Woodland Critically Endangered Ecological Community (CEEC) on the offset areas and the mine site. A Supplementary Report to the *MCCM Box-Gum Woodland Endangered Ecological Community Implementation Plan* (AMBS, 2024a) was prepared to contemporised Box Gum Woodland management and inform preparation of this BMP including updating the 51 individual actions relating to the Biodiversity Offset Strategy and have been incorporated into this BMP (Appendix A).

2.5 CONSERVATION ADVICES, RECOVERY PLANS AND THREAT ABATEMENT PLANS

The following plans and advice was considered in the preparation of this BMP:

- *National Recovery Plan for White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (Department of Environment, Climate Change and Water [DECCW], 2011);
- Threatened Species Recovery Plans (Saunders and Tzaros, 2011; DotE, 2016);
- *Approved Conservation Advice for Tylophora linearis* (Department of the Environment, Water, Heritage and the Arts [DEWHA], 2008a);
- *Conservation Advice for the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (Cth DCCEEW, 2023a);
- *Conservation Advice Anthochaera phrygia Regent Honeyeater* (DotE, 2015a);
- *Conservation Advice Lathamus discolor Swift Parrot* (Threatened Species Scientific Committee, 2016);
- *Conservation Advice Nyctophilus corbeni South-eastern Long-eared Bat* (Threatened Species Scientific Committee [TSSC], 2015);
- *Threat Abatement Plan for Predation by Feral Cats* (DotE, 2015b);
- *Threat Abatement Plan for Competition and Land Degradation by Rabbits* (Department of the Environment and Energy [DEE], 2016);
- *Threat Abatement Plan for Predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs (Sus Scrofa)* (DEE, 2017);
- *Threat Abatement Plan for Predation by the European Red Fox* (DEWHA, 2008b); and
- *Threat Abatement Plan for Competition and Land Degradation by Unmanaged Goats* (DEWHA, 2008c).

The following draft plans were considered in the preparation of this BMP:

- *Noisy Miner management: Review of the Decision on a Threat Abatement Plan for The Key Threatening Process of Aggressive Exclusion of Birds from Potential Woodland and Forest Habitat by Over-abundant Noisy Miners (Manorina melanocephala)* (DAWE, 2020);
- *Draft Updated Threat Abatement Plan for Predation by Feral Cats* (Cth DCCEEW, 2023b); and
- *Background Document for the Threat Abatement Plan for Predation by Feral Cats* (Cth DCCEEW, 2023c).

PART A
MINE SITE MANAGEMENT OF FLORA AND FAUNA

3 MANAGEMENT OF BIODIVERSITY AT THE MINE SITE

This section outlines the actions to be taken to minimise the impact of the MCCM on native flora and fauna species and to manage the impacts of exotic flora and fauna. This includes activities to be undertaken on areas to be cleared, prior to the removal of trees in order to minimise the impact to fauna species, and it also includes measures to control the potential impact of weeds and pest animals on the remaining biodiversity within the MCCM Project Boundary and in nearby areas of the Leard State Forest.

3.1 PRE-CLEARANCE AND POST-CLEARANCE ACTIVITIES

Vegetation clearance will be staged over the life of the mine and therefore pre-clearance and clearance activities will be implemented for each stage of clearing. The following activities will take place prior to each stage of clearing to minimise adverse impacts to native wildlife and other environmental and regulatory issues.

A Land Disturbance Protocol (LDP) form was prepared to manage the clearance process and to document all licensing, safety and management requirements. The LDP form is an environmental checklist that must be completed for each stage of clearing by the person responsible for the clearing activities and the relevant technical expert (e.g. Electrical Engineer to confirm no presence of cables etc) and signed off by MCCs Environmental Officer or a delegate and final authorisation by the Environmental Superintendent or delegate.

3.1.1 Marking Limits of Clearing

Disturbance of vegetation will be limited to the minimum necessary for each stage of the clearing. Woodland clearance for mining will take place during the nominated clearing window (refer to Section 3.2 for details on timing), and will occur no more than 12 months in advance of the proposed mine plan during operations, excluding time allowed for progressive vegetation disturbance, mulching, topsoil recovery and stockpiling activities required to occur prior to mining activities being able to commence in a particular area.

The current limits of clearing will be marked either by high visibility tape at appropriate intervals, fencing or an equivalent boundary marker that will be installed any time prior to clearing. To avoid unnecessary or inadvertent vegetation and habitat removal, disturbance will be restricted to the delineated area and no stockpiling of equipment, machinery, soil or vegetation will occur beyond this boundary.

The person responsible for the clearance activities will be responsible for ensuring that the boundary markers are installed to enable the suitable environmental and technical inspections of the proposed disturbance to be undertaken, and ultimately that disturbance can be limited to the marked area approved for disturbance. The completion of this activity will be recorded and signed off in the LDP form.

In order to protect the Biodiversity Corridor (vegetated corridor) (as described in Section 3), this area will be marked in a similar way to the disturbance area where disturbance activity is within 10 metres (m) of the Biodiversity Corridor boundary. No disturbance will be permitted to occur within the Biodiversity Corridor (vegetated corridor); that is, no vehicles or machinery will be permitted entry and general pedestrian traffic will be discouraged.

3.1.2 Pre-clearance Flora and Fauna Surveys

Initially, the environmental assessment will be reviewed to identify known locations of biodiversity features such as hollow bearing trees or bush rocks. These will be recorded on the LDP form.

During the pre-clearance process, threatened flora and fauna that have the potential to be disturbed as a result of clearing activities will be identified.

Flora Pre-clearing Surveys

Prior to clearing, a pre-clearing flora survey will be conducted to search for threatened plant species that have potential to occur, based on habitat available. If a threatened plant species is identified, the numbers of plants will be counted and/or the population estimated/mapped. A review of translocation methods, collection of propagules, and propagation from seeds or cuttings from plants within the MCCM disturbance area and/or surrounds will be undertaken. Following this review, a translocation/propagation program will be developed and implemented where appropriate in consultation with BCS, DPHI and Cth DCCEEW (for Matters of National Environmental Significance [MNES]). The program will be documented in this BMP via an addendum or new revision (as part of the Annual Review process).

All threatened plant species identified during pre-clearing will be reported to BCS (and to Cth DCCEEW for relevant MNES species).

Tylophora linearis was identified during pre-clearing flora surveys during 2014 and 2015. Appendix F provides a propagation and translocation program for the species.

Pomaderris queenslandica was identified during pre-clearing flora surveys during 2015. Appendix G provides a propagation and translocation program for the species.

Pultenaea imminuata was identified during pre-clearing flora surveys during 2024. Appendix H provides a propagation and translocation program for the species.

Fauna Pre-clearing Surveys

Habitat features that have a high potential to support native fauna species will be identified prior to any clearing activities. These include significant rock outcrops and crevices, large boulders, nests and in particular trees bearing hollows that have potential to contain species such as bats, gliders, possums, reptiles and birds. Trees containing hollows or nests that have a high potential to contain fauna will be identified, recorded, flagged with fluorescent marking tape, and marked with a large (>1 m) “H” (to indicate that it is a Habitat Tree) using spray paint on two sides of the tree.

The location of suitable nearby habitat for the release of fauna that may be encountered during the pre-clearing process will be identified and marked on a map. Wildlife relocation beyond the coal lease boundary within the Leard State Forest will be done in accordance with a relevant permit from Forestry Corporation NSW.

Updated maps/plans, pre-determined habitat for the release of fauna, habitat features present in the site and recommended clearing procedures will be submitted to the Environmental Officer and shall be recorded and signed off in the LDP form.

Within one week prior to clearing trees, a pre-clearing fauna survey will be conducted by the suitably qualified ecologist for the presence of fauna species in order to identify and minimise impacts to resident fauna. Any fauna utilising the area will be recorded. Hollows will be watched in the early evening to see if any arboreal fauna (e.g. gliders [such as the Squirrel Glider], bats) are using them. The ground around each tree will be inspected for scats, and the trees for scratch marks. Spotlighting will be undertaken for arboreal animals. If necessary (to be recommended by the suitably qualified ecologist), a burrow scope will be used by the suitably qualified ecologist to ascertain whether a particular hollow is being used by native fauna.

Additional pre-clearance survey requirements relating to the timing of clearing are provided in Sections 3.1.3, 3.16 and 3.2.

3.1.3 Clearing Activities

Before clearing woodland/forest native vegetation and isolated trees in grasslands, licensed wildlife carers and/or ecologists will attempt to capture and/or remove fauna that have the potential to be disturbed as a result of clearing activities. This fauna will be relocated into pre-determined habitat identified for fauna release. All fauna handling will be carried out by licensed wildlife carers and/or ecologists. Clearing contractors will then be informed of any changes to the sequence of clearing if required (see below). Ecologists will be present on site during clearing and will provide ecological supervision to the clearing contractors throughout the process.

The clearing of woodland/forest native vegetation and isolated trees in grasslands will be conducted using a two-stage clearing process:

1. Clearing will commence following the identification of potential habitat trees by the suitably qualified ecologist. Trees and/or logs/log piles marked with an “H” will not be cleared during the first stage; however, all vegetation around the marked features will be isolated. The suitably qualified ecologist will be present during the clearing to ensure the preservation of these marked features.

2. Identified habitat trees will be left to stand overnight after Stage 1 clearing to allow resident fauna to voluntarily move from the area. Then, the habitat trees will be cleared using the following protocols:

   - if possible, trees marked as containing hollows will be shaken by machinery prior to clearing to encourage any animals remaining to leave the hollows and move on;
   - use a bulldozer or other suitable machinery to start pushing the tree over. Move the bulldozer over the roots and continue gently pushing the tree over. The tree should not fall heavily to the ground;
   - remove branches with hollows and sections of trunk and set aside for immediate transfer to a storage area for eventual placement within rehabilitation areas (once available);

- the suitably qualified ecologist will investigate all hollows for the presence of fauna following felling of the tree; and
- the felled habitat tree will be left overnight to allow any remaining fauna time to leave the hollows and move on.

Additional mitigation measures relating to the timing of clearing are provided in Section 3.2. The two-stage clearing process allows fauna a chance to self-relocate upon nightfall, when foraging typically occurs. Fauna are not likely to re-inhabit trees, as they are not likely to feel secure in their tree with all trees around it cleared.

The suitably qualified ecologist will be present while clearing to rescue animals injured during the clearance operation. Any fauna found will be captured and relocated to nearby remnant vegetation and released after nightfall to minimise the risk of predation by diurnal predators. Any animals that are inadvertently injured will be taken to the nearest veterinary clinic for treatment, or if the animal is unlikely to survive, it will be humanely euthanized. The closest veterinary clinics to the MCCM Project Boundary are noted below:

Narrabri Veterinary Clinic

Martyn Powell and Michael Read
24 Francis Street
NARRABRI NSW 2390
Telephone: (02) 6792 4388

Gunnedah Veterinary Hospital

14-16 Barber Street
GUNNEDAH NSW 2380
Telephone: (02) 6742 1834 (all hours)
Facsimile: (02) 6742 4422
Email: gunvet@bigpond.com

One or more of the above clinics will be notified prior clearing of woodland/forest native vegetation and isolated trees in grasslands and prior to animal transportation to ensure they are willing to treat injured animals. A record of the contact will be documented.

All persons working on the vegetation clearing will be briefed about the possible fauna present during land clearance, and what procedures will be undertaken in the event of an animal being injured or disturbed. A qualified animal rescue person (e.g. NSW Wildlife Information, Rescue and Education Service Inc [WIRES]) or the suitably qualified ecologist will be on call at all times during clearing.

If boulders are to be moved during clearing, the suitably qualified ecologist will catch any snakes or frogs that may be sheltering under them. These animals will be relocated to suitable habitat elsewhere in the Leard State Forest.

Results and outcomes of pre-clearance and clearance fauna surveys will be documented by the suitably qualified ecologist and submitted to MCCs Environmental Officer. This includes:

- species and numbers of individuals recorded;
- incidence of sick or injured animals and the actions taken to care for the fauna; and
- the species and numbers of individuals that were relocated.

If a new threatened species is identified that has not previously been identified as having potential to occur, the occurrence will be surveyed and fully documented. Results will be made available to BCS and to Cth DCCEEW (if it is a species that is a MNES).

3.1.4 Weed Management

Prior to clearing activities, infestations of significant weeds (priority weeds or Weeds of National Significance [WONS][1]) will be recorded in the LDP form and mapped. If recommended by MCCs Environmental Officer or suitably qualified ecologist, control of weeds will be undertaken to minimise the risk of spread of weeds during clearing. Weed control measures will be species specific and will be guided by published control measures (e.g. NSW Department of Primary Industries [DPI], 2018).

Prior to clearing, all plant equipment to be used on the clearing program will be inspected and recommended for wash down (in designated wash down areas) as required to ensure weed material from off-site locations do not establish or spread into native vegetation within the MCCM Project Boundary.

Any weed materials will need to be carefully removed off site in a manner appropriate to the species or at the direction of the suitably qualified ecologist so as to prevent the spread of propagules to uncleared areas of native vegetation.

Machinery involved in weed management will also be washed down prior to removal from site to prevent weeds from spreading into off site areas.

3.1.5 Management of Cultural Heritage Values

Aboriginal and cultural heritage values within the MCCM Project Boundary will be primarily managed under the MCCM *Aboriginal Archaeology and Cultural Heritage Management Plan* (Whitehaven, 2022). To ensure that ecological pre-clearing and clearing works are consistent with the objectives of the *Aboriginal Archaeology and Cultural Heritage Management Plan* (Whitehaven, 2022), the following will be undertaken by the suitably qualified specialist:

- Prior to commencement of pre-clearing and clearing works, the suitably qualified ecologists involved in the pre-clearing surveys will be briefed as part of the induction process on the identification of any Aboriginal culturally modified trees. Any suspected culturally modified trees identified by the suitably qualified specialist during pre-clearance surveys will be assessed by an archaeologist following the Procedure on the Discovery of Aboriginal Archaeological Objects (refer to the Aboriginal Archaeology and Cultural Heritage Management Plan (Whitehaven, 2022).
- As part of the pre-clearing works, the suitably qualified ecologist will identify and tag (using flagging tape or an alternative method) cultural heritage resources under advisement from the Environmental Officer. The identified cultural heritage resources will be inspected by the archaeology team prior to clearing of these items to allow for the collection of seeds, fruits, bark,

[1] A total of 32 introduced plants have been identified as Weeds of National Significance (WONS) under the National Weeds Strategy.

roots, or any other relevant material. Collection activities will be undertaken by the archaeology team. Cultural heritage items may include the following species:

- Native Pear (*Marsdenia viridiflora*);
- Quinine Bush (*Alstonia constricta*); and
- Native Orange (*Capparis mitchellii*).

The Teston GG4 grinding grooves site was originally identified within the MCCM clearing area that contained 4 features with 19 grooves of anthropogenic origin (UQ Cultural & Heritage Unit, 2016a). Detailed archaeological recording was completed to maintain the research potential of the site (UQ Cultural & Heritage Unit, 2016b) and through consultation it was determined that the best approach to preserve the cultural and scientific value was to salvage the site. On 28 March 2017; the grinding groove rocks were successfully lifted and relocated from MCCM by geotechnical specialists while observed by registered Aboriginal participants to a new secure location established on the Teston North offset area as the Teston GG4 new heritage site (Whincop Archaeology, 2017).

3.1.6 Maximising Salvage of Habitat Resources

A selection of hollow-bearing trees, hollow-bearing logs and rocks will be salvaged for reuse in rehabilitation areas and/or selected recipient sites within nearby offsets that require enhancements (Section 5.6). Such materials vary in quality and quantity among different parts of the MCCM Project Boundary. Whilst some woody materials provide a valuable habitat resource for native fauna, others are not suitable for salvage because they are structurally unsound and/or decayed to the extent that they may not survive felling, relocation and replacement on the recipient site.

The following method will be applied to rationalise the salvage of habitat resources and select key habitat resources to retain for re-use in mine site rehabilitation and offset areas (where appropriate).

Quantifying the Habitat Resource for Replication at Recipient Sites

Prior to clearing, 20 m x 50 m plots will be surveyed in each vegetation type to quantify the habitat resource. The number of plots per vegetation type will be commensurate with the area of clearing to be undertaken. Within these plots the following information will be recorded as a minimum:

- photographs;
- Global Positioning System (GPS) location;
- numbers of tree hollows;
- size class of tree hollows;
- species of trees;
- structural integrity of timber;
- percentage cover of bush rocks; and
- length of fallen logs (>200 millimetre [mm] diameter).

This data will document the types and densities of resources available to be relocated to recipient sites.

Selection Criteria for Salvage Material

Prior to clearing, suitable salvage items will be identified, recorded, flagged with fluorescent marking tape, and marked with a large (>1 m) "S" using spray paint on two sides of the tree. The following criteria will apply as part of the selection process:

- **Hollow trees** will be considered for salvage based on structural integrity, number and size of hollows. Hollows to be salvaged will include a range of diameter sizes. Ideally, hollows will be in trunks or solid living branches to maximise the chance that they will survive the felling process. Trees will be favoured if single stemmed to ensure that they will remain intact during felling. Stags (dead trees) will be selected if they appear solid and have good hollows in the trunk.
- **Woody ground debris** (fallen timber) will be selected based on size, structural integrity and presence of good hollows. Larger logs (in both length and girth) will be typically selected with large hollows (i.e. large diameter hollows through the length of the stem or at least a significant portion) through the stems. Logs that had been felled during past forestry activities will be selected rather than old naturally fallen logs because these are typically better preserved (having fallen prior to attack by insects etc).
- **Trees and fallen logs without hollows**. It is also intended, where possible, that a number of trees without hollows, or large logs in good condition, will be collected for retention in addition to those marked by ecologists during pre-clearing. As these trees/logs do not require identification by ecologists, they can be selected at random during clearing and stock-piled to provide additional habitat features in rehabilitated land.
- **Large flat or creviced rocks** (>500 mm width) that appear solid enough to survive translocation will be considered for translocation to rehabilitation or offset sites.

In areas where few hollow trees or logs are present, most of the habitat features are likely to be marked for collection. In areas where hollows and logs are abundant, only those with significant value as habitat features (as described above) will be marked for retention as habitat. All habitat features selected for salvage will be stockpiled until required.

Timing of Salvage Activities

Salvage of habitat features will take place during both Stage 1 and Stage 2 of clearing. The salvaged habitat features will be moved to a holding site for storage until a time that they can be emplaced in mine rehabilitation areas and in nearby offset areas to allow their continuation as potential fauna refuge sites. This will take place before and after clearing.

Some such materials may be transported to interim storage areas though such materials will be preferentially transported immediately to pre-identified sites if available. Vegetation that is not salvaged as a habitat feature will be mulched and spread back over the topsoil. The topsoil and mulch will then be removed and transported to interim storage areas and applied to rehabilitation areas to provide additional organic matter.

Relocation of bush rocks within the Leard State Forest or beyond the forest boundary will be undertaken as agreed with Forestry Corporation NSW.

Section 5.6 describes the reuse of salvaged habitat resources in the offset areas. The MCCM Rehabilitation Management Plan (RMP) will describe the reuse of salvaged habitat resources on the mine rehabilitation.

3.2 TIMING OF CLEARING

Subject to exceptional circumstances, clearing of woodland/forest native vegetation will be undertaken in late summer and early autumn (herein referred to as the "clearing window" between 15 February to 30 April) in order to avoid key breeding or hibernation seasons for threatened bat and bird species known to reside in the Leard State Forest. If the temperature is predicted to exceed 35 degrees Celsius (°C), the temperature at the mine will be monitored and clearing of understorey and tree felling including habitat trees will be halted if the temperature exceeds 35°C. Mulching and stick raking of already felled trees can continue when temperatures exceed 35°C.

Under exceptional circumstances, minor clearing of woodland/forest native vegetation is permissible outside of the period of 15 February to 30 April with the prior written consent of the Planning Secretary of DPHI. The clearing that may be so approved is limited to minor clearing. Where clearing is carried out pursuant to this exception, additional mitigation measures (i.e. additional to those measures in Section 3.1.3) will be employed (refer Section 3.2iii).

Other land disturbance activities (such as clearing grasslands, raking of felled trees, mulching, topsoil removal and the removal of regrowth in previously cleared areas) may occur year-round and are not subject to the above timing of clearing and/or temperature restrictions.

i. Pre-clearing Fauna Surveys

The below pre-clearing fauna survey measures were proposed in the event that clearing of woodland/forest native vegetation in spring or early summer was approved by the Planning Secretary of DPHI, however, this BMP, other than in exceptional circumstances, does not propose or permit clearing of woodland/forest native vegetation to occur in spring or early summer (between 1 November and 15 February). The below pre-clearing fauna survey measures will apply to clearing of isolated trees in grassland between 1 May and 15 February.

As described in Section 3.1.2, within one week prior to clearing trees, a pre-clearing fauna survey will be conducted by the suitably qualified persons for the presence of fauna species in order to identify and minimise impacts to resident fauna. Any fauna using the area will be recorded.

Nesting Birds

For clearing of woodland/forest native vegetation between 1 November and 15 February, the following pre-clearing survey methods will be employed in relation to arboreal and ground nesting birds (including threatened bird species):

- For arboreal nesting birds, all trees will be circled by an observer to identify hollows and/or nests that may be used as nesting resource.

- Inspections and/or observations will be carried out to confirm that birds are using the arboreal hollow and/or arboreal and ground nest as a nesting resource.
- Repeat observations will be carried out to determine the completion of nesting activities (i.e. young have left the nest and the hollow and/or nest is no longer used for nesting).

Nesting birds maybe identified either by sight, vocalisations, inspection cameras and/or a cherry picker. Where possible, the species using the nest will be identified to inform likely timing for completion of nesting activities.

Bat Roosts

For clearing of woodland/forest native vegetation between 1 November and 15 February, trees that contain hollows/fissures that are likely to be used by microbats (including threatened microbat species) will be surveyed prior to clearance by either hollow watching (Section 3.1.2) or using Anabat electronic detectors. Surveys will also be undertaken at any rock overhangs in the clearance area that are potentially suitable for cave-dwelling bats.

Pale-headed Snake

All trees will be circled by an observer to identify any tree-dwelling snakes (e.g. the Pale-headed Snake) that may be within the tree. Hollows identified as having potential to contain Pale-headed Snake will be checked with a burrow scope.

Squirrel Glider

Hollows will be watched in the early evening to see if any arboreal fauna (e.g. Squirrel Glider) are using them. Spotlighting will be undertaken for arboreal animals. If necessary, a burrow scope will be used by the suitably qualified ecologist to ascertain whether a particular hollow is being used by native fauna.

ii. Clearing Activities – Minimising the Impacts on Fauna

The below clearing measures were proposed in the event that clearing of woodland/forest native vegetation in spring or early summer was approved by the Secretary of DPHI, however, this BMP, other than in exceptional circumstances, does not propose or permit clearing to occur in spring or early summer (between 1 November and 15 February).

Nesting Birds

The following clearing strategies will be employed in relation to habitat trees with bird nests for clearing activities between 1 November and 15 February:

- If the nest is suspected to be active (i.e. it suspected to contain eggs or young), the tree will not be cleared until after fledglings have left the nest or advanced fledglings are old enough to be cared for by a wildlife career for subsequent release; or
- if the nest is suspected to be inactive (i.e. not to contain eggs or young):
  - the tree will be cleared within two weeks following the confirmation that the nest is inactive; or

- the nest will be removed from the tree to minimise the chance of the nest becoming active prior to clearance.

Bat Roosts

The following clearing strategies will be employed in relation to habitat trees with suspected bat roosts for clearing activities between 1 November and 15 February:

- Habitat trees with confirmed bat roosts will be managed by:
  - shaking the tree with machinery prior to clearing to encourage bats to move to an alternative roost site;
  - gently lowering the tree to the ground with the objective of causing minimal impact to the roost;
  - placing the tree on the ground so the entrance to the hollow faces upwards (i.e. so bats are able to exit);
  - inspecting the felled tree to confirm whether for bats have exited the tree; and
  - leaving the felled tree overnight to allow any remaining bats time to leave the hollow.
- If a bat roost containing a maternity colony (young bats) is found during inspection of the felled tree, the following will be undertaken:
  - If the roost is located in a portion of the tree that is not able to be relocated, the bat fauna will be collected and temporarily stored in a cool location for release at night.
  - If the roost is located in a portion of the tree able to be relocated:
    a. The cavity opening will be temporarily blocked with a piece of cloth.
    b. The section of the tree will be removed using a chainsaw (or a suitable alternative low-impact method) (noting that use of a chainsaw will be undertaken by a qualified chainsaw operator).
    c. Adults and young captured leaving the roost are to be placed within the roost.
    d. The ends of the extracted tree section and cavity openings will be temporarily blocked with a piece of cloth during transportation.
    e. Collected roost and bat fauna will be temporarily stored in a cool location.
    f. The roost will be returned to the location prior to dusk and positioned above the ground with a freefall of approximately 1-3 m.
    g. The pieces of cloth will be removed once the tree section is fixed in an undisturbed location to allow bats to leave.
    h. The roost to be checked the following morning for success of adult retrieval of young.
    i. In the case of unsuccessful adult retrieval of young then the juvenile bats will be assessed by a veterinarian or experienced wildlife carer.
- If habitat trees with suspected bat roosts are considered unlikely to contain bat roosts (following bat surveys), clearance will proceed. In consideration of the behaviour of many bat fauna species to use a number of roosts, trees containing potential bat habitat are to be felled, as soon as possible (ideally the following day) after a negative Anabat survey result.

If overhangs with suspected bat roosts are found during the pre-clearance surveys, the strategy may involve waiting until the bats have left the rock overhanging and block the entrance so they are unable to re-enter prior to clearance. Consideration will also be given to blocking tree hollows prior to clearance in the event that trees with empty hollows are left standing for more than 48 hours after checking the hollows.

Pale-headed Snake

Refer to the clearing process described in Section 3.1.3.

Squirrel Glider

Refer to the clearing process described in Section 3.1.3.

iii. Mitigation Measures - Minor Clearance

Under exceptional circumstances, minor clearing of woodland/forest native vegetation is permissible outside of the period between 15 February and 30 April with the prior written consent of the Planning Secretary of DPHI.

Fauna mitigation measures will be developed and implemented as appropriate to minimise the impacts on fauna. The fauna mitigation measures for minor clearing will vary depending on the location of the proposed clearing, the time of year, susceptible threatened species, and habitat that is required to be cleared.

3.3 SEED COLLECTION AND PROPAGATION

Seed Collection, Management and Storage

Seed collection will be synchronised with clearing of vegetation where possible to optimise seed collection – particularly from trees and taller shrubs when the canopy seed bank is accessible from the ground. Collection of available seed will take place for shrubs and groundcover species independent of clearing. Seed collection may occur at any time of year to coincide with the optimal seed collection times for each target flora species.

Seed collection, management and storage will be undertaken in consideration of Greening Australia (various dates) *Florabank Guidelines* and as described in Rawlings *et al.* (2010) for local and regional provenance seed collection includes:

- collection of seed from several source sites with similar rainfall, soil, altitude, aspect and slope position to the revegetation site to ensure they are most adapted to the landscape and environmental conditions;
- collection of seed from between 20-50 plants of each species for genetic diversity; and
- collection of seed from plants spaced approximately three plant-heights apart to prevent collection of too many closely related seeds.

The seed species, location of collection, volume of seed and storage methods will be documented appropriately as part of the reporting requirements for the RMP.

Propagation

Propagation of seedlings should be undertaken by nurseries that can effectively handle commercial quantities of seed, propagate and grow the seed and harden the seedlings.

Seedlings orders need to be placed well in advance of revegetation works to meet the likely timeframes for plants to reach transplantable sizes; depending on the species and method of propagation (e.g. most species require one season to be of sufficient size, but other species such as *Xanthorrhoea*, *Callitris* and *Bursaria* can take two or more years).

In addition, or alternatively, direct seeding can be carried out by an appropriately qualified operator. Only those species that are locally known to establish reliably from sown seed should be included in direct seeding operations. Seed from species that are difficult to propagate, or when seed is rare (costly), seedling propagation in a nursery is preferable.

Records will include all source of propagation, species, quantities and dates.

3.4 REHABILITATION

The procedures, protocols and targets for revegetation of the post-mining rehabilitation areas are covered in the RMP that NSW Resources Regulator and DPHI, as the primary regulators of rehabilitation, accept as meeting the requirement of a RMP under the Project Approval. An overview of some aspects of rehabilitation are provided below.

Revegetation

The final outer surfaces of the mine landforms will be designed to be safe, stable, provide an adequately drained post-mining landform, and have a shape that is consistent with the types of naturally occurring landform features in the region. They will also be designed to provide a final surface that facilitates revegetation and growth of species that occurred in the native woodland and forest communities that were present prior to the commencement of mining.

Condition 25 of EPBC Act Approval 2010/5566 requires rehabilitation within the MCCM Project Boundary to include no less than 1,665 ha of native forest and woodland in the Project area, including 544 ha using species consistent with Box-Gum Woodland.

Condition 44 of Schedule 3 of PA 10_0138 requires that, except for the area of the minimised final void, pre-mining native vegetation communities to be re-established (including 544 ha of Box-Gum Woodland CEEC) for a biodiversity conservation land use objective, with the area subject to finalisation of the RMP.

Salinity

Overburden and soil analysis undertaken as part of the Environmental Assessment for MCCM have not identified any saline material that would limit plant growth and development. MCCM implements a soil sampling program including the rehabilitation areas and if saline material is encountered then soil amelioration options would be considered. Based on Subject Matter Experts advice. Options for managing salinity in the rehabilitation area could consider utilising saline tolerant colonising species as part the revegetation species mix as well as targeted engineering solutions to address hydrological (recharge and discharge) or material aspects to manage and mitigate future salinity impacts.

Reuse of Salvaged Habitat Resources

A selection of hollow-bearing trees, hollow-bearing logs and rocks will be salvaged for reuse in rehabilitation. Hollow limbs salvaged during vegetation clearance at the mine will be installed in select trees without hollows (once the revegetation is sufficiently mature to hold the hollow limb).

Long-term Conservation Security

In accordance with Condition 45A of Schedule 3 of PA 10_0138, by the end of December 2034, unless otherwise agreed by the Planning Secretary, MCC will make suitable arrangements to secure in perpetuity the Rehabilitation Area (2,078ha less the area of the minimised void to be approved by the Final Void and Mine Closure Plan) identified in Table 16 of PA 10_0138 to the satisfaction of the Planning Secretary.

Integration of Rehabilitation Area with the Biodiversity Offset Strategy

The MCCM Biodiversity Offset Strategy is summarised in this BMP in **Section 4** based on the detailed descriptions in Appendix C, D, M and N have been aligned with this **Section 3** of the BMP and the linkage to the detailed documents that describe management of the post-mine landforms in accordance with the MCC Rehabilitation Management Plan (November 2023) and the MCCM Forward Program (January 2024) as well as the EPBC Approval 2010/5566 required MCCM Mine Site Rehabilitation Plan (August 2016). This BMP describes some aspects relevant to rehabilitation such as collection and propagation of seed (**Section 3.3**) consistent with Offset Area management (**Section 5.3**) as well as salvaging and reusing material for habitat augmentation (**Section 5.6**) as examples of the integrated approach taken.

3.5 CONTROL OF WEEDS

Objective

Environmental and priority weeds can have detrimental effects on native remnant vegetation and have the potential to compromise the establishment of native vegetation on the post-mine landforms. The objective of weed management in the MCCM Project Boundary is to control the occurrence and spread of weed species (e.g. including but not limited to Weeds of National Significance (WONS) and priority weeds). Landholders are obliged to control priority weeds under the NSW *Biosecurity Act 2015*.

Weed Prevention

Weed management will be undertaken as described in Section 3.1.4 to minimise the risk of spread of weeds during clearing. The spread of weeds from disturbance areas will be minimised through inspections of and where required washing down vehicles and machinery as required.

Weed Control Program/Timing

The weed control program will involve:

- identifying weeds (Section 3.13.2);
- application of weed control techniques in areas requiring weed control; and
- follow-up inspection weed control as required.

Weed control will be undertaken for the targeted weed species based on seasonal conditions. Follow-up weed control will be undertaken as required, in areas that have received past weeding treatments. Follow-up treatments ensure pressure is maintained on weeds, assisting regenerating or planted native plants to out-compete weed species.

Weed Control Techniques

A number of priority weeds are known to occur in the MCCM Project Boundary and surrounds. Initially weeding will target the priority weeds and other environmental weeds present in the MCCM Project Boundary. However, if new weeds species are found those new weeds species will also be managed in accordance with this BMP.

Recommended techniques for removal of priority weeds that have been published by DPI – Agriculture will be consulted prior to weed control (e.g. *New South Wales Weed Control Handbook* [7th Edition] [DPI, 2018a]). Local weed management plans published by the Narrabri Shire Council (2014) also provide information on the control of priority weeds. Relevant control methods for priority weeds known to occur in the MCCM Project Boundary and surrounds are summarised in Table 3-1.

Table 3-1
Control of Example Target Priority Weeds

Common Name	Scientific Name	Control Methods (DPI, 2018)
Devils Rope Pear	*Cylindropuntia imbricata*	• physically remove • herbicide application
African Boxthorn	*Lycium ferocissimum*	• physically remove • herbicide application
Blue Heliotrope	*Heliotropium amplexicaule*	• herbicide application

Table 3-1 (Continued)
Control of Example Target Priority Weeds

Common Name	Scientific Name	Control Methods (DPI, 2018)
Mimosa	*Mimosa* sp.	• physical removal • herbicide application
Tiger Pear	*Opuntia aurantiaca*	• physical removal • herbicide application
Common Prickly Pear	*Opuntia stricta*	• physical removal • herbicide application
Velvet Tree Pear	*Opuntia tomentosa*	• physical removal • herbicide application
Blackberry	*Rubus fruticosus aggregate* sp.	• herbicide application
Fireweed	*Senecio madagascariensis*	• herbicide application
Galvanised Burr	*Sclerolaena birchii*	• herbicide application
Columbus Grass	*Sorghum sp.*	• herbicide application

Sources: Croft and Associates (1979); Dames and Moore (1983-1984); Cumberland Ecology (2010 and 2014); Parsons Brinkerhoff (2010); EcoLogical Australia Pty Ltd (2010).

All personnel involved in weed management will be required to hold relevant and valid licences/ permits for weed works, including a chemical licence to use herbicides and a chainsaw certificate to operate chainsaws (where applicable).

Weed control techniques in Table 3-1 (i.e. physical removal and herbicide application) are described below. Additional techniques may be undertaken depending on the environmental (e.g. WONS) and priority weeds present and the success of these control techniques.

Physical Removal

Physical removal of weeds will involve techniques such as but not limited to:

- selective hand removal of weeds; and
- wick wiping with herbicide of tall weeds in situations where damage to proximate, low growing native plants can be avoided.

After physical removal of any plant material, the plant material will be stockpiled well away from sensitive areas and disposed of in an environmentally sensitive manner to prevent the spread of propagules or further seed production on the cut plant material.

Herbicide Application

Removal of weeds with herbicide will involve techniques such as, but not limited to:

- selective spraying of weeds, with selective and non-selective herbicide;

- cutting or scraping deep rooted woody weeds and climbers with hand tools, chainsaws and brush cutters, and painting cut stumps with herbicides; and
- target drilling and injecting large tree weeds with herbicides.

Herbicide sprays will only be used during suitable weather conditions (i.e. not during wet or windy conditions), and during appropriate seasons (e.g. during active plant growth).

Weed Monitoring and Reporting

Weed monitoring is discussed in Section 3.13.2 and reporting survey data is discussed in Section 6.1. Guidance on weed control will be available to employees and/or contractors through ongoing communications and training to raise awareness of biodiversity issues in the region (e.g. weed spread prevention through the washing of vehicles and equipment).

3.6 CONTROL OF PEST ANIMALS

Objectives

The goal of pest animal management will be to reduce the abundance of pest animals in the MCCM Project Boundary and maintain a low abundance of pest animals (in consideration of potential drought conditions and seasonal trends).

Pest Animal Prevention

Pest animals congregate and breed in windrows of felled trees. Felled trees will be wood chipped and stockpiled in a suitable area away from retained remnant vegetation until it can be used in rehabilitation, to assist in the wood chipping trees will be temporarily windrowed. This will be done after all the salvageable logs with hollows have been removed. Any temporary piles of vegetation will be monitored to determine whether they are being used by pest animals (Section 3.13.3).

Controls will be placed on the disposal and handling of garbage in the MCCM Project Boundary. All garbage bins will be constructed from sturdy materials and will be closed at all times to avoid the smell attracting pest animals (e.g. foxes and pigs). Garbage bins will be emptied regularly and the garbage appropriately disposed of offsite by a licensed waste contractor at a suitable facility.

Pest Animal Control Program/Timing

The pest animal program will involve:

- identifying pest animals through monitoring;
- application of pest animal control techniques in areas requiring control;
- follow-up monitoring of pest animal control areas; and
- follow-up pest animal control if required.

The program will also consider advice from neighbouring landowners regarding observations of target pest animals upon the mine site. Pest animal monitoring is described in Section 3.13.3. Pest animal

control will typically occur in autumn and spring each year (the period of time applicable to the survival of offspring of native fauna species).

Pest Animal Control Techniques

Pest animal management will focus on the main pest animals recorded from the MCCM Project Boundary (Tables 3-2 and 3-3). However, all identified pest animals will also be managed in accordance with this BMP. The control of pest animals is intended to be adaptive and will be informed/reviewed based on the findings from the Pest Animal Monitoring Program (Section 3.13.3).

Table 3-2
Control Methods for Target Pest Animals – Mine Site

Common Name	Scientific Name	Status[1]	Control Methods	Relevant Documents
Feral Pig	*Sus scrofa*	Declared pest	• ground shooting; and/or • ground baiting.	• *Threat Abatement Plan for Predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs* (DEE, 2017); • *PestSmart Toolkit* (Centre for Invasive Species Solutions, 2023); and • *Ecology and Management of Vertebrate Pests in NSW* (DPI, 2018b).
European Red Fox	*Vulpes*	Declared pest	• ground shooting; and/or • ground baiting.	• *Threat Abatement Plan for Predation by European Red Fox* (DEWHA, 2008b); • *NSW Threat Abatement Plan For Predation by The Red Fox (Vulpes vulpes)* (Office of Environment and Heritage [OEH], 2011); • *PestSmart Toolkit* (Centre for Invasive Species Solutions, 2023); and • *Ecology and Management of Vertebrate Pests in NSW* (DPI, 2018b).
European Rabbit	*Oryctolagus cuniculus*	Declared pest	• warren ripping/fumigation; • ground shooting; and/or • ground baiting.	• *Threat Abatement Plan for Competition and Land Degradation by Rabbits* (DEE, 2016); • *PestSmart Toolkit* (Centre for Invasive Species Solutions, 2023); and • *Ecology and Management of Vertebrate Pests in NSW* (DPI, 2018b).
Brown Hare	*Lepus capensis*	-	• ground shooting.	• *Integrated Hare Control* (Department of Environment and Primary Industries [Victoria], 2015); and • *Ecology and Management of Vertebrate Pests in NSW* (DPI, 2018b).

Table 3-2 (Continued)
Control Methods for Target Pest Animals – Mine Site

Common Name	Scientific Name	Status[1]	Control Methods	Relevant Documents
Feral Cat	*Felis catus*	-	• ground baiting; and/or • ground shooting.	• *Threat Abatement Plan for Predation by Feral Cats* (DotE, 2015b)[2]; • *PestSmart Toolkit* (Centre for Invasive Species Solutions, 2023); and • *Ecology and Management of Vertebrate Pests in NSW* (DPI, 2018b).
Black Rat	*Rattus*	-	• ground baiting.	• *Vertebrate Pest Control Manual* (DPI, 2020).
House Mouse	*Mus musculus*	-	• ground baiting.	• *Vertebrate Pest Control Manual* (DPI, 2020).

1 *NSW Rural Lands Protection Act, 1998.*

Control measures will be implemented by mine staff or by an appropriate Pest Control Contractor(s) as required. All personnel involved in pest animal control will be required to hold relevant and valid licences/permits, including any relevant chemical licences for pesticide use or a firearms licence for shooting. Pest animal control will be undertaken in consideration of the control recommendations outlined in the DPI *Vertebrate Pest Control Manual* (DPI, 2020) and that control strategies follow the NSW Codes of Practices (COPs) and Standard Operating Procedures (SOPs) (DPI, 2022a to 2022f).

MCC will seek to co-ordinate pest animal control around the MCCM Boundary Project with neighbouring landholders and other mine operators (i.e. to avoid duplication of pest animal control methods).

Examples of pest animal control techniques are described above in Table 3-2. A selection of these techniques or additional techniques may be undertaken depending on the pest animal species in an abundance which requires control (as determined through monitoring) and the success of these control techniques.

Ground Shooting

Ground shooting can be used for controlling small, isolated feral populations of large feral pests (http://www.feral.org.au/pestsmart/). Shooting by an experienced marksman is a target-specific and humane form of pest animal control (Gregory, 2003). Such shooting is usually done at night from a vehicle, with the aid of spotlights. The use of firearms will conform to relevant firearm legislation.

Ground Baiting

Ground baiting with licensed substances, such as 1080, is regulated in NSW by the NSW *Pesticides Act 1999* and can be carried out only under the conditions specified in the Pesticide

2 Noting that there is a draft revision of the *Threat Abatement Plan for Predation by Feral Cats*. Department of Climate Change, Energy, the Environment and Water (2023b).

Control (1080 Liquid Concentrate and Bait products) Order. The use of poison baits requires a minimum chemical use accreditation at AQF3 level or training specified for the licensed substance.

In NSW, pest control baits to assist in the management of pest animals are available for purchase through the North-west Local Land Service. Signage will be erected in areas where baiting is occurring in accordance with the requirements of the *Pesticides Act 1999*, the *Pesticides Regulation 2009* and all relevant Pesticide Control Orders.

Ground baiting of the Feral Pig will involve:

- Construction of bait stations as described in DPI (2022b).
- Non-poisoned baits (for free feeding) will be added to the bait stations as described in DPI (2022b).
- The period of free feeding will be between 3 days and 2 weeks.
- Toxic baits will be introduced to the bait stations once free-feed bait uptake levels off, and this is continued until toxic bait uptake ceases (1 to 3 nights).
- After a maximum of 3 consecutive nights, all remaining poisoned bait will be removed and, where possible, carcasses of poisoned pigs should be collected and disposed of to prevent poisoning of non-target wildlife or domestic animals.

Ground baiting of the European Red Fox will involve:

- Burying baits (10 centimetre [cm] deep) near fences and tracks and in former paddocks no closer than 200 to 500 m intervals (or 50 baits per 400 ha) (DPI, 2022b).
- Bait will be added at weekly intervals until bait uptake is minimal.
- After baiting is complete, all untaken baits and carcasses should be recovered and disposed of.

European Rabbit are the main prey of most foxes so a coordinated European Rabbit control program may assist to suppress the red fox population. In summary, ground baiting of the European Rabbit will involve:

- A minimum of three ‘free’ feeds (without toxin) at 2-to-3-day intervals will be provided.
- After baiting is complete, all untaken baits and carcasses should be recovered and disposed of in accordance with Condition 4.8 of Schedule 2 of the Pesticide Control Orders 2010.

Warren Ripping/Fumigation

Warren ripping is highly target specific and can be successfully employed during the breeding season (when poisoning programs are less effective). Mechanical rippers will be used to destroy the structure of the warren and kill rabbits.

Fumigation can be very effective for controlling rabbits where other methods are unsuitable. Fumigants are used to fill the warren with gas that is heavier than air. Phosphine may be used as rabbit fumigants (DPI, 2020). When using fumigation, all burrow entrances must be closed to prevent the escape of

rabbits. It is important to check treated warrens soon afterwards for new openings of burrows, and re-treat these (DPI, 2020).

Ground Baiting Black Rat and Mice

Several poisons are marketed, including RATTOFF® Zinc Phosphide baits and MOUSEOFF® Bromadiolone Rodent Bait. If significant increases in Black Rat and Mice populations are observed during monitoring activities, a poisoning program will be implemented.

Pest Animal Monitoring and Reporting

Pest animal monitoring is discussed in Section 3.13.3 and reporting survey data is discussed in Section 6.1. Key messages on pest animal prevention will be available to employees and/or contractors through ongoing communications and training to raise awareness of biodiversity issues in the region.

3.7 CONTROL OF EROSION

Erosion and sediment control measures are contained within the *MCCM Water Management Plan* (Whitehaven, 2023). Sediment mobilisation and erosion will be minimised by:

- installation of appropriate erosion and sediment controls;
- limiting the extent of the disturbance to the practical minimum;
- reducing the flow rate of water across the ground particularly on exposed surfaces and in areas where water concentrates;
- progressively rehabilitating disturbed land and constructing drainage controls to improve stability of rehabilitated land;
- treating rehabilitation areas to promote infiltration;
- protecting natural drainage lines and watercourses by the construction of erosion control devices such as diversion banks, channels and sediment retention dams;
- installing appropriate erosion and sediment controls around all soil stockpiling areas;
- installing suitable control measures in areas with steep gradients, as required (e.g. rock riprap, geotextile fabric); and
- restricting access to rehabilitated areas.

3.8 MANAGEMENT OF LIVESTOCK GRAZING AND AGRICULTURE

Livestock will be excluded from active mine areas. Livestock will be excluded from areas undergoing active revegetation (i.e. planting or seeding) and all those areas with a Land Capability Class unsuitable for grazing.

3.9 CONTROL OF ACCESS

Measures will be implemented to control public access to the MCCM Project Boundary and to regulate personnel access to areas of the Leard State Forest during weed or feral control (e.g. signage, fencing, locked gates). This is important to:

- limit the disturbance to rehabilitation areas;
- limit disturbance and spread of seed propagules during weeding; and
- ensure the safety of mine staff during live baiting programs, when feral shooting is taking place or when pest animal traps are being used.

3.10 VEHICLE DRIVING AND SIGNAGE

A vehicle driving standard will be implemented with speed restrictions that will assist to minimise the risk to fauna, especially collision risks on internal roads due to the extent of woodland habitat. Speeds on internal roads within the MCCM Project Boundary should not exceed the sign-posted limits. Signs will be erected to remind drivers to be alert at known fauna crossings and to signal the speed limit.

3.11 BUSHFIRE MANAGEMENT

Condition 69 of Schedule 3 of PA 10_0138 requires MCC to ensure that the MCCM is suitability equipped to respond to any fires on site and assist the NSW Rural Fire Service, Forestry Corporation NSW, emergency services and National Parks and Wildlife Service (NPWS) as much as possible if there is a fire in the surrounding area. MCC will assess each request from emergency services to consider the risk to people and plant that may be provided to assist. Bushfire management of the MCCM Project Boundary will be undertaken as part of the Project's Bushfire Management Plan and will include provisions for the following:

- perimeter asset protection zones; and
- maintaining perimeter tracks according to specifications.

The Bushfire Management Plan will describe the management measures to ensure that the mine site is protected safely.

3.12 INDUCTIONS AND STAFF EDUCATION

Inductions for staff, contractors and visitors to the mine site will be conducted to make them aware of the ecological issues present in the MCCM Project Boundary and their role and responsibilities for the protection and/or minimisation of impacts to all native biodiversity.

Inductions will address the location of sensitive flora and fauna and the mitigation measures being implemented to protect the biodiversity values present on the MCCM Project Boundary.

Additional targeted and specific inductions/training will be provided for contract and operational staff directly involved in clearing of native vegetation in relation to the two-staged clearing protocols, exclusions zones, types of flora and fauna, in particular threatened species.

3.13 MONITORING PROGRAM

3.13.1 Rehabilitation Area

A description of rehabilitation monitoring is provided within the RMP.

3.13.2 Weed Monitoring

Purpose

Monitoring will be undertaken to document the change in the type, extent and density of major weed occurrences in the MCCM Project Boundary over time and provide recommendations about appropriate weed control required. Regular inspections will also facilitate detection of new infestations of weeds and enable assessment of the effectiveness of the weed management measures as outlined in Section 3.5.

Methodology

Environmental (e.g. WONS) and priority weeds will be monitored via inspections in the MCCM Project Boundary by a suitably qualified person(s) with experience in identification of weeds. If major weed infestations are discovered in the MCCM Project Boundary, the coordinates will be recorded, including the boundaries of large populations and details recorded regarding the estimated density of the infestation and the number of plants. Mapping will be prepared showing the extent of weeds requiring control.

The weed monitoring program will target areas that are more susceptible to weeds (e.g. topsoil stockpiles, roadsides, drainage areas and mine rehabilitation).

The weeds will be controlled as outlined in Section 3.5. Follow-up inspections will be undertaken to assess the effectiveness of the weed management measures implemented and the requirement for any additional management measures.

Frequency

Environmental (e.g. WONS) and priority weeds will be monitored twice a year. Each weed monitoring period will include primary monitoring and secondary monitoring after weed control (a total of four weed monitoring events per year).

Data Analysis and Storage

All weed monitoring data (all activities and their GPS locations) will be entered in a database and stored for later use and analysis. New species detected during surveys will be added to the database.

3.13.3 Pest Animal Monitoring

Purpose

The abundance and distribution of pest animals within the MCCM Project Boundary will be monitored to provide the necessary information to trigger management actions and determine the efficacy of control measures aimed at reducing pest animal abundance. The mine site monitoring program will be integrated with the offset area monitoring program to provide an ongoing collective management approach.

Methodology

Pest animal monitoring will adopt the relevant methodologies for specific pest animals, generally in accordance with the NSW DPI *Monitoring Techniques for Vertebrate Pests* (Mitchell and Balogh, 2007a to 2007e) so that a range of methods may be used such as transects/spotlighting, sand pads, cameras, traps, etc. Table 3-3 provides a list of target pest animals. Data on pest animal population/abundance from monitoring and control outcomes (e.g. date, activity, location) will be recorded.

Table 3-3
Target Pest Animals

Common Name	Scientific Name
Feral Pig	*Sus scrofa*
European Red Fox	*Vulpes*
European Rabbit	*Oryctolagus cuniculus*
Brown Hare	*Lepus capensis*
Feral Cat	*Felis catus*

Native grazers that potentially inhibit restoration/revegetation (e.g. kangaroos) will be recorded. If grazing kangaroos are determined to be overabundant, the need for kangaroo control measures will be reviewed (Section 5.19).

Frequency

In order to monitor population changes over time and efficacy of control measures, pest animals will be monitored. Review of the pest animal control measures will be annually, and follow-up works will be developed and implemented as required. Any proposed changes to frequency of monitoring will be discussed with BCS and formalised in a revision to this BMP.

Data Analysis and Storage

After each monitoring event is complete, the pest animal abundance will be estimated in accordance with NSW DPI *Monitoring Techniques for Vertebrate Pests* (Mitchell and Balogh, 2007a to 2007e).

Data will be updated annually to analyse for trends and effectiveness of the control program.

3.14 BIODIVERSITY CORRIDOR (VEGETATED BUFFER CORRIDOR)

Condition 7 (Schedule 2) and Condition 47 (Schedule 3) of PA 10_0138 require protection of the biodiversity corridor (vegetated buffer corridor) between the MCCM Project Boundary and that of the Boggabri Coal Project (Figure 2). At this stage, MCC does not intend to propose an alternate area in accordance with Condition 7 (Schedule 2) of PA 10_0138 and the existing 250m wide biodiversity corridor (vegetated buffer corridor) is to be retained. MCC manages the biodiversity corridor (vegetated buffer corridor) in accordance with the Maules Creek Coal Mine Biodiversity Corridor Plan (Whitehaven, 2021a) which addresses the requirements of Condition 3 of EPBC Act Approval 2010/5566 and was approved by DAWE (now Cth DCCEEW) in December 2021.

The Biodiversity Corridor Plan (Whitehaven, 2021a; Appendix O) provides measures to protect native vegetation within the biodiversity corridor and will be implemented to maintain the native vegetation in the biodiversity corridor and provide evidence that the Biodiversity Corridor will be protected in perpetuity. In 2013, when the EPBC Act approval was granted, it was acknowledged by the Department that the biodiversity corridor occurs in Leard State Forest (State-owned zoned for forestry and mining). Prior to expiry of the EPBC Approval 2010/5566, MCC will pursue an alternate legal mechanism over the biodiversity corridor (or an alternative corridor) if one becomes available through consultation with the NSW Government or otherwise seek to extend the approval period to cover the timeframe required to put in place the required legal mechanism.

A summary of the measures to protect and maintain native vegetation in the Biodiversity Corridor (vegetated corridor) is provided in Table 3-4.

Table 3-4
Summary of Measures to Protect and Maintain Native Vegetation in the Biodiversity Corridor (Vegetated Buffer Corridor)

Measure	Timeframe for Implementation	Targets	Corrective Actions	Monitoring
Land Disturbance Protocol	• Prior to clearing	• No unauthorised clearing	N/A	Authorisation by the Site Manager or a delegate
Marking the Limits of Clearing	• Prior to clearing	• No unauthorised clearing	N/A	Authorisation by Site Manager or a delegate
Controlling Access	• Prior to entry	• No staff, contractors or visitors entering the corridor without an induction	N/A	Periodic inspections.
Staff Education	• Prior to entry	• No staff, contractors or visitors entering the corridor without an induction	N/A	Periodic inspections.
Control of Weeds	• Monitoring surveys biannually • Management control informed by survey results	• Control the spread of WONS and priority weeds.	Incorporate into subsequent monitoring and management	Biannual

Table 3-4 (Continued)
Summary of Measures to Protect and Maintain Native Vegetation in the Biodiversity Corridor (Vegetated Buffer Corridor)

Measure	Timeframe for Implementation	Targets	Corrective Actions	Monitoring
Control of Animal Pests	• Monitoring surveys biannually. • Feral animals will be monitored on a frequency agreed with the NSW Department of Planning, Industry and Environment (DPIE).	• Monitoring completed bi-annually • Feral animal control informed by monitoring	Feral animal control undertaken considering the DPI Vertebrate Pest Control Manual (DPI, 2020)	Biannual
Bushfire Management	• Response provided as required	• No uncontrolled fires caused by the MCCM mining activities	N/A	As required

3.15 AQUATIC HABITAT

Condition 51 (Schedule 3) of PA 10_0138 requires MCCM to consult with DPI Fisheries regarding the general operation and design of the pump station and screens prior to construction of the permanent Namoi water pipeline and pump station. At this stage no permanent pump station has been implemented. Once a permanent pumping station is decided upon MCC will consult with DPI Fisheries.

PART B
OFFSET AREA MANAGEMENT OF FLORA AND FAUNA

4 OFFSET AREAS - BASELINE ECOLOGICAL CONDITIONS

4.1 INTRODUCTION

This section provides a description of the methodology and results of the surveys measuring the baseline ecological conditions in the offset areas. Figures 3 and 4 shows the location of the offset areas relative to other local biodiversity offset areas. Figures 5a to 5h, 6a to 6g and 7a to 7h show vegetation communities and threatened species records in the offset areas.

All MCCM offset areas are secured under Conservation Agreements under the NP&W Act or BC Act in accordance with Conditions 13 and 13A of the EPBC Act Approval 2010/5566 and Condition 45 of Schedule 3 of PA 10_0138. The offset areas are listed in Table 4-1 and the boundaries are shown on Figure 3.

Table 4-1
Offset Areas Subject to this Biodiversity Management Plan

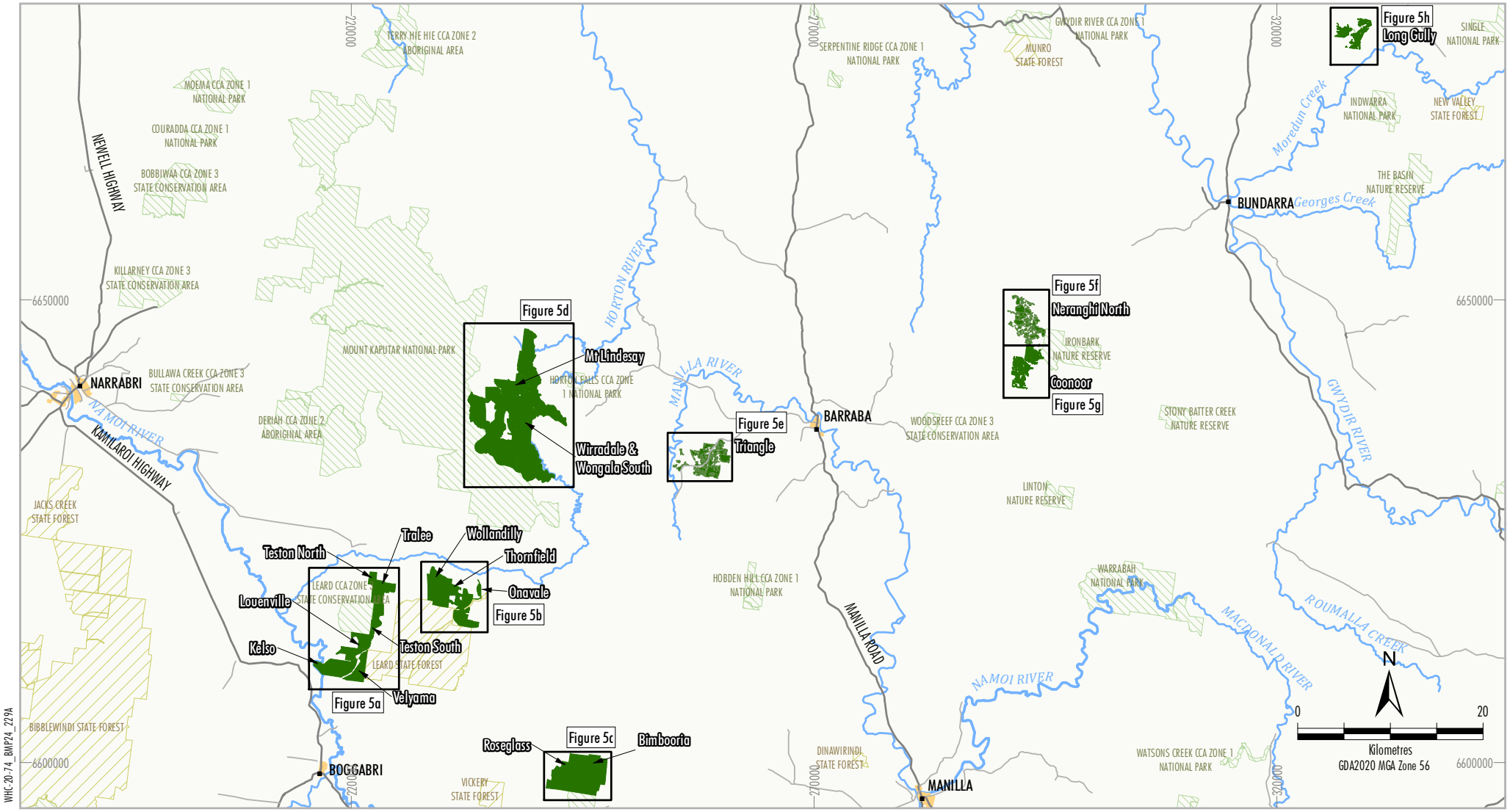
Offset Area	Total Size of the Offset Area (ha)^	Conservation Agreement (CA) ID	Offset Area under PA 10_0138	Offset Area under EPBC 2010/5566
Kelso	489.4	VCA0487 under the NP&W Act	✓	✓
Velyama	702.6		✓	✓
Louenville	213.1		✓	✓
Teston South	336.2	VCA0491 under the NP&W Act	✓	✓
Teston North#	293.9		✓	-+
Tralee#	205.2		✓	-+
Wollandilly	804.4	VCA0490 under the NP&W Act	✓	✓
Onavale	557.7	VCA0492 under the NP&W Act	✓	✓
Roseglass	1,465.3	VCA0489 under the NP&W Act	✓	✓
Bimbooria	622.5		✓	✓
Wirradale and Wongala South	4,446.6	CA0234 under the BC Act	✓	✓
Mt Lindesay	2,337.1	CA0235 under the BC Act	✓	✓
*Thornfield	171.3	CA0268 under the BC Act	✓	✓
*Long Gully	352.9	CA0691 under the BC Act	✓	✓
*Neranghi North	567	CA0693 under the BC Act	✓	✓
*Triangle	741.9	CA0694 under the BC Act	✓	✓
*Coonoor	573.9	CA0690 under the BC Act	✓	✓
Total	**14,881**			

* Additional offset area approved under Condition 11A of the EPBC Act Approval 2010/5566.

\+ Commonwealth Minister for the Environment agreed to the removal of these two properties as offset areas under EPBC Act Approval 2010/5566 on 28 May 2021

^ Areas in Table 16 of PA 10_0138 were rounded.

Areas of Teston North and Tralee in Table 16 of PA 10_0138 were swapped.



LEGEND

- NPWS Estate
- State Forest
- MCCM Offset Area

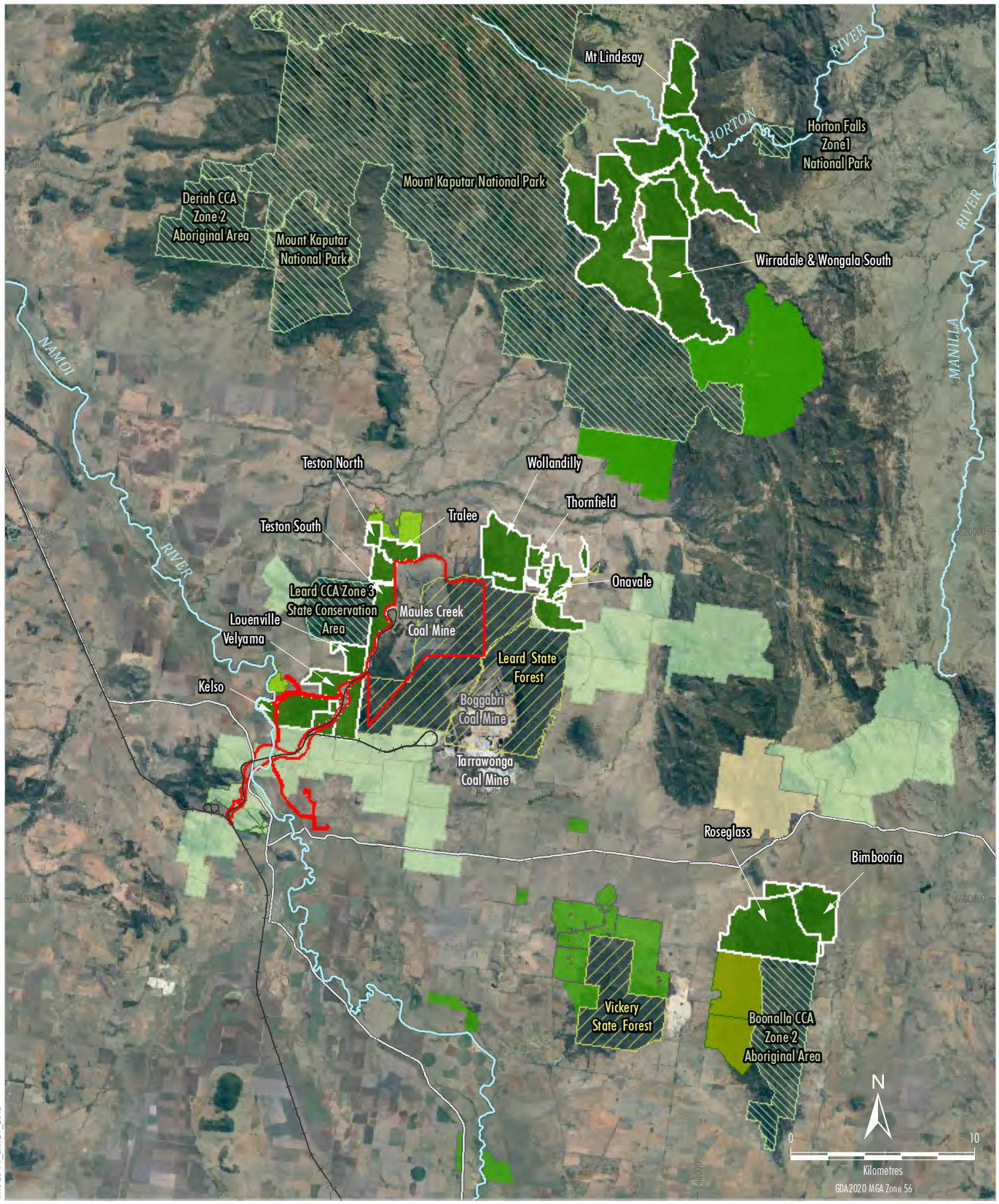
Source: Stewart Surveys (2018 - 2020); Whitehaven Coal Limited (2021); NSW Spatial Services (2021)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Biodiversity Offset Areas Subject to this Mangemement Plan

Figure 3



LEGEND

- MCCM Project Boundary
- NPWS Estate
- State Forest
- MCCM Offset Area
- Other Whitehaven Offset Area
- Other Whitehaven Conservation Agreement Area
- Whitehaven Biobanking Site
- Boggabri Coal Offset Area
- Piney Range Biobanking Site

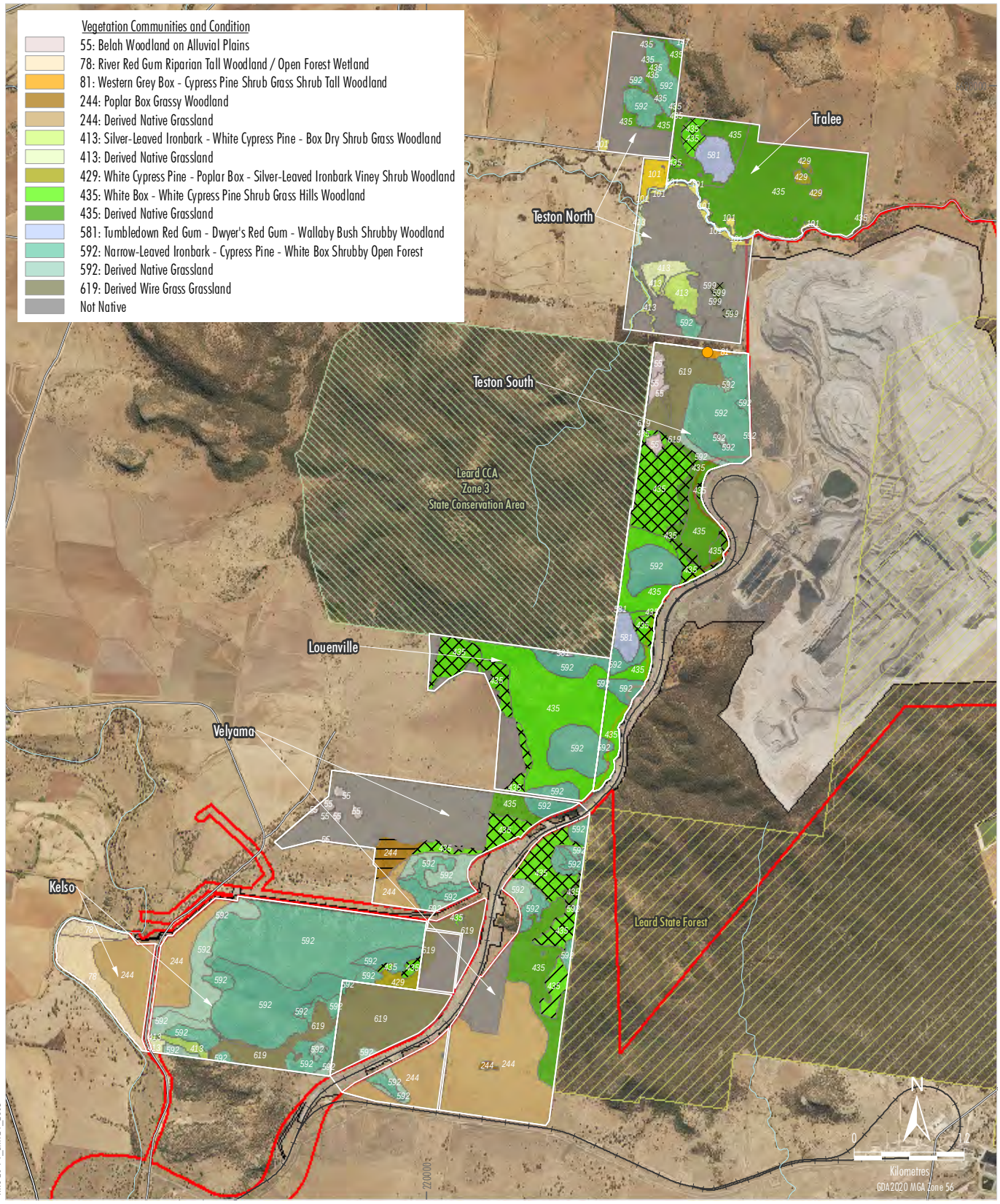
Source: NSW Spatial Services (2020)
Orthophoto: Google Earth (2020)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Local Biodiversity Offsets

Figure 4



LEGEND

- NPWS Estate
- State Forest
- MCCM Project Boundary
- Approximate Extent of Existing/Approved Surface Development
- MCCM Offset Area

Threatened Ecological Communities

- Box-Gum Woodland CEEC listed under the BC Act
- Box-Gum Woodland CEEC listed under the EPBC Act
- Poplar Box Grassy Woodland EEC listed under the EPBC Act
- Grey Box Woodland EEC listed under the BC Act and EPBC Act

Source: NSW Spatial Services (2021); AMBS (2022) Orthophoto Whitehaven Coal (April 2019)

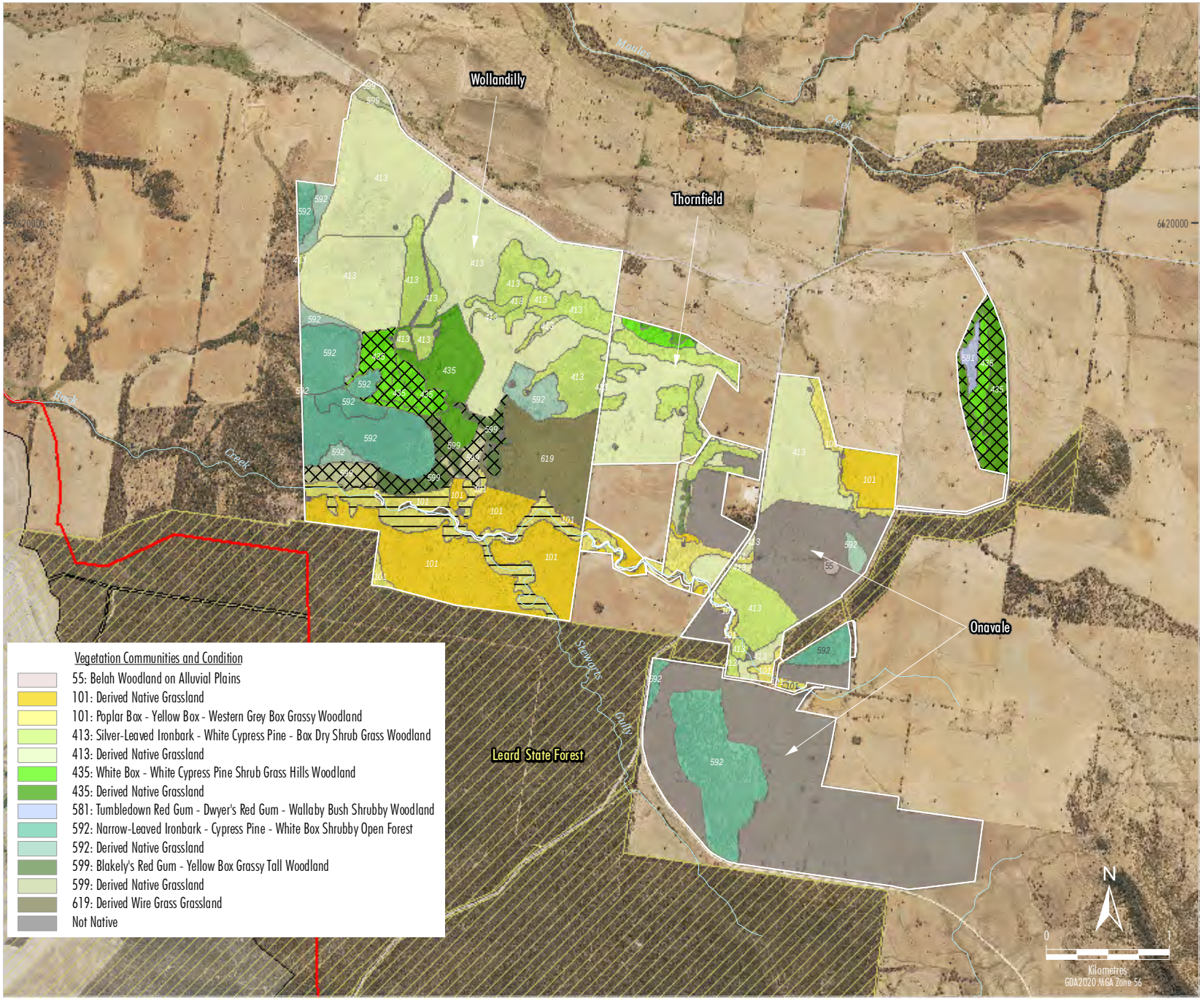
WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Vegetation Communities - Kelso, Velyama, Louenville, Teston South, Teston North and Tralee

Figure 5a

WMC-20-74_BMP24_230B



LEGEND

- State Forest
- MCCM Project Boundary
- Approximate Extent of Existing/Approved Surface Development
- MCCM Offset Area

Threatened Ecological Communities

- Box-Gum Woodland CEEC listed under the BC Act
- Box-Gum Woodland CEEC listed under the EPBC Act
- Poplar Box Grassy Woodland EEC listed under the EPBC Act

Source: NSW Spatial Services (2021); AMBS (2021) Orthophoto Whitehaven Coal (April 2019)

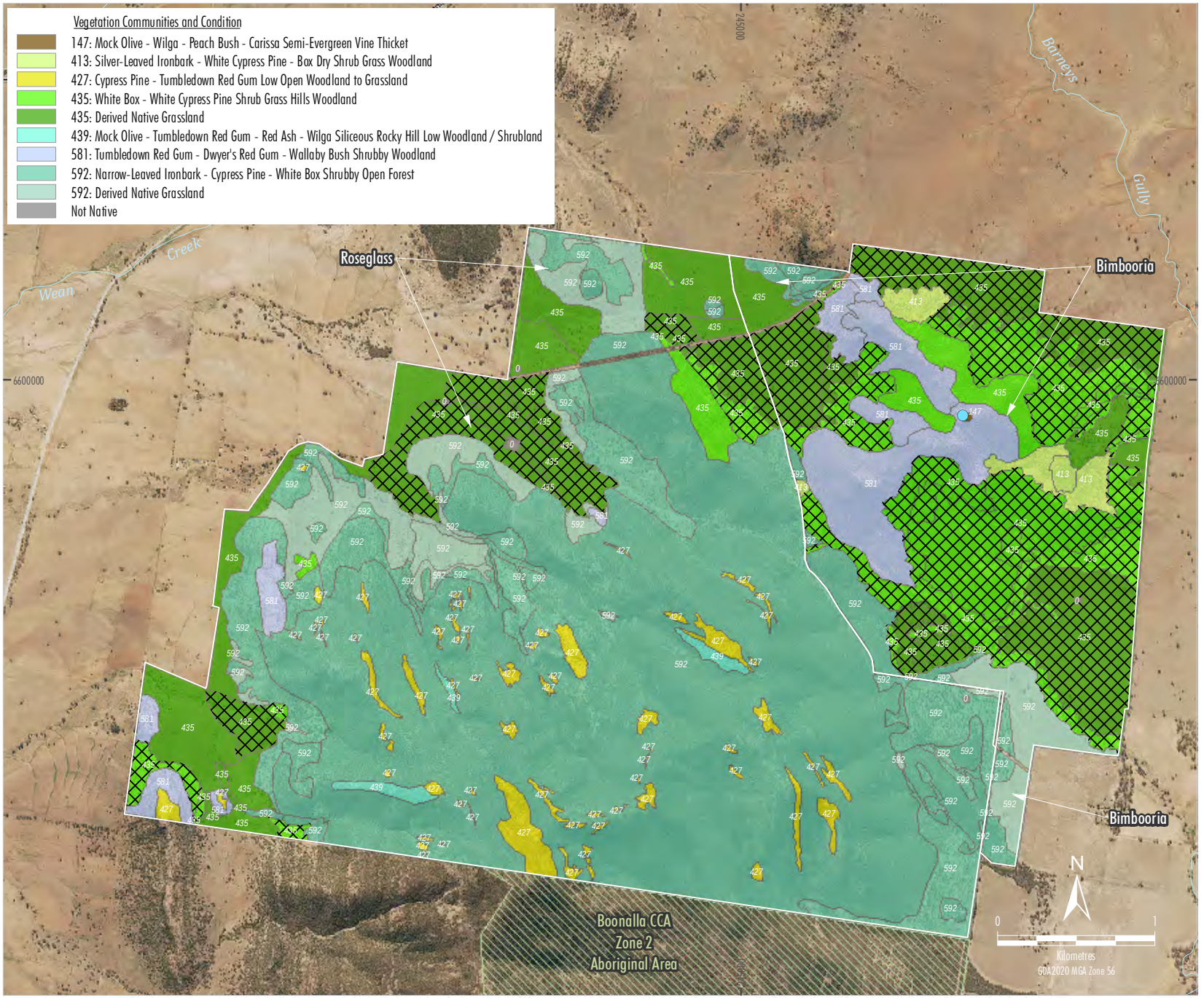
WHITEHAVEN COAL

MAULES CREEK COAL MINE

Vegetation Communities - Wollandilly, Thornfield and Onavale

Figure 5b

WHC-20-74_BMP24_231.A



LEGEND

NPWS Estate

MCCM Offset Area

Threatened Ecological Communities

Box-Gum Woodland CEEC listed under the BC Act

Box-Gum Woodland CEEC listed under the EPBC Act

Semi-evergreen Vine Thicket EEC listed under the EPBC Act and BC Act

Source: NSW Spatial Services (2021); AMBS (2021) Orthophoto Whitehaven Coal (April 2019)

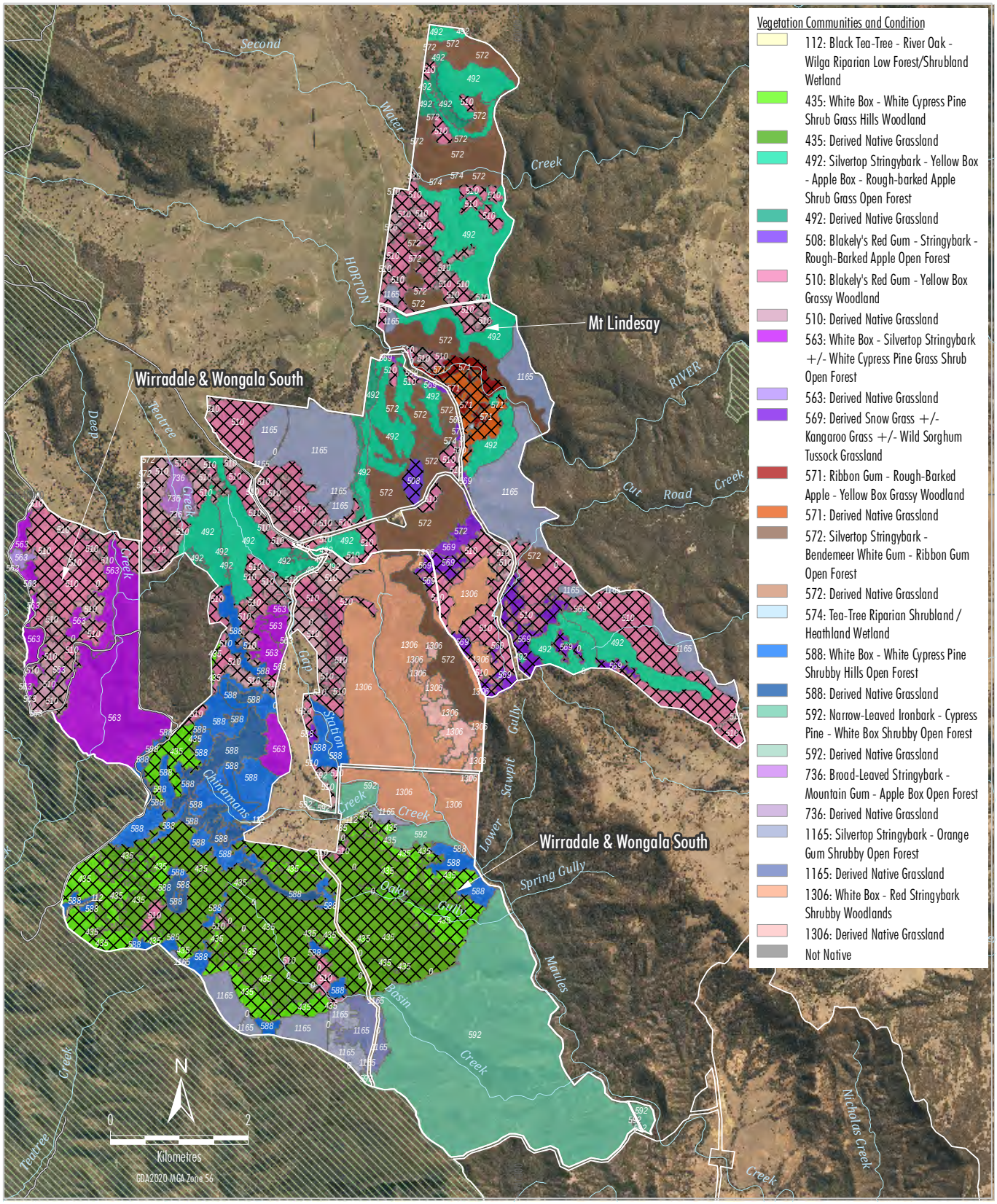
WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Vegetation Communities - Roseglass and Bimbooria

Figure 5c

WHC 20-74_BMP24_232A



WHC-20-74_BM P24_233A

LEGEND

- NPWS Estate
- MCCM Offset Area

Threatened Ecological Communities

- Box-Gum Woodland CEEC listed under the BC Act
- Box-Gum Woodland CEEC listed under the EPBC Act

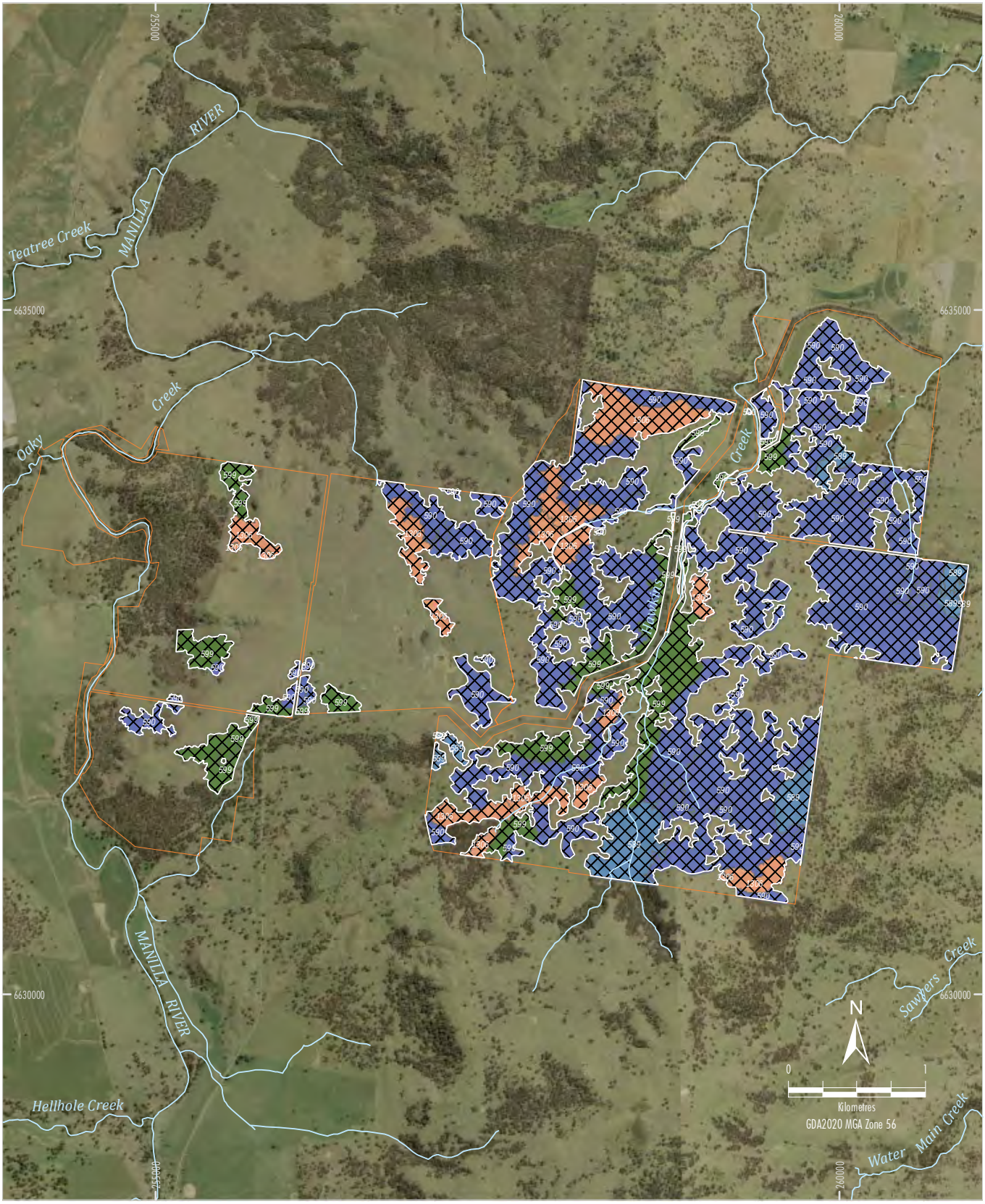
Source: NSW Spatial Services (2021); AMBS (2021) Orthophoto Whitehaven Coal (April 2019)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Vegetation Communities - Mt Lindesay, Wirradale and Wongala South

Figure 5d



LEGEND

Property Boundary

MCCM Offset Area

Vegetation Communities and Condition

589: White Box - White Cypress Pine - Silver-Leaved Ironbark Grassy Woodland

590: White Box Grassy Woodland

599: Blakely's Red Gum - Yellow Box Grassy Tall Woodland

1306: White Box - Red Stringybark Shrubby Woodlands

Threatened Ecological Communities

Box-Gum Woodland CEEC listed under the BC Act

Box-Gum Woodland CEEC listed under the EPBC Act

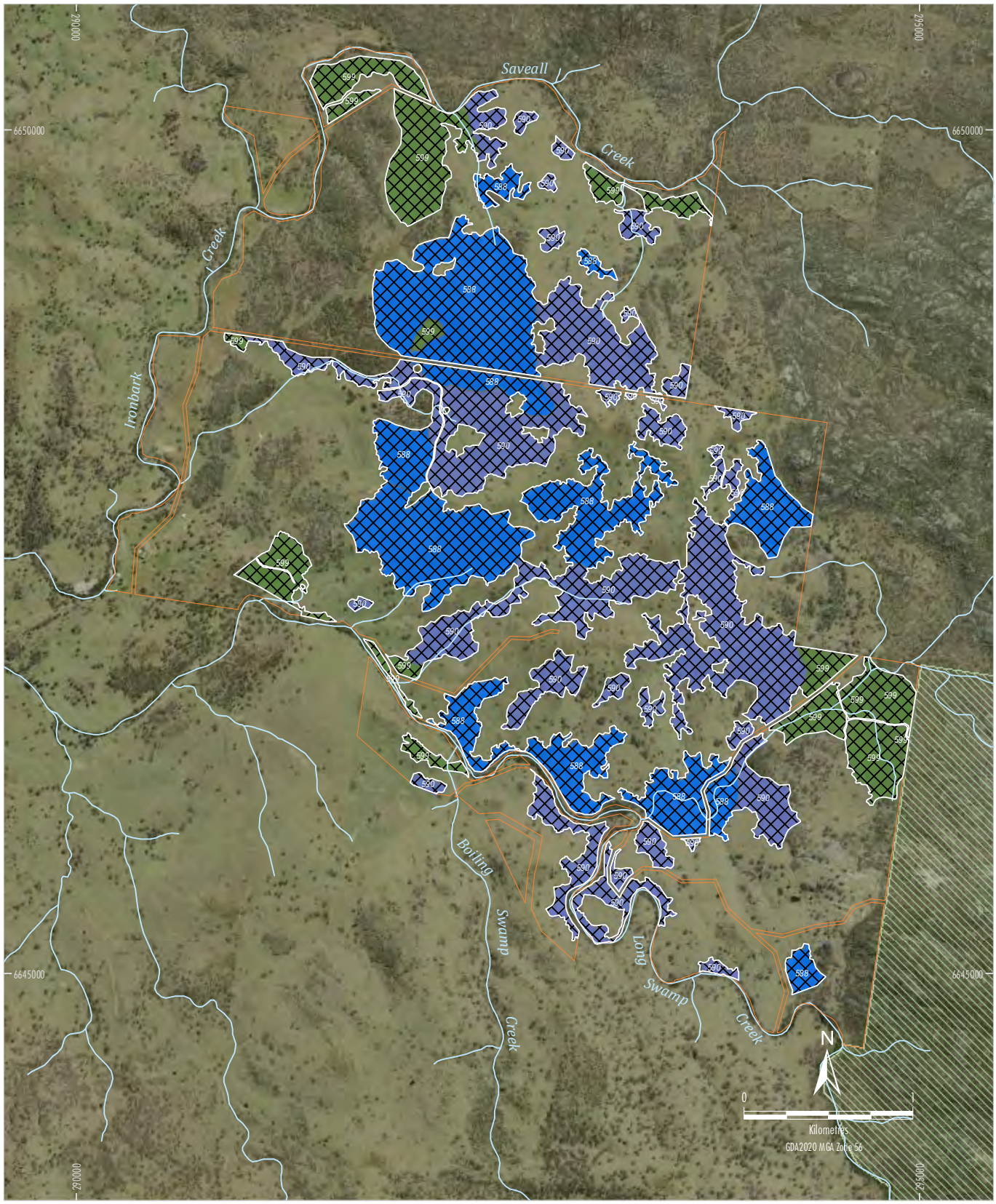
Source: NSW Spatial Services (2021)
AMBS (2021)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Vegetation Communities - Triangle

Figure 5e



LEGEND

NPWS Estate

Property Boundary

MCCM Offset Area

Vegetation Communities and Condition

588: White Box - White Cypress Pine Shrubby Hills Open Forest

590: White Box Grassy Woodland

599: Blakely's Red Gum - Yellow Box Grassy Tall Woodland

Threatened Ecological Communities

Box-Gum Woodland CEEC listed under the BC Act

Box-Gum Woodland CEEC listed under the EPBC Act

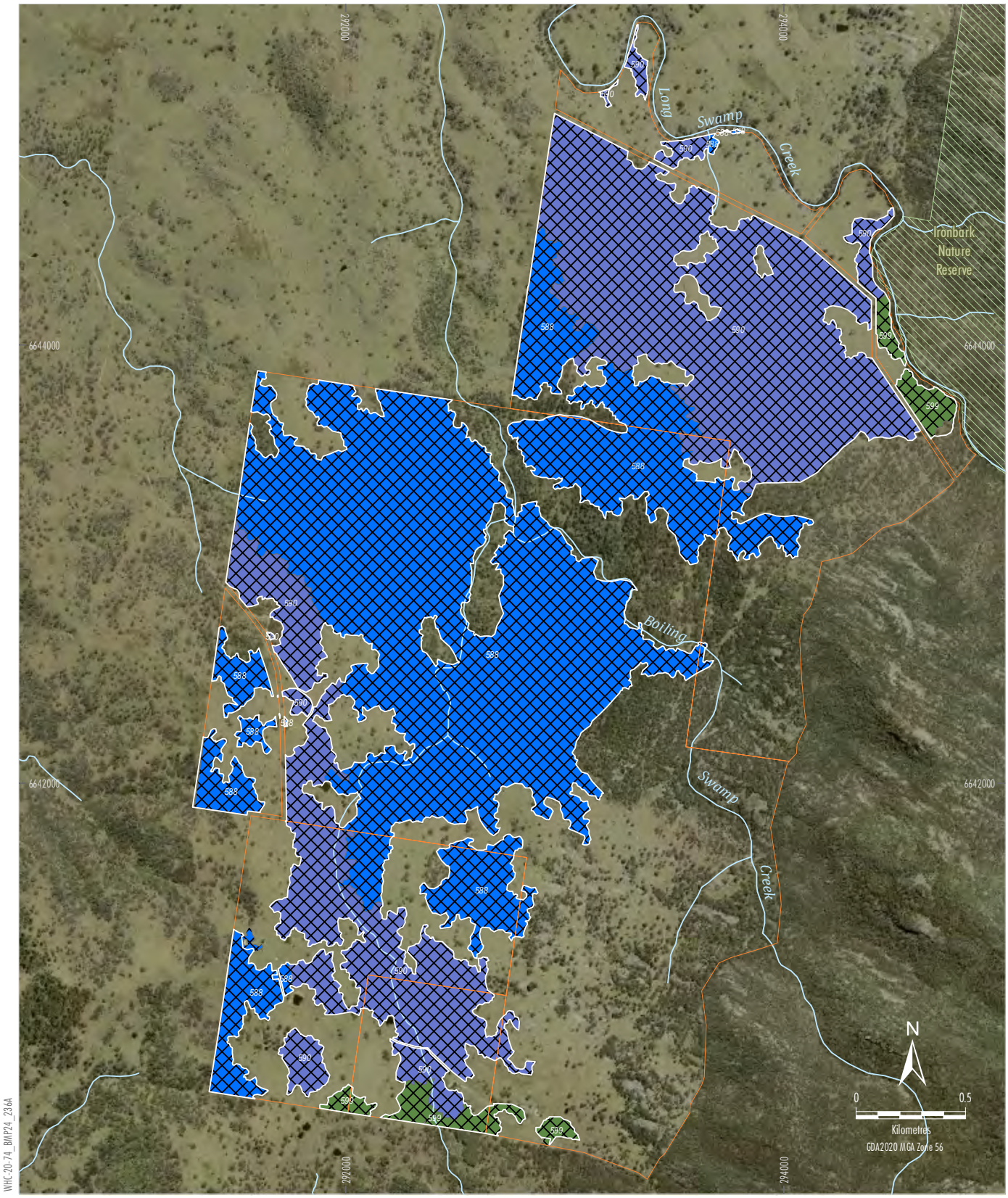
Source: NSW Spatial Services (2021); AMBS (2021)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Vegetation Communities - Neranghi North

Figure 5f



WHC-20-74_BMP24_236A

LEGEND

NPWS Estate
Property Boundary
MCCM Offset Area

Vegetation Communities and Condition

588: White Box - White Cypress Pine Shrubby Hills Open Forest
590: White Box Grassy Woodland
599: Blakely's Red Gum - Yellow Box Grassy Tall Woodland

Threatened Ecological Communities

Box-Gum Woodland CEEC listed under the BC Act
Box-Gum Woodland CEEC listed under the EPBC Act

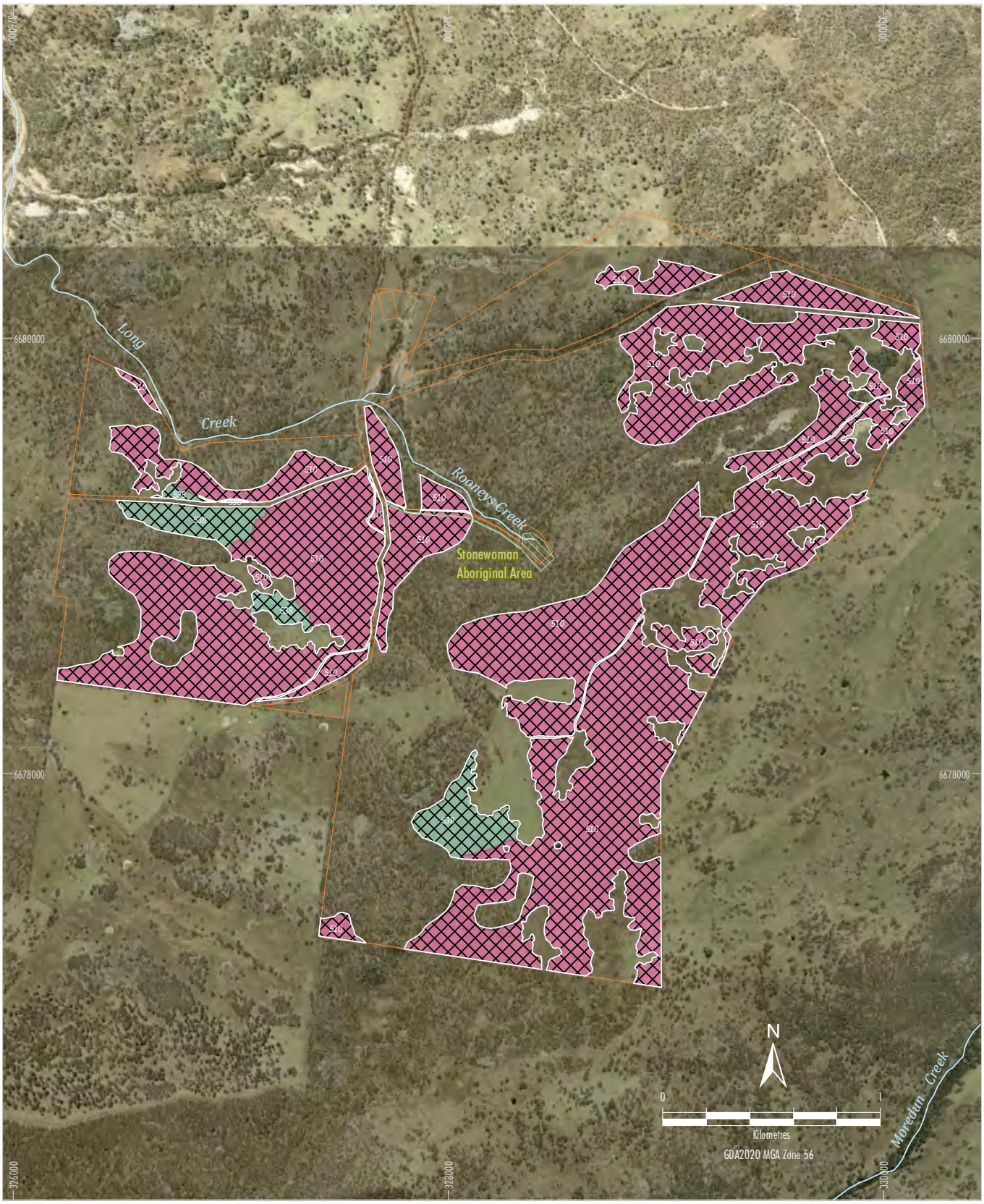
Source: NSW Spatial Services (2021); AMBS (2021)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Vegetation Communities - Coonoor

Figure 5g



LEGEND

NPWS Estate

Property Boundary

MCCM Offset Area

Vegetation Communities and Condition

538: Rough-Barked Apple - Blakely's Red Gum Open Forest

510: Blakely's Red Gum - Yellow Box Grassy Woodland

Threatened Ecological Communities

Box-Gum Woodland CEEC listed under the BC Act

Box-Gum Woodland CEEC listed under the EPBC Act

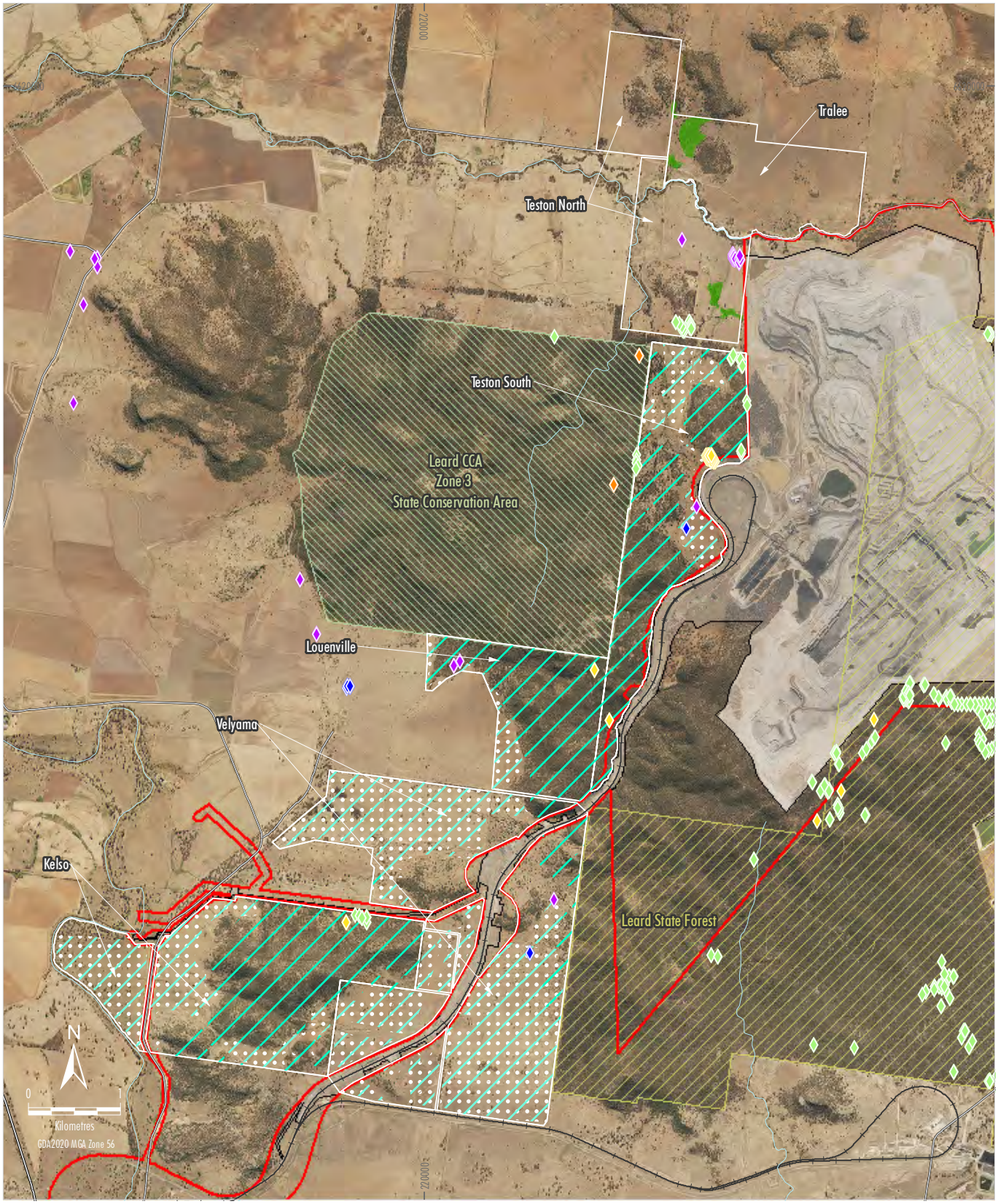
Source: NSW Spatial Services (2021); AMBS (2021)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Vegetation Communities - Long Gully

Figure 5h



LEGEND

- NPWS Estate
- State Forest
- Approximate Extent of Existing/ Approved Surface Development
- MCCM Project Boundary
- MCCM Offset Area
- *Tylophora linearis* Existing and Future Potential Habitat
- Area Undergoing Active Revegetation for *Tylophora linearis*

Threatened Species

- Bluegrass
- Finger Panic Grass
- Scant Pomaderris
- Spiny Peppercress
- *Tylophora linearis*

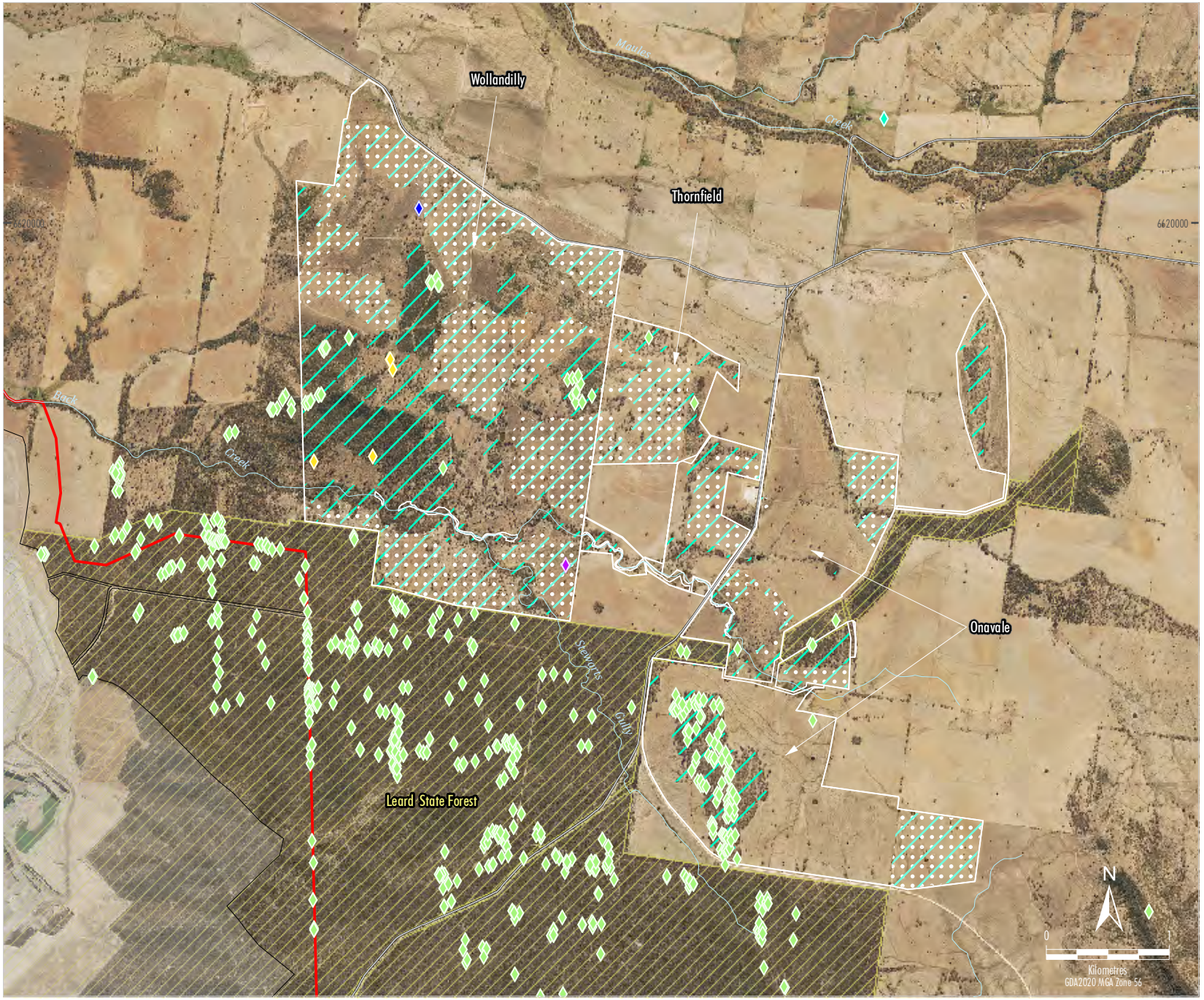
Source: NSW Spatial Services (2020); AMBS (2014a, 2017c, 2022); Cumberland Ecology (2015, 2020); DPE (2023a, 2023b); Ecoplanning (2020b, 2021a, 2022a, 2023); Niche (2014a); Parsons Brinckerhoff (2010); Whitehaven Coal (2023a) Orthophoto Whitehaven Coal (April 2019)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Threatened Flora - Kelso, Velyama, Louenville,Teston South, Teston North and Tralee

Figure 6a



LEGEND

- State Forest
- MCCM Project Boundary
- Approximate Extent of Existing/Approved Surface Development
- MCCM Offset Area
- *Tylophora linearis* Existing and Future Potential Habitat
- Area Undergoing Active Revegetation for *Tylophora linearis*

Threatened Species

- Bluegrass
- Finger Panic Grass
- Ooline
- Scant Pomaderris
- *Tylophora linearis*

Source: NSW Spatial Services (2020); AMBS (2017c, 2021); Cumberland Ecology (2015, 2020); DPE (2023a, 2023b); Ecoplanning (2020a, 2020b, 2021a, 2021b,2022a); Hunter Eco (2016, 2019b); Niche (2014a, 2014d); Whitehaven Coal (2018, 2019, 2023a) Orthophoto Whitehaven Coal (April 2019)

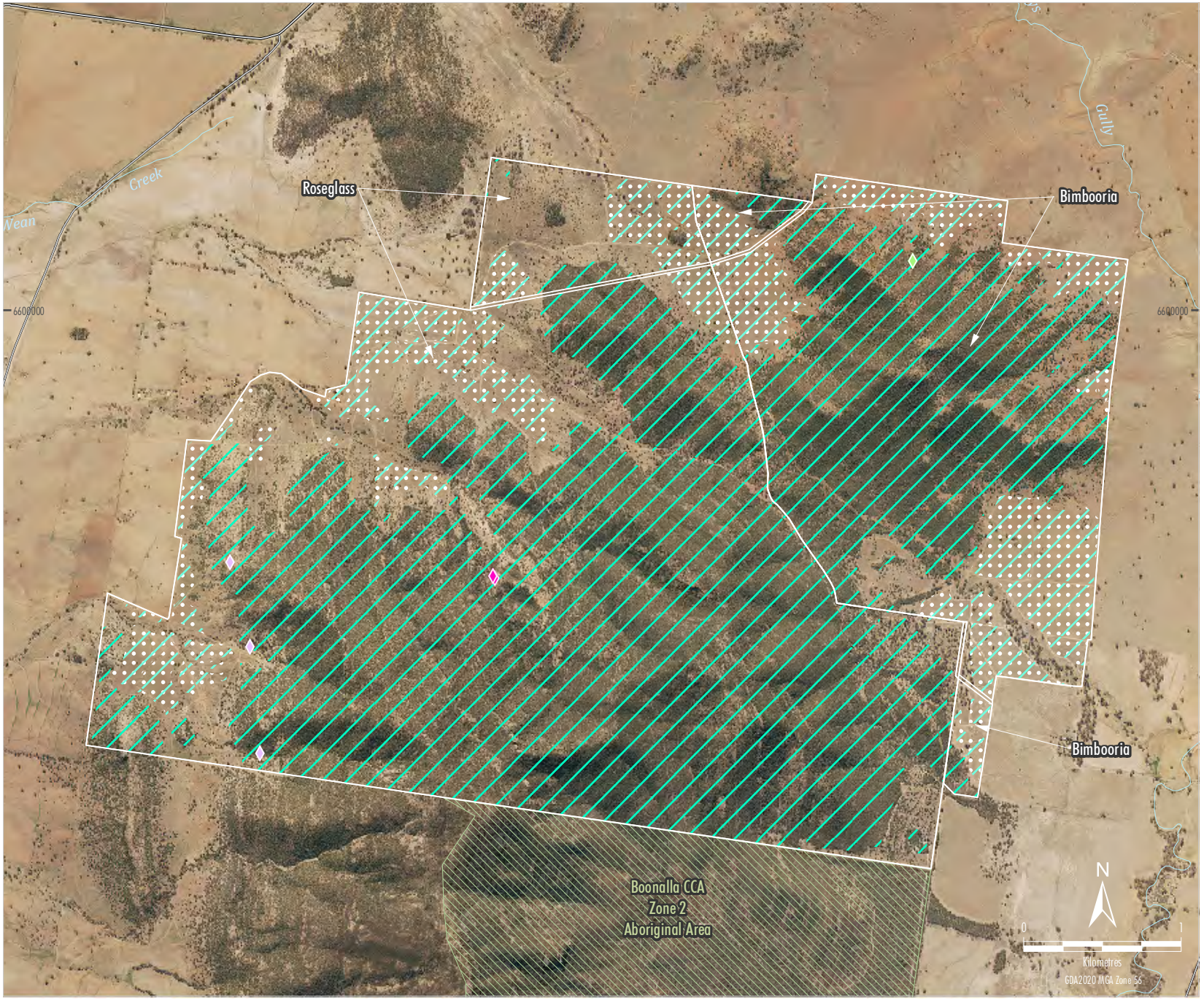
WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Threatened Flora - Wollandilly, Thornfield and Onavale

Figure 6b

WHC-20-74_BMP24_215A



LEGEND

- NPWS Estate
- MCCM Offset Area
- *Tylophora linearis* Existing and Future Potential Habitat
- Area Undergoing Active Revegetation for *Tylophora linearis*

Threatened Species

- Dungowan Starbush
- Granite Homoranthus
- *Tylophora linearis*

Source: NSW Spatial Services (2020); AMBS (2021); DPE 2023b); Niche (2012a; 2014a); Hunter Eco (2021); Whitehaven Coal (2023a)
Orthophoto Whitehaven Coal (April 2019)

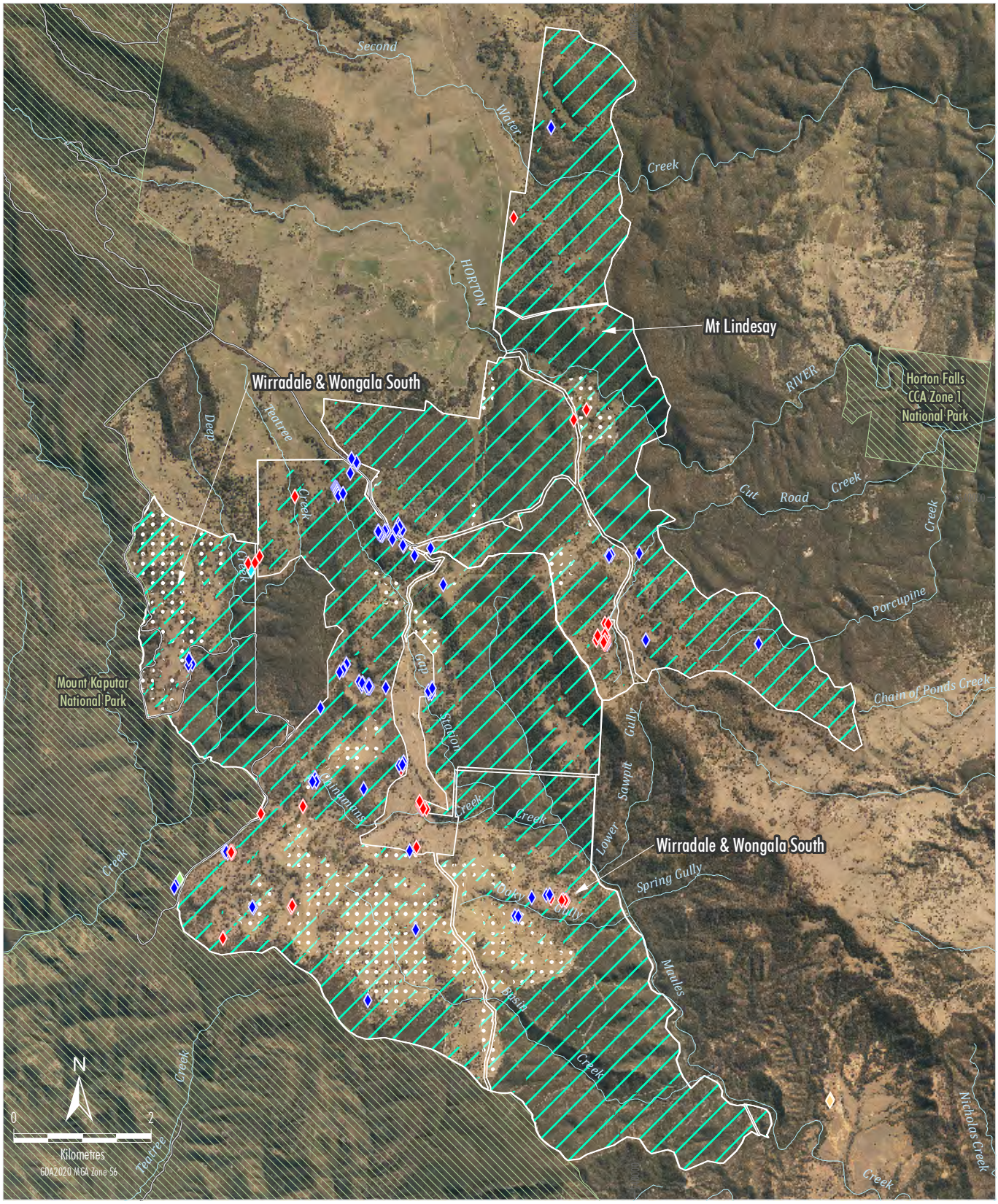
WHC-20-74_BMP24_217A

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Threatened Flora - Roseglass and Bimbooria

Figure 6c



VMC-20-74_BMP24_218A

LEGEND

- NPWS Estate
- MCCM Offset Area
- *Tylophora linearis* Existing and Future Potential Habitat
- Area Undergoing Active Revegetation for *Tylophora linearis*

Threatened Species

- Austral Toadflax
- Bluegrass
- *Callistemon pungens*
- Silky Swainson-pea
- *Tylophora linearis*

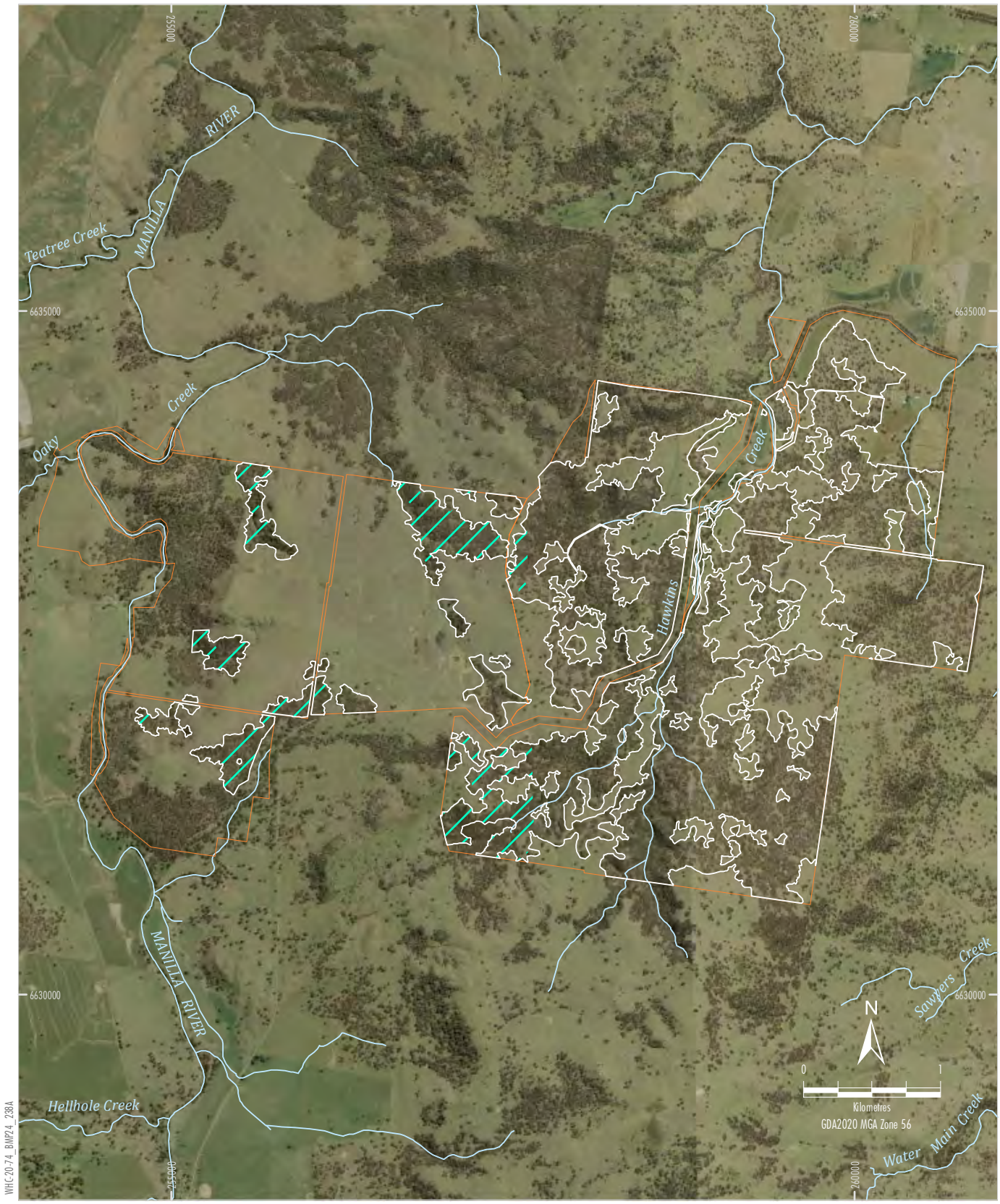
Source: NSW Spatial Services (2020); AMBS (2017c, 2021a); DPE (2023b); Hunter Eco (2021); Niche (2012b); Whitehaven Coal (2023a) Orthophoto Whitehaven Coal (April 2019)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Threatened Flora - Mt Lindesay, Wirradale and Wongala South

Figure 6d



Source: NSW Spatial Services (2021); Whitehaven Coal (2023); AMBS (2023); Eco Hunter (2021)

LEGEND

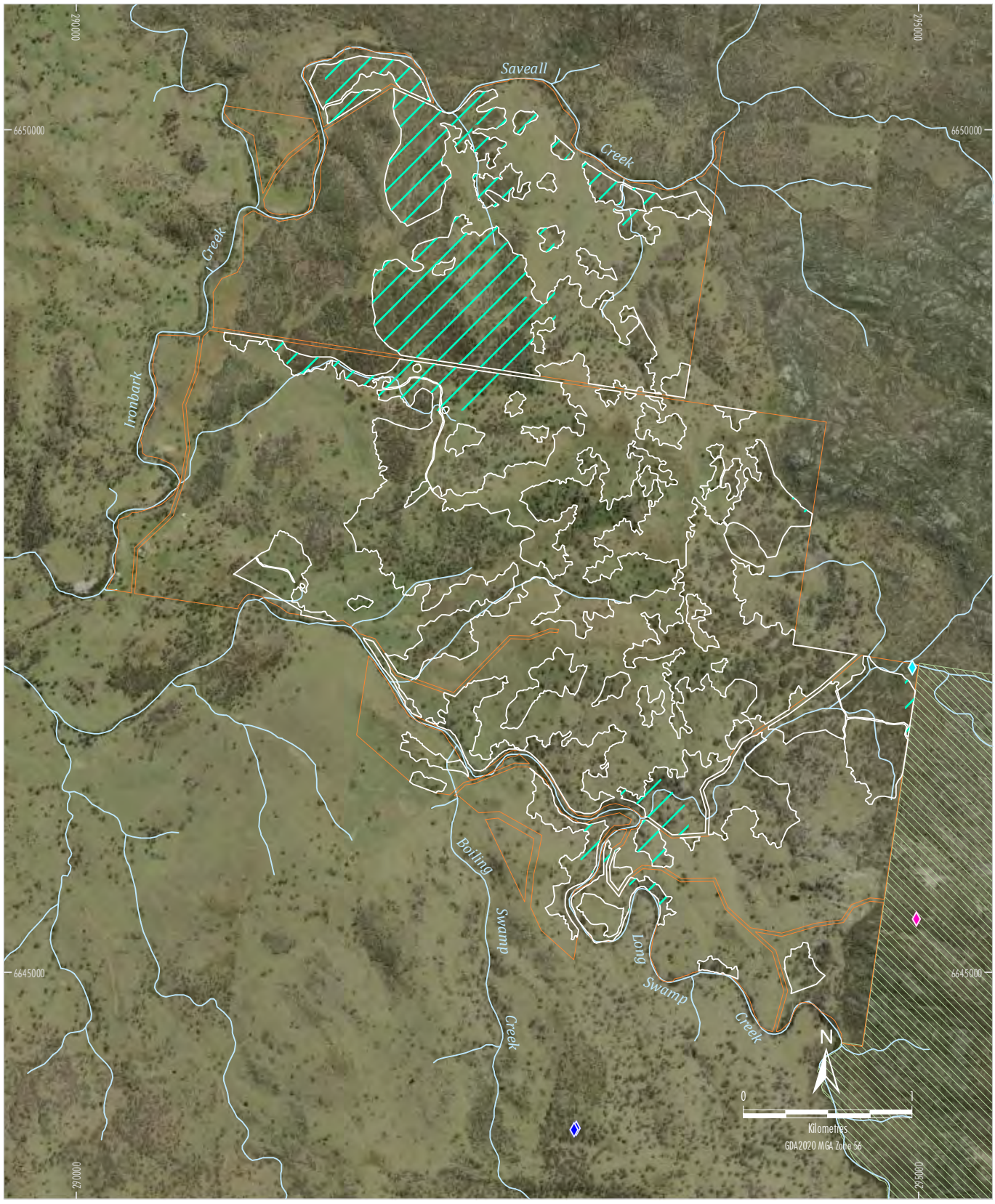
- Property Boundary
- MCCM Offset Area
- *Tylophora linearis* Existing and Future Potential Habitat

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Threatened Flora - Triangle

Figure 6e



LEGEND

- NPWS Estate
- Property Boundary
- MCCM Offset Area
- *Tylophora linearis* Existing and Future Potential Habitat

Threatened Species

- Bluegrass
- *Callistemon pungens*
- Granite Homoranthus

Source: NSW Spatial Services (2021); AMBS (2021b); DPE (2023b); Hunter Eco (2021); Whitehaven Coal (2023a)

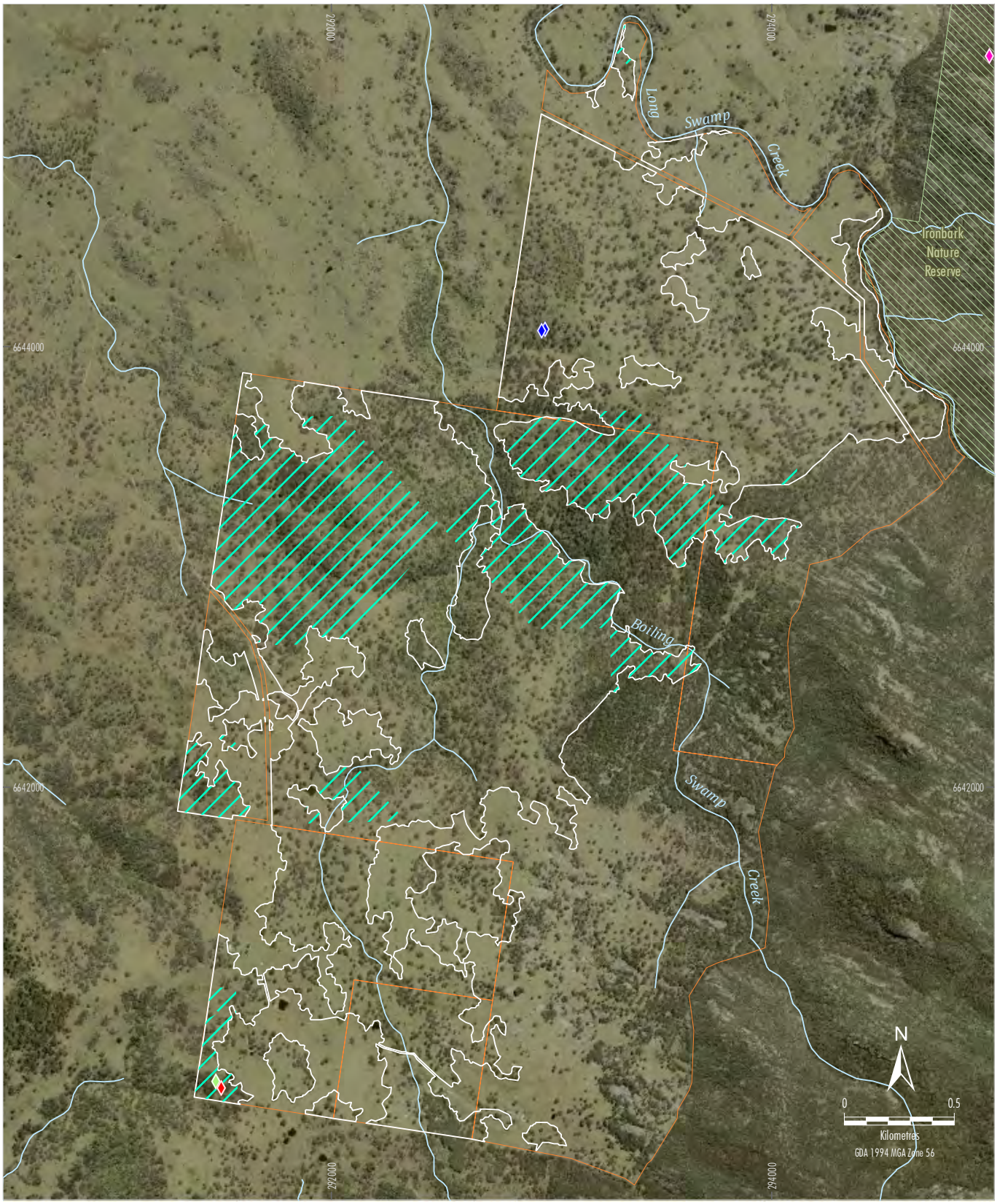
WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Threatened Flora - Neranghi North

Figure 6f

VMC-20-74_BMP24_240A



WHC-20-74_BMP24_241A

LEGEND

- NPWS Estate
- Property Boundary
- MCCM Offset Area
- *Tylophora linearis* Existing and Future Potential Habitat

Threatened Species

- Austral Toadflax
- Bluegrass
- Granite Homoranthus
- *Tylophora linearis*

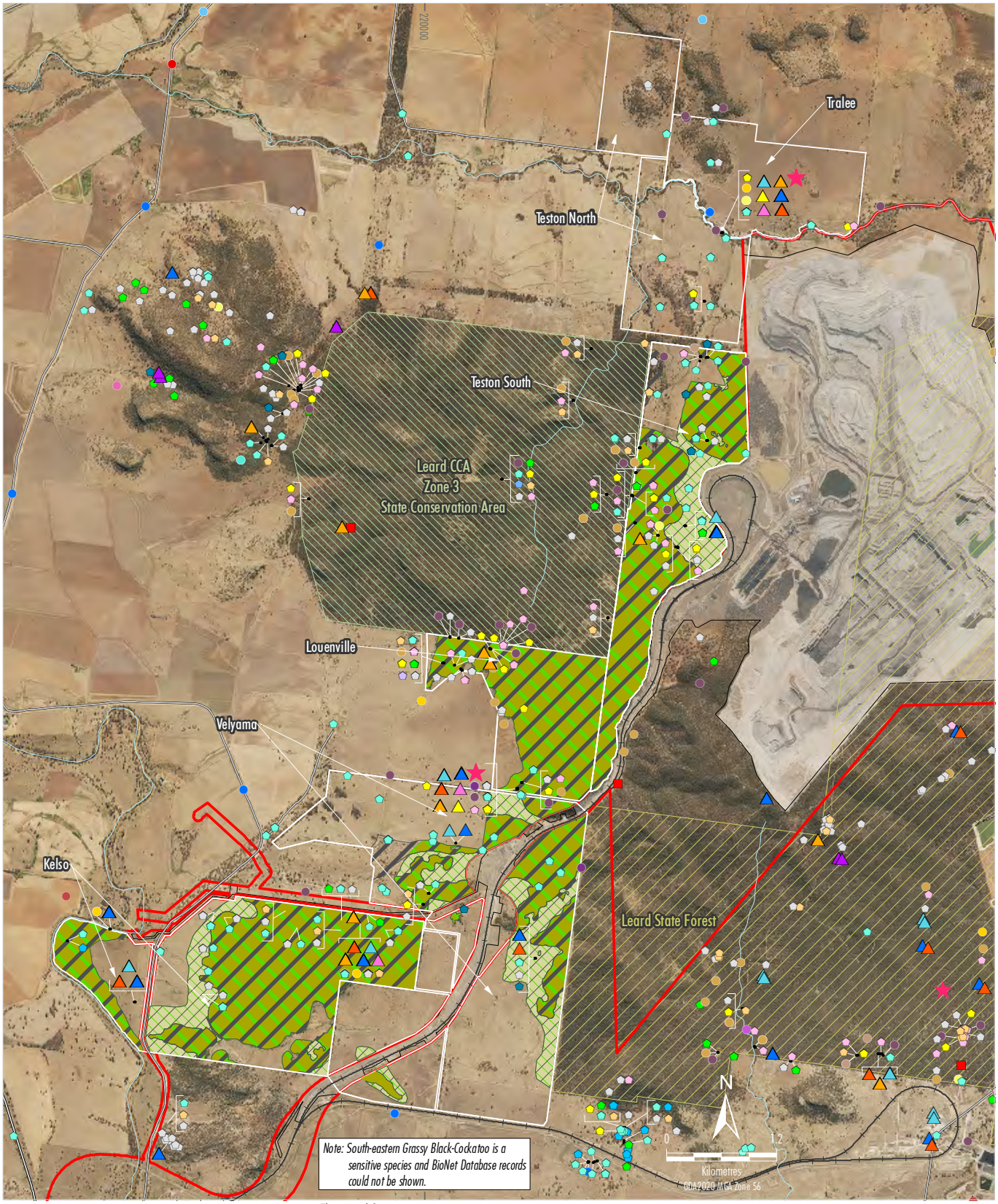
Source: NSW Spatial Services (2021); Whitehaven (2023a); AMBS (2021b, 2023); DPE (2023b); Hunter Eco (2021)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Threatened Flora - Coonoor

Figure 6g



VMC-20-74_BMP24_224B

LEGEND

- NPWS Estate
- State Forest
- MCCM Project Boundary
- Approximate Extent of Existing/Approved Surface Development
- MCCM Offset Area
- Regent Honeyeater Existing Potential Habitat
- Regent Honeyeater Future Potential Habitat (Areas to be Revegetated)
- Swift Parrot Existing Potential Habitat
- Swift Parrot Future Potential Habitat (Areas to be Revegetated)
- Corben's Long-eared Bat Existing Potential Habitat
- Corben's Long-eared Bat Future Potential Habitat (Areas to be Revegetated)

Threatened Species

- Pale-headed Snake
- Freckled Duck
- Black-necked Stork
- Black Falcon
- Square-tailed Kite
- White-bellied Sea-eagle
- Spotted Harrier
- Little Eagle
- Little Lorikeet
- Blue-winged Parrot
- Turquoise Parrot
- Swift Parrot
- Masked Owl
- Barking Owl
- Brown Treecreeper (south-eastern)
- Speckled Warbler
- Southern Whiteface
- Painted Honeyeater
- Hooded Robin (south-eastern)
- Flame Robin
- Scarlet Robin
- Grey-crowned Babbler (eastern subspecies)
- Varied Sittella
- Dusky Woodswallow
- Diamond Firetail
- Koala
- Yellow-bellied Sheathtail-bat
- Large Bent-winged Bat
- Corben's Long-eared Bat
- Large-eared Pied Bat
- Greater Broad-nosed Bat
- Little Pied Bat
- Eastern Cave Bat

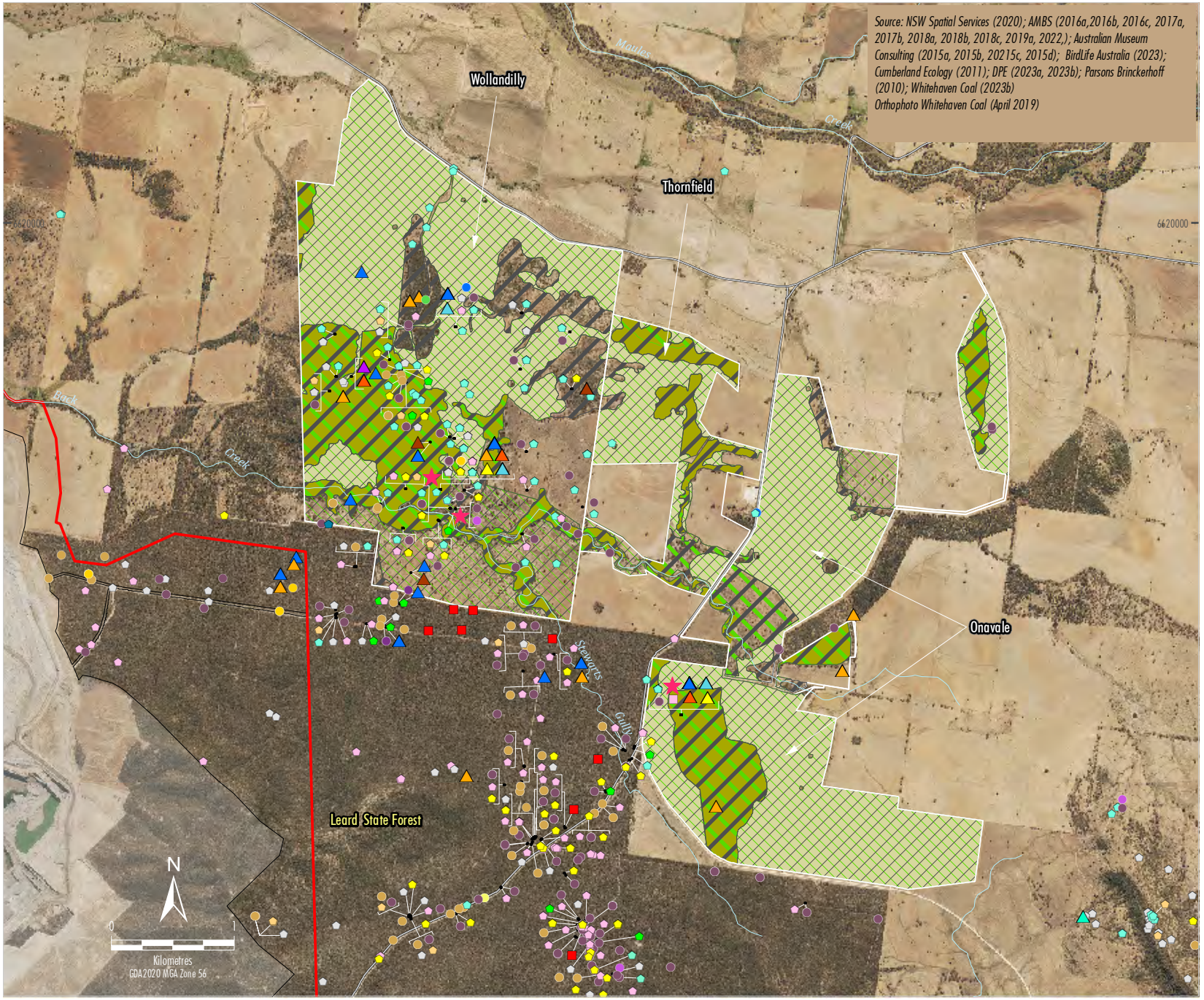
Source: NSW Spatial Services (2020); AMBS (2016a, 2016b, 2016c, 2017a, 2017b, 2018a, 2018b, 2018c, 2022); Atlas of Living Australia (2023); Australian Museum Consulting (2015a, 2015b, 2015c, 2015d); BirdLife Australia (2023); Cumberland Ecology (2011); DPE (2023a, 2023b); Parsons Brinckerhoff (2010); Whitehaven Coal (2023b) Orthophoto Whitehaven Coal (April 2019)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Threatened Fauna - Kelso, Velyama, Louenville, Teston South, Teston North and Tralee

Figure 7a



LEGEND

- MCCM Project Boundary
- Approximate Extent of Existing/Approved Surface Development
- MCCM Offset Area
- Regent Honeyeater Existing Potential Habitat
- Regent Honeyeater Future Potential Habitat (Areas to be Revegetated)
- Swift Parrot Existing Potential Habitat
- Swift Parrot Future Potential Habitat (Areas to be Revegetated)
- Corben's Long-eared Bat Existing Potential Habitat
- Corben's Long-eared Bat Future Potential Habitat (Areas to be Revegetated)

Threatened Species

- Pale-headed Snake
- Spotted Harrier
- Little Eagle
- South-eastern Glossy Black-Cockatoo
- Little Lorikeet
- Turquoise Parrot
- Swift Parrot
- Masked Owl
- Barking Owl
- Brown Treecreeper (south-eastern)
- Speckled Warbler
- Black-chinned Honeyeater (eastern subspecies)
- Hooded Robin (south-eastern)
- Grey-crowned Babbler (eastern subspecies)
- Varied Sittella
- Dusky Woodswallow
- Diamond Firetail
- Koala
- Squirrel Glider
- Grey-headed Flying-fox
- Yellow-bellied Sheathtail-bat
- Large Bent-winged Bat
- Corben's Long-eared Bat
- Large-eared Pied Bat
- Eastern False Pipistrelle
- Greater Broad-nosed Bat
- Eastern Cave Bat

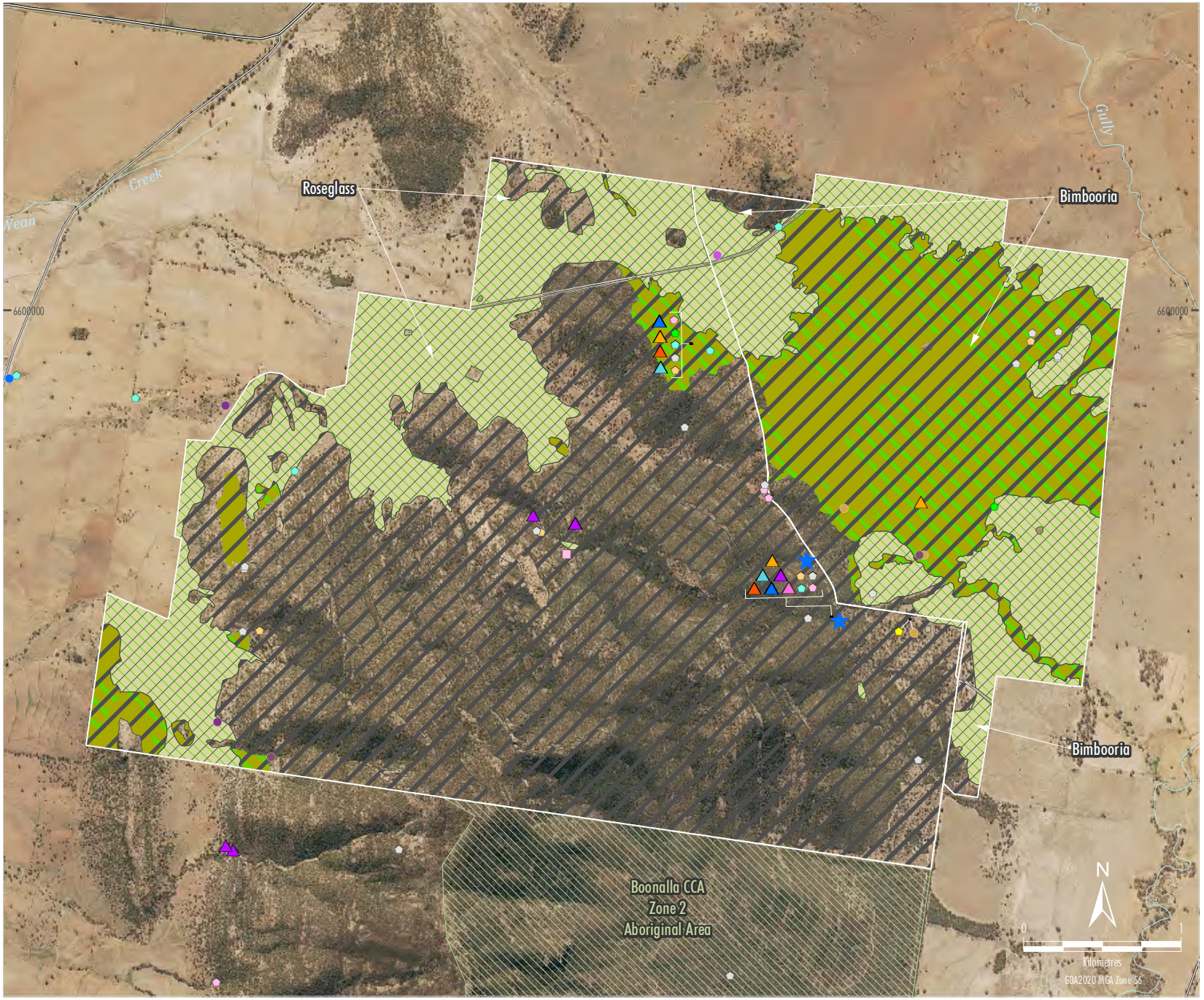
WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Threatened Fauna - Wollandilly, Thornfield and Onavale

Figure 7b

WHC-20-74_BMP24_223B



LEGEND

- NPWS Estate
- MCCM Offset Area
- Regent Honeyeater Existing Potential Habitat
- Regent Honeyeater Future Potential Habitat (Areas to be Revegetated)
- Swift Parrot Existing Potential Habitat
- Swift Parrot Future Potential Habitat (Areas to be Revegetated)
- Corben's Long-eared Bat Existing Potential Habitat
- Corben's Long-eared Bat Future Potential Habitat (Areas to be Revegetated)

Threatened Species

- Border Thick-tailed Gecko
- Spotted Harrier
- Little Lorikeet
- Turquoise Parrot
- Swift Parrot
- Masked Owl
- Brown Treecreeper (south-eastern)
- Speckled Warbler
- Grey-crowned Babbler (eastern subspecies)
- Varied Sittella
- Dusky Woodswallow
- Diamond Firetail
- Squirrel Glider
- Yellow-bellied Sheathtail-bat
- Large Bent-winged Bat
- Corben's Long-eared Bat
- Large-eared Pied Bat
- Little Pied Bat
- Eastern Cave Bat

Source: NSW Spatial Services (2020); AMBS (2016a, 2016b, 2016c, 2017a, 2017b, 2017d, 2018a, 2018b, 2018c, 2022); Australian Museum Consulting (2015a, 2015b, 2015c, 2015d); DPE (2023b); Ecoplanning (2021c); Niche (2012a); Whitehaven Coal (2023b)
Orthophoto Whitehaven Coal (April 2019)

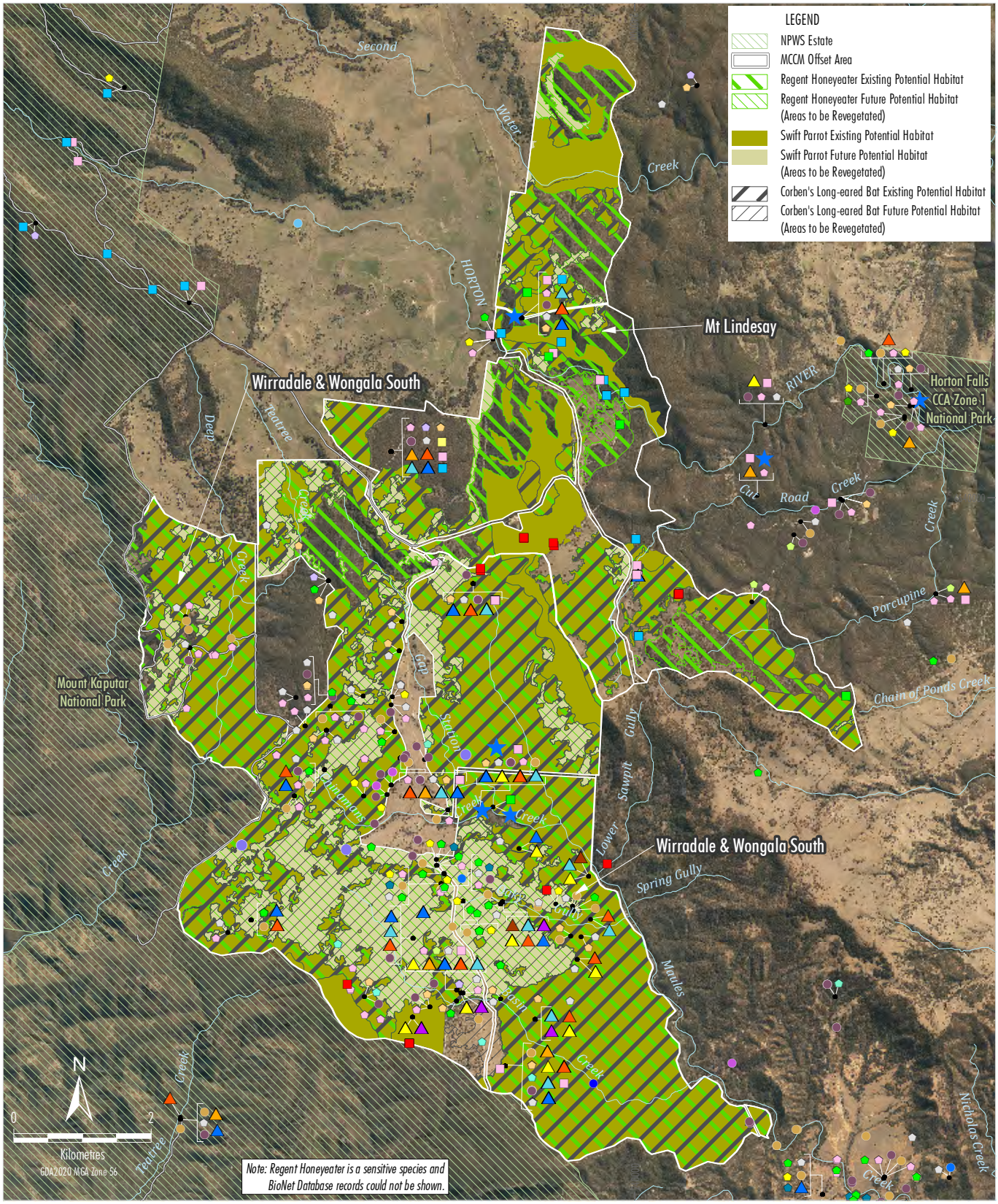
WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Threatened Fauna - Roseglass and Bimbooria

Figure 7c

WHC-20-74_BMP24_225B



VMC-20-74_BMP24_226B

Threatened Species

- Border Thick-tailed Gecko
- Australian Brush-turkey population in the Nandewar and Brigalow Belt South Bioregions
- Black Falcon
- Spotted Harrier
- Little Lorikeet
- Turquoise Parrot
- Swift Parrot
- Powerful Owl
- White-throated Needletail
- Brown Treecreeper (south-eastern)
- Speckled Warbler
- Black-chinned Honeyeater (eastern subspecies)
- Hooded Robin (south-eastern)
- Flame Robin
- Scarlet Robin
- Grey-crowned Babbler (eastern subspecies)
- Varied Sittella
- Dusky Woodswallow
- Diamond Firetail
- Spotted-tailed Quoll
- Koala
- Yellow-bellied Glider
- Squirrel Glider
- Greater Glider (southern and central)
- Yellow-bellied Sheathtail-bat
- Large Bent-winged Bat
- Corben's Long-eared Bat
- Large-eared Pied Bat
- Eastern False Pipistrelle
- Greater Broad-nosed Bat
- Eastern Cave Bat

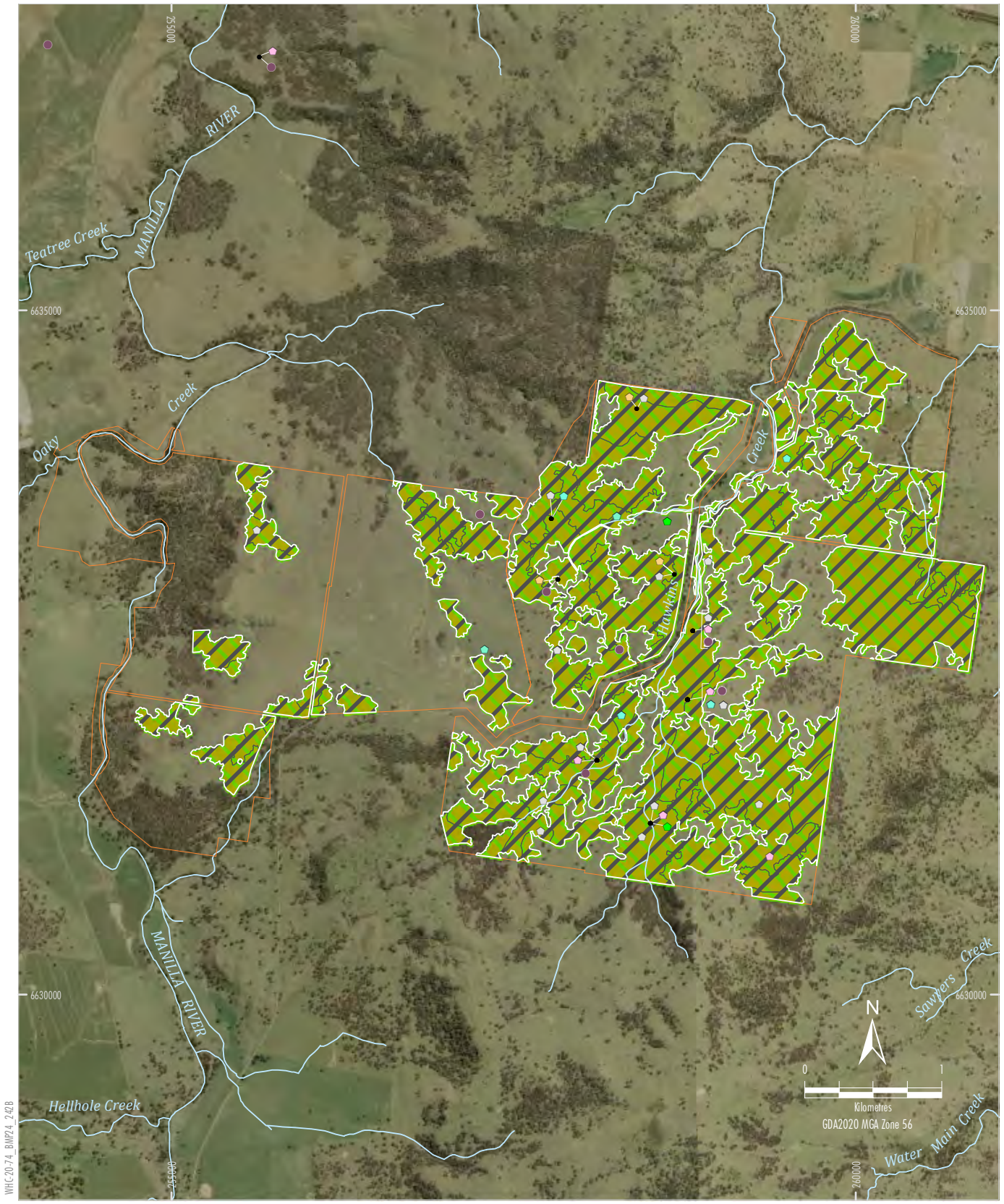
Source: NSW Spatial Services (2020); AMBS (2016a; 2016b; 2016c; 2017a; 2017b; 2018a; 2018b; 2018c; 2019a; 2021; 2023a; 2023b); Australian Museum Consulting (2015b; 2015c; 2015d; 2015e); DPE (2023b); EcoPlanning (2022); Department of Planning, Industry and Environment (2020)
Orthophoto Whitehaven Coal (April 2019)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Threatened Fauna - Mt Lindesay, Wirradale and Wongala South

Figure 7d



WHC-20-74_BMP24_242B

LEGEND

- Property Boundary
- MCCM Offset Area
- Regent Honeyeater Existing Potential Habitat
- Swift Parrot Exiting Potential Habitat
- Corben's Long-eared Bat Existing Potential Habitat

Threatened Species

- Little Lorikeet
- Brown Treecreeper (south-eastern)
- Speckled Warbler
- Black-chinned Honeyeater (eastern subspecies)
- Grey-crowned Babbler (eastern subspecies)
- Varied Sittella
- Diamond Firetail

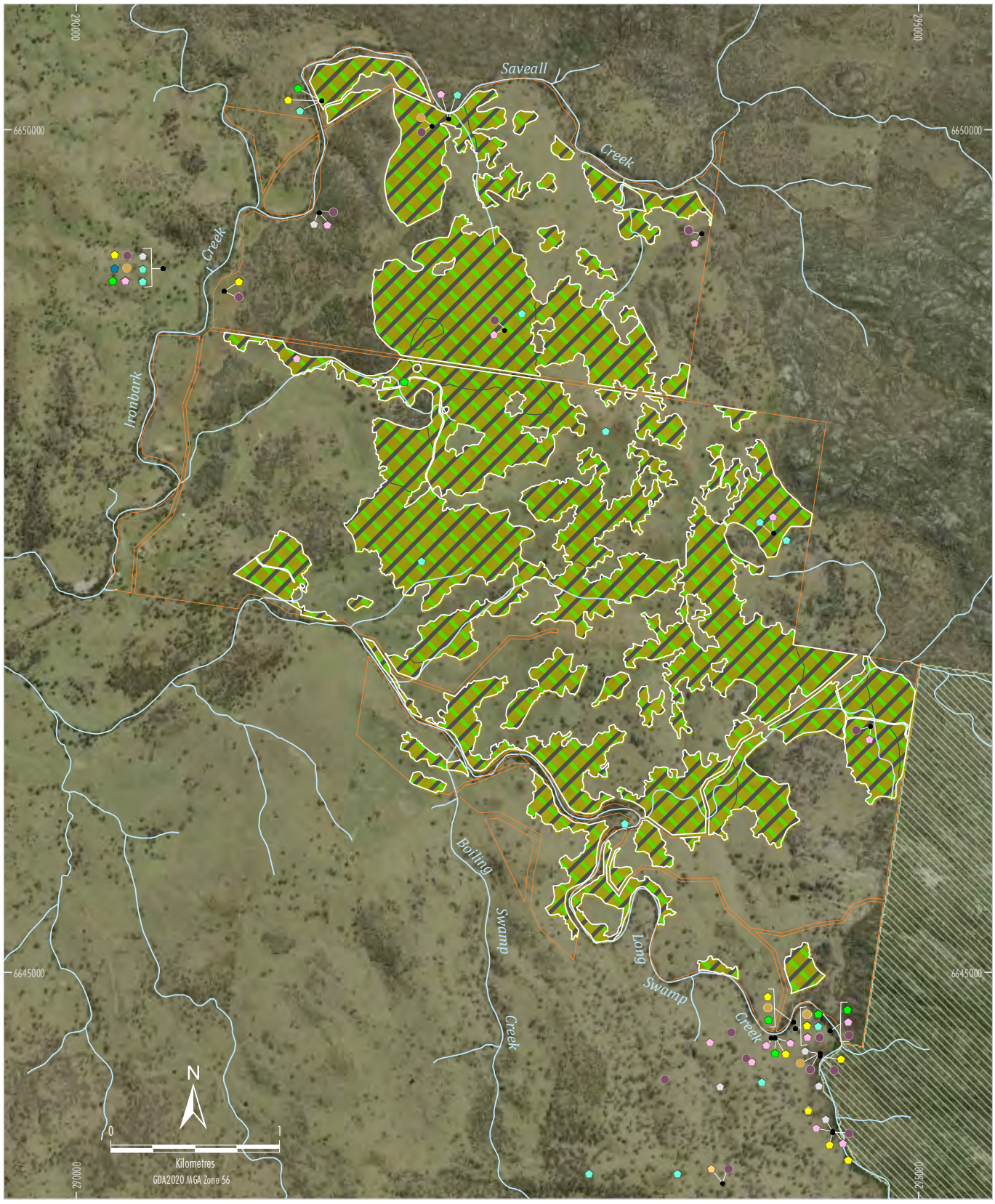
Source: NSW Spatial Services (2021); AMBS (2021); DPE (2023b); Whitehaven Coal (2023b)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Threatened Fauna - Triangle

Figure 7e



WHC-20-74_BMP24_244B

LEGEND

- NPWS Estate
- Property Boundary
- MCCM Offset Area
- Regent Honeyeater Existing Potential Habitat
- Swift Parrot Existing Potential Habitat
- Corben's Long-eared Bat Existing Potential Habitat

Threatened Species

- Little Lorikeet
- Turquoise Parrot
- Brown Treecreeper (south-eastern)
- Speckled Warbler
- Black-chinned Honeyeater (eastern subspecies)
- Hooded Robin (south-eastern)
- Grey-crowned Babbler (eastern subspecies)
- Varied Sittella
- Dusky Woodswallow
- Diamond Firetail

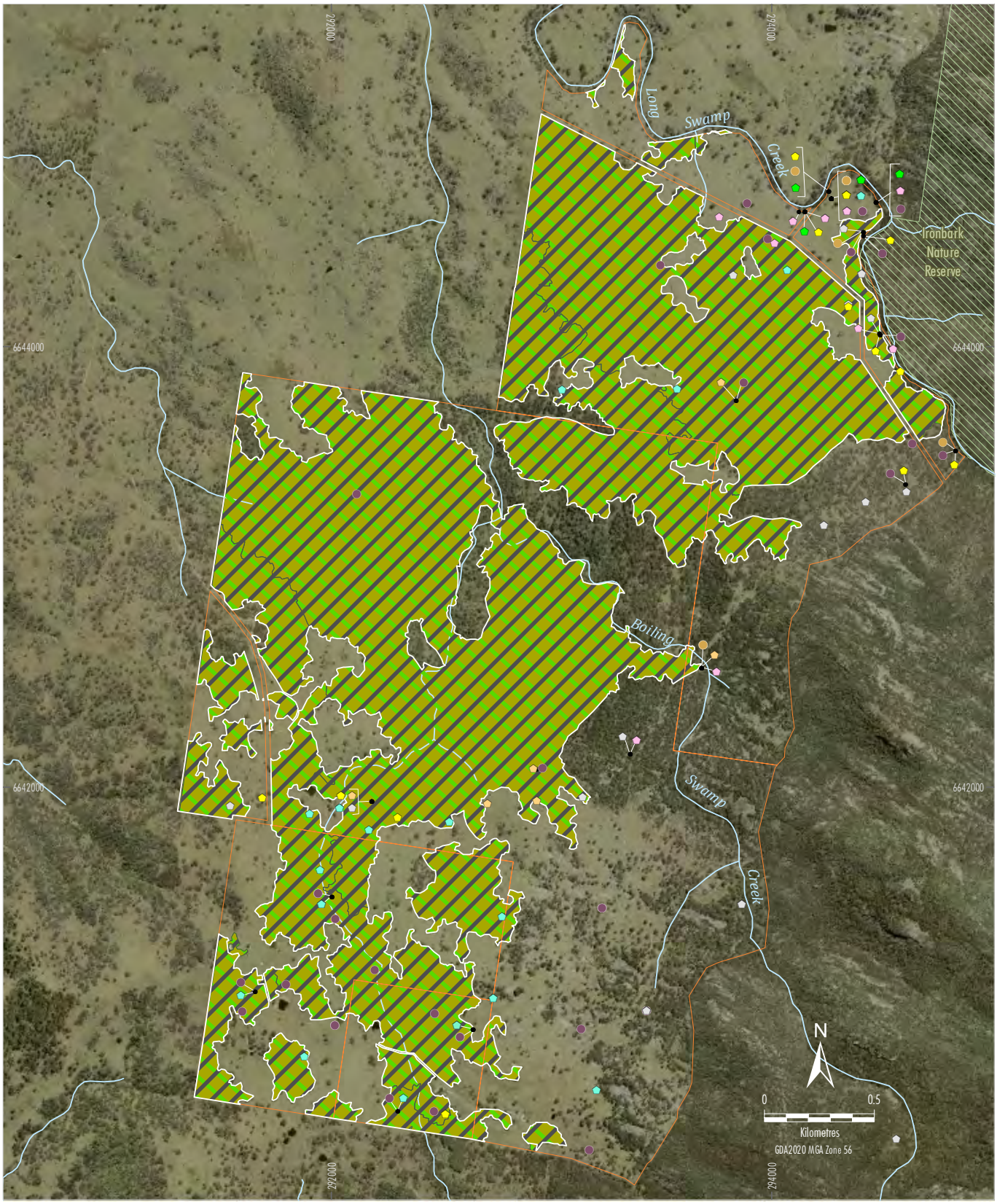
Source: NSW Spatial Services (2021); AMBS (2021); DPE (2023b); Whitehaven (2023b)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Threatened Fauna - Neranghi North

Figure 7f



WHC-20-74_BMP24_245B

LEGEND

- NPWS Estate
- Property Boundary
- MCCM Offset Area
- Regent Honeyeater Existing Potential Habitat
- Swift Parrot Existing Potential Habitat
- Corben's Long-eared Bat Existing Potential Habitat

Threatened Species

- Little Lorikeet
- Turquoise Parrot
- Brown Treecreeper (south-eastern)
- Speckled Warbler
- Black-chinned Honeyeater (eastern subspecies)
- Grey-crowned Babbler (eastern subspecies)
- Varied Sittella
- Dusky Woodswallow
- Diamond Firetail

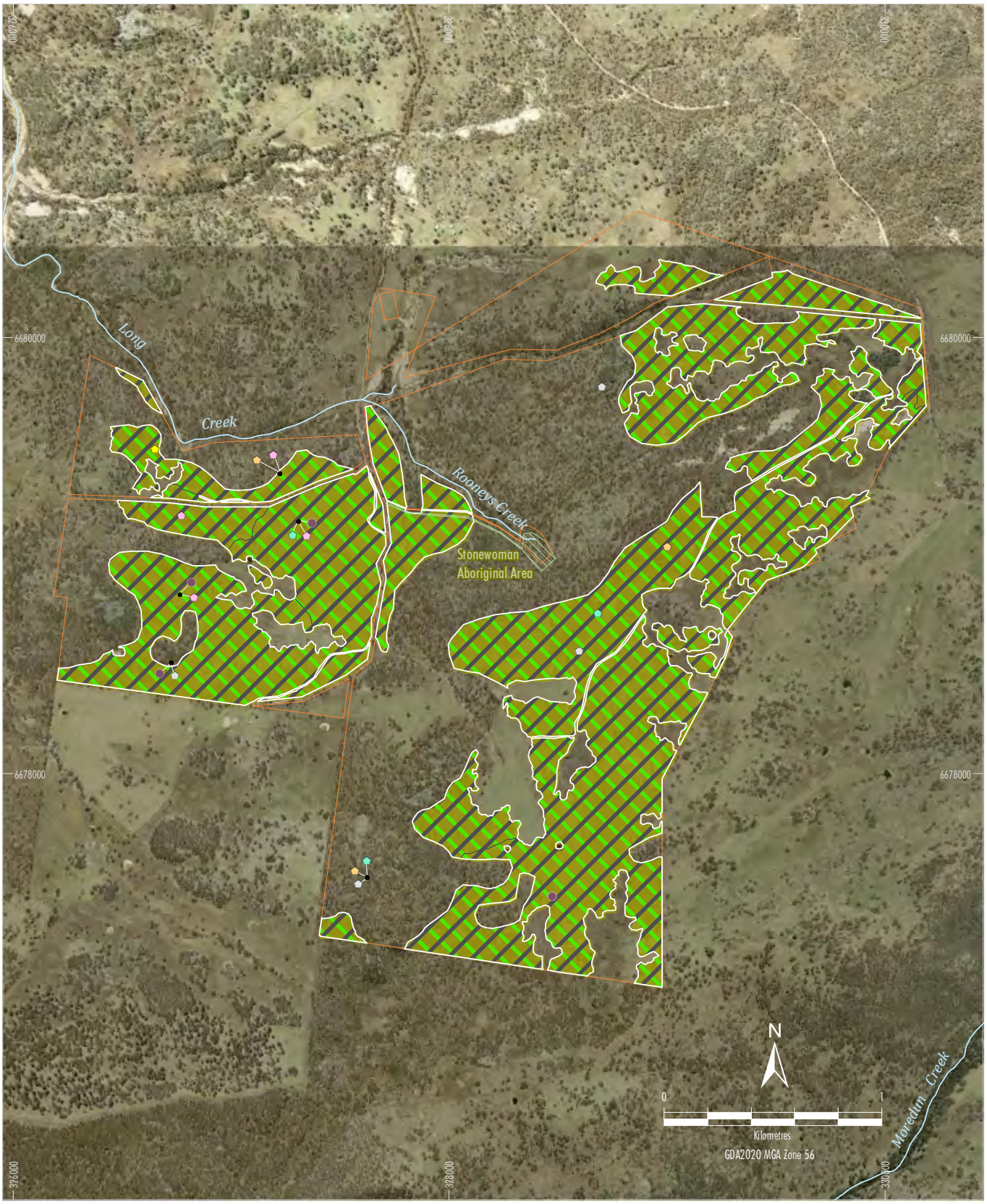
Source: NSW Spatial Services (2021); AMBS (2021); DPE (2023b); Whitehaven (2023b)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Threatened Fauna - Coonoor

Figure 7g



LEGEND

- NPWS Estate
- Property Boundary
- MCCM Offset Area
- Regent Honeyeater Existing Potential Habitat
- Swift Parrot Existing Potential Habitat
- Corben's Long-eared Bat Existing Potential Habitat

Threatened Species

- Little Lorikeet
- Brown Treecreeper (south-eastern)
- Speckled Warbler
- Black-chinned Honeyeater (eastern subspecies)
- Varied Sittella
- Dusky Woodswallow

Source: NSW Spatial Services (2021); AMBS (2021); DPE (2023b) ; Whitehaven (2023b)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Threatened Fauna - Long Gully

Figure 7h

Some of the offset areas adjoin NSW National Park and other Reserves, for example, the Louenville, Teston North and Teston South offset areas border the Leard Community Conservation Area (CCA) Zone 3 State Conservation Area; the Velyama offset area borders the Leard State Forest; the Roseglass and Bimbooria offset areas are directly north of the Boonalla CCA Zone 2 Aboriginal Area; the Mt Lindesay and Wirradale and Wongala South offset areas border Mount Kaputar National Park; and the Neranghi North and Coonoor offset area border Ironbark Nature Reserve (plus Long Gully surrounds the Stone Woman Aboriginal Area). Ongoing discussions will be held with the NPWS to investigate the potential to add areas to NSW National Park and Reserves.

In relation to the relevant history of the offset areas subject to EPBC Act Approval 2010/5566, it is noted that:

- an independent review was carried out pursuant to Conditions 10 and 11 of EPBC Act Approval 2010/5566 for the purpose of verifying the quantity and condition class of Box-Gum Woodland CEEC and the quantity and quality of habitat for the Regent Honeyeater, Swift Parrot and Corben's Long-eared Bat within the offset areas specified at Attachment B to EPBC Act Approval 2010/5566 and additional offset areas. The "Independent Peer Review of Offsets for the Maules Creek Mine Project – EPBC 2010/5566" reports (Greenloaning Biostudies, 2013 and 2014) were submitted to the Commonwealth Minister for the Environment and are both published on the Whitehaven website;
- an additional independent review of a vegetation mapping report and habitat mapping report was carried out pursuant to condition 11A of EPBC Act Approval 2010/5566 for the purpose of verifying the quantity and condition class of Box-Gum Woodland CEEC and the quantity and quality of habitat for the Regent Honeyeater, Swift Parrot and Corben's Long-eared Bat within proposed additional offset areas (being Triangle, Long Gully, Neranghi North, Coonoor and Thornfield). The "Additional Offset Areas Vegetation Mapping" report (AMBS, 2021b) and "Additional Offset Areas Habitat Mapping" report (AMBS, 2021d) which were subject to additional independent review and approved by a delegate of the Commonwealth Minister for the Environment on 9 November 2023 pursuant to condition 11A of EPBC Act Approval 2010/5566, are also published on the Whitehaven website; and
- for the purpose of complying with the requirements of condition 9 of EPBC Act Approval 2010/5566 (and condition 44 in Schedule 3 of PA 10_0138), the package of offset areas now includes the approved additional offset areas of Triangle, Long Gully, Neranghi North, Coonoor and Thornfield (see Table 4-1 above).

In addition to land-based offset areas, MCC will continue to provide $2.5 million of funding as required by Conditions 15 and 16 of EPBC Act Approval 2010/5566 and in accordance with approved funding schedules. Condition 15 requires the investment of $1 million for research on methodologies for achieving rehabilitation and restoration of the *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland Critically Endangered Ecological Community* (Box-Gum Woodland CEEC). To date, a total of $440,000 of funding has been provided to meet Condition 15. Condition 16 requires the investment of $1.5 million to deliver activities that implement priority recovery actions for the Regent Honeyeater (*Anthochaera phrygia*), Swift Parrot (*Lathamus discolor*) and the Corben's Long-eared Bat (*Nyctophilus corbeni*) (formerly known as the Greater or South-eastern Long-eared Bat). All of this funding has been provided to meet Condition 16 and the approved funding schedule.

In accordance with approved Research Project Plans, Maules Creek Coal funded the following activities to date:

- To manage Swift Parrot mainland winter monitoring program, implementing new survey protocols to evaluate habitat use and movement patterns across south-east Australia as well as for annual spring surveys at potential Swift Parrot foraging habitat sites across their breeding range in Tasmania;
- For targeted surveys of Regent Honeyeater; nest-protection measures (including designing, installation and undertaking surveys) and Noisy Miner management plus the coordination of range-wide volunteer surveys, newsletter and maintenance of sightings database and coordination and fieldwork for captive release program;
- For critical habitat mapping and genetic testing across its entire range for the Corben's (formerly South-eastern) Long-eared Bat as well as radio tracking of habitat and roost usage research and continuing development of acoustic techniques for *Nyctophilus* species call identification; and
- Including investigation of the root architecture of Box Gum Woodland species and the effect of soil depth/structure plus assessment of the seed bank within natural and stockpiled soil samples that identified a range of native species that likely to persist within soil stockpiles and have potential to transfer to the rehabilitation areas; as well as what management strategies can be implemented to maximise the native seed bank within topsoil onsite.

4.2 EXTENT AND CONDITION OF VEGETATION COMMUNITIES

AMBS Ecology and Heritage Pty Ltd (AMBS) (2021a; 2021b) (Appendices C and D) undertook surveys of the vegetation communities in the offset areas. The survey methodology by AMBS (2021a) included 130 full floristic 20 m x 20 m quadrats (nested within a 20 m x 50 m transect) and 271 rapid data points. The survey methodology by AMBS (2021b) included 55 full floristic 20 m x 20 m quadrats (nested within a 20 m x 50 m transect) and 91 rapid data points. Cluster analysis of full floristic plot data was undertaken (AMBS, 2021a; 2021b).

The identification of threatened ecological communities was undertaken in accordance with the relevant listings under the EPBC Act and BC Act. The co-ordinate location of all surveys sites and photo reference points is provided in Appendix E.

Assignment of vegetation communities to Plant Community Types (PCTs), the master community-level typology used in NSWs vegetation mapping programs, was based on the published descriptions and associated data for PCTs included in the *BioNet Vegetation Classification Database* (DPIE, 2020). The extent and condition (i.e. woodland or derived native grassland condition) of all vegetation communities are shown on Figures 5a to 5h.

The reports in Appendices C and D provide a description of the structure and floristics of each PCT. The tree age class of each PCT is variable across the offset areas depending on the amount of prior vegetation clearance from agricultural land use.

4.3 EXTENT AND CONDITION CLASS OF BOX-GUM WOODLAND CEEC

A Guide to Managing Box Gum Grassy Woodlands (Rawlings *et al.,* 2010) (referenced in EPBC Act Approval 2010/5566) describes the different condition states (as reflected by disturbance, inputs and altered land use) in which a given vegetation can exist. State and Transition Models are based on the assumption that an ecosystem exists in a relatively stable state until a significant disturbance causes a transition to another state. The methodology and results of the surveys are consistent with the Box-Gum Woodland State and Transition Model as described below.

The *Conservation Advice for the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (Cth DCCEEW, 2023a) notes:

> *Rumpff et al. (2011) and Good et al. (2021) have since updated and refined state and transition models for grassy eucalypt woodlands across southern Australia. These models show the non-linear and multidirectional nature of interactions between different states. Good et al. (2021) provide a management guide to help with decisions about appropriate actions to undertake (e.g. to improve condition of a site to transition it into another state, or to maintain in a state), or avoid (e.g. to prevent transitions to a more degraded state), for patches in different states.*

During the surveys of the vegetation in the offset areas, AMBS (2021a; 2021b) identified the extent and condition class of all areas of Box-Gum Woodland CEEC listed under the EPBC Act as woodland or derived native grassland.

Areas with the potential to fit the criteria for the Box-Gum Woodland CEEC listed under the EPBC Act were sampled with both full floristic 20 m x 20 m quadrats (nested within a 20 m x 50 m transect) and rapid data points. A cluster analysis of full floristic plot data was undertaken. The identification of Box-Gum Woodland CEEC listed under the EPBC Act was undertaken in accordance with the *Commonwealth Listing Advice on White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (TSSC, 2006).

The Box-Gum Woodland CEEC listed under the EPBC Act is shown on Figures 5a to 5h. Table 4-2 provides a summary of the condition classes[3] of the Box-Gum Woodland CEEC listed under the EPBC Act within the offset areas. Plates 1 and 2 show examples of the Box-Gum Woodland CEEC in the offset areas.

[3] **Condition class** – One of three states in which the Box-Gum Woodland CEEC may exist, as defined within the Commonwealth listing advice for the listing of this ecological community as critically endangered under the EPBC Act.

Table 4-2
Box-Gum Woodland CEEC Listed Under the EPBC Act in the Offset Areas Approved under EPBC Act Approval 2010/5566

Offset Area	Woodland Form of the Box-Gum Woodland CEEC Listed under the EPBC Act (ha)	Derived Grassland Form of the Box-Gum Woodland CEEC Listed under the EPBC Act (ha)	Total (ha)
Kelso	4	0	4
Velyama	58.8	3	61.8
Louenville	36	0	36
Teston South	63.1	17.6	80.7
Wollandilly	52.3	17.3	69.6
Onavale	10.3	30	40.3
Roseglass	19.5	94.3	113.8
Bimbooria	212.9	160.3	373.2
Wirradale and Wongala South	729.8	970.9	1,700.7
Mt Lindesay	660.9	219.2	880.1
Thornfield	7.3	5.4	12.7
Long Gully	352.9	0	352.9
Neranghi North	567	0	567
Triangle	741.9	0	741.9
Coonoor	573.9	0	573.9
Total	**4,090.6**	**1,518**	**5,608.6**

Plate 1 Example of Box-Gum Woodland CEEC in the Offset Areas

Source AMBS (2021a)

Plate 2 Example of Box-Gum Woodland CEEC in the Offset Areas

Source AMBS (2021a)

Table 4-3 provides the Condition States of Box-Gum Woodland according to the State and Transition Model in *A Guide to Managing Box Gum Grassy Woodlands* (Rawlings *et al.,* 2010).

Table 4-3
Condition States of Box-Gum Woodland According to the State and Transition Model

State*	General Description*	Extent and Condition
State 1. Grassy woodlands	• Eucalypts spaced as woodland • Large and medium tussock grasses • High diversity of grasses and herbs • All native species • Mostly perennial, few annuals • Regeneration present	The areas of Box-Gum Woodland CEEC listed under the EPBC Act in woodland form on Figures 5a to 5h are considered to be State 1, noting that areas that contain "all native species" rarely occur. Additionally, the proportion of annuals in the woodland and grassland forms is not significantly different.
State 2. Native pastures	• Eucalypts generally present • Medium and small tussock grasses • High diversity of grasses and herbs • Mostly native species, some exotics • Many native annuals • Regeneration usually present	The areas of Box-Gum Woodland CEEC listed under the EPBC Act in grassland form on Figures 5a to 5h are considered to be State 2, with ability to transition to State 1 with grazing removed and assisted natural regeneration.
State 3. Fertilised pastures	• Eucalypts scattered or absent • Few small perennial tussock grasses • Low diversity of grasses and herbs • Mostly exotic species • Annuals tend to dominate • Few native species regenerating	The areas of Box-Gum Woodland CEEC listed under the BC Act in woodland form on Figures 5a to 5h (that is not of sufficient condition to be listed under the EPBC Act due to exotic species) are considered to be State 3, with ability to transition to State 2 with management of weeds and grazing.
State 4. Crops and sown pastures	• Eucalypts very scattered or absent • Dominated by sown species • Mostly exotic annual species • Few or no native species present • Native generally not regenerating	A portion of areas mapped as 'not native' on Figures 5a to 5h are likely to have been formerly Box-Gum Woodland CEEC and are considered State 4.
State 5. Revegetated areas	• Over storey planted at high densities • Large perennial exotic grasses dominant • Very low diversity of grasses and herbs • Little or no regeneration of native species	Some areas mapped as Box-Gum Woodland CEEC listed under the EPBC Act in grassland form may be classified as State 5 due to plantings.

* Rawlings *et al.,* (2010)

4.4 SURVEYS TARGETING THE REGENT HONEYEATER, SWIFT PARROT AND CORBEN'S LONG-EARED BAT

Surveys targeting the Regent Honeyeater, Swift Parrot and Corben's Long-eared Bat were undertaken by Australian Museum Consulting Pty Ltd (Australian Museum Consulting) (2015a, 2015b, 2015c and 2015d), and subsequently as part of the fauna monitoring program. The baseline surveys were undertaken in accordance with the *Survey Guidelines for Australia's Threatened Birds* (DEWHA, 2010a) and the *Survey Guidelines for Australian Threatened Bats* (DEWHA, 2010b).

Baseline bird surveys in all offset areas (except Thornfield, Long Gully, Neranghi North, Triangle and Coonoor) were undertaken in November 2014, February 2015, May 2015 and August 2015 (Australian Museum Consulting, 2015a, 2015b, 2015c and 2015d). Bat survey methods (harp traps) were undertaken between October 2014 and April 2015 to target the Corben's Long-eared Bat. The co-ordinate location of baseline surveys sites is provided in Appendix E.

Baseline surveys in the remaining additional offset areas (Long Gully, Neranghi North, Triangle and Coonoor) targeting the Regent Honeyeater and Swift Parrot were undertaken by EcoPlanning Pty Ltd (EcoPlanning) (2022 and 2023a) in July/August 2021 and June/July 2022 (a habitat assessment was undertaken in Thornfield due to the smaller quantity of habitat compared to other offset areas); while surveys for Corben's Long-eared Bat on Thornfield, Long Gully, Neranghi North, Triangle and Coonoor were undertaken by AMBS in January 2024.

4.5 EXTENT AND QUALITY OF ALL AREAS OF HABITAT AND FUTURE POTENTIAL HABITAT FOR THE REGENT HONEYEATER, SWIFT PARROT AND CORBEN'S LONG-EARED BAT

During the baseline surveys, the Corben's Long-eared Bat was recorded on MCCM offset areas including Kelso (in November 2014), Wirradale and Wongala South (in November 2015), Coonoor and Long Gully (both in January 2024). This species has since been recorded in numerous other locations and the records of the species are shown on Figures 7a to 7d.

The Regent Honeyeater has not been recorded in the offset areas to date. A nearby record of the Regent Honeyeater is shown on Figure 7d. Swift Parrots have been detected during targeted surveys on the Wirradale and Wongala South offset area in 2018 and 2022, Bimbooria offset area in 2021 plus Wollandilly and Louenville offset areas in 2022 (Figures 7a to 7d). EcoPlanning (2023a) did not record the Regent Honeyeater and Swift Parrot in the additional offset areas (Thornfield, Long Gully, Neranghi North, Triangle and Coonoor).

The area of existing potential habitat[4] (woodland) for the Regent Honeyeater, Swift Parrot and Corben's Long-eared Bat is quantified in Table 4-4 and shown in Figures 7a to 7h (and outlined in Appendices L and M).

[4] Under EPBC Act Approval 2010/5566, "habitat" is defined to mean "areas in which a species or community is known to occur or is thought to have the potential to occur based on the biophysical conditions prevailing in the area and the ecological requirements of the species or community".

The area of future potential habitat (areas to be revegetated) for these three species is also quantified in Table 4-4 and shown in Figures 7a to 7h. These areas contain low or moderate condition vegetation (mostly derived native grassland including some areas with scattered trees) and will be revegetated (i.e. self-sustaining vegetation communities will be restored) and managed in accordance with this BMP so that these areas provide potential habitat for the three species.

Active revegetation has been undertaken since 2016 as described in Section 5.4. Sections 5.16 and 5.17 provide measures to monitor the performance of the revegetation against performance criteria.

4.6 OTHER THREATENED SPECIES

The area of existing and future potential habitat for *Tylophora linearis* is quantified in Table 4-4. The extent of existing and future potential habitat for *Tylophora linearis* is shown on Figures 6a to 6g. These figures also show the areas undergoing active revegetation for *Tylophora linearis*.

In accordance with Condition 49 of Schedule 3 of PA 10_0138, the Biodiversity Offset Strategy and Rehabilitation Strategy is focused on protection, rehabilitation and long-term maintenance of viable stands of suitable habitat for threatened species within the MCCM Project Boundary and surrounds.

To date, a total of 45 threatened species have been recorded within the offset areas or have database records that plot within the offset areas (listed in Table 4-5 and shown on Figures 6a to 6g and 7a to 7h) comprising:

- eight threatened flora species (two under the BC Act, one under the EPBC Act and five listed under the BC Act and EPBC Act);
- two threatened reptile species (one under the BC Act, the other listed under the BC Act and EPBC Act);
- 22 threatened bird species (14 listed under the BC Act, one under the EPBC Act and seven listed under the BC Act and EPBC Act);
- five threatened terrestrial and arboreal mammals (two listed under the BC Act and three listed under the BC Act and EPBC Act); and
- eight threatened bat species (six listed under the BC Act and two listed under the BC Act and EPBC Act).

The offset areas provide potential habitat for a further two threatened bird species listed under the BC Act and two migratory bird species (Table 4-5).

Table 4-4
Potential Habitat for Regent Honeyeater, Swift Parrot and Corben's Long-eared Bat and *Tylophora linearis* in the Offset Areas Approved under EPBC Act Approval 2010/5566

Offset Area	Regent Honeyeater (ha)[1]			Swift Parrot (ha)[1]			Corben's Long-eared Bat (ha)[1]			Total Existing and Future Potential Habitat for *Tylophora linearis* (ha)[2]
	Existing Potential Habitat (Woodland) (ha)	Future Potential Habitat (Areas to be Revegetated) (ha)	Total (ha)	Existing Potential Habitat (Woodland) (ha)	Future Potential Habitat (Areas to be Revegetated) (ha)	Total (ha)	Existing Potential Habitat (Woodland) (ha)	Future Potential Habitat (Areas to be Revegetated) (ha)	Total (ha)	
Kelso	320.6	54.3	**374.9**	327.7	54.3	**382**	327.7	54.3	**382**	419.3
Velyama	128.9	97.4	**226.3**	133.3	97.4	**230.7**	142.2	97.4	**239.6**	530.6
Louenville	186.2	0	**186.2**	186.9	0	**186.9**	186.9	0	**186.9**	204.7
Teston South	215.3	51.8	**267.1**	228.8	51.8	**280.6**	238.9	51.8	**290.7**	291.6
Wollandilly	185.5	466.2	**651.7**	185.5	350.3	**535.8**	276.1	466.2	**742.3**	539.6
Onavale	123.9	106.5	**230.4**	95.1	86.8	**181.9**	139.4	106.5	**245.9**	181.3
Roseglass	35.1	304.5	**339.6**	55.9	304.5	**360.4**	1,109.4	304.5	**1,413.9**	1,172.1
Bimbooria	267.2	217.3	**484.5**	364	217.3	**581.3**	405.1	217.3	**622.4**	520.8
Wirradale and Wongala South	3,027.5	1,165.1	**4,192.6**	2,975.4	1,158.1	**4,133.5**	2,864.1	1,193.7	**4,057.8**	704.7
Mt Lindesay	1,212.8	171.3	**1,384.1**	1,110	126.2	**1,236.2**	686.6	83.2	**769.8**	392.5
Thornfield	61	84.4	**145.4**	61	75.6	**136.6**	61	84.4	**145.4**	99.8
Long Gully	330.7	0	**330.7**	352.9	0	**352.9**	330.7	0	**330.7**	0

Table 4-4 (Continued)
Potential Habitat for Regent Honeyeater, Swift Parrot and Corben's Long-eared Bat and *Tylophora linearis* in the Offset Areas Approved under EPBC Act Approval 2010/5566

Offset Area	Regent Honeyeater (ha)[1]			Swift Parrot (ha)[1]			Corben's Long-eared Bat (ha)[1]			Total Existing and Future Potential Habitat for *Tylophora linearis* (ha)[2]
	Existing Potential Habitat (Woodland) (ha)	Future Potential Habitat (Areas to be Revegetated) (ha)	Total (ha)	Existing Potential Habitat (Woodland) (ha)	Future Potential Habitat (Areas to be Revegetated) (ha)	Total (ha)	Existing Potential Habitat (Woodland) (ha)	Future Potential Habitat (Areas to be Revegetated) (ha)	Total (ha)	
Neranghi North	567	0	**567**	567	0	**567**	567	0	**567**	107.9
Triangle	741.9	0	**741.9**	741.9	0	**741.9**	741.9	0	**741.9**	39.9
Coonoor	573.9	0	**573.9**	573.9	0	**573.9**	573.9	0	**573.9**	82.7
Total	**7,977.5**	**2,718.8**	**10,696.3**	**7,959.3**	**2,522.3**	**10,481.6**	**8,650.9**	**2,659.3**	**11,310.2**	**5,287.5**

1 AMBS (2021c; 2021d)
2 Hunter Eco (2021)

Table 4-5
Threatened and Migratory Species and/or Their Habitat in the Offset Areas

Common Name	Scientific Name	Conservation Status[1]		Occurrence
		BC Act	EPBC Act	
Flora				
Dungowan Starbush	*Asterolasia beckersii*	CE	CE	Database records of this species occur within the Roseglass Offset Area (NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW, 2024). These records are attributed to surveys undertaken by Niche Environment and Heritage (Niche) in 2012 for the Roseglass Offset Area Flora and Fauna Assessment in which *Asterolasia sp. Kelvin* was recorded (Niche, 2012) (Figure 6c).
-	*Callistemon pungens*	-	V	There are records of this species within the Wirradale & Wongala South Offset Area (Figure 6d).
Bluegrass	*Dichanthium setosum*	V	V	There are records of this species in Velyama, Teston South, Wollandilly, Wirradale & Wongala South, Mt Lindesay and Coonoor Offset Areas (Figures 6a, 6b, 6d and 6g).
Finger Panic Grass	*Digitaria porrecta*	E	-	There are records of this species within the Velyama, Louenville, Teston South, Teston North and Wollandilly Offset Areas (Figures 6a and 6b).
Granite Homoranthus	*Homoranthus prolixus*	V	V	There are records of this species within the Roseglass Offset Area (Figure 6c).
Scant Pomaderris	*Pomaderris queenslandica*	E	-	There are records of this species within the Kelso, Louenville, Teston South and Wollandilly Offset Areas (Figures 6a and 6b).
Austral Toadflax	*Thesium australe*	V	V	There are records of this species within the Wirradale & Wongala South, Mt Lindesay and Coonoor Offset Areas (Figures 6d and 6g).
-	*Tylophora linearis*	V	E	There are records of this species within the Teston South, Teston North, Kelso, Wollandilly, Thornfield, Onavale, Bimbooria and Coonoor Offset Areas (Figures 6a to 6c and 6g). It was also recorded outside of the Wirradale and Wongala South Offset Area (Figure 6d). The existing and future potential habitat for *Tylophora linearis* is also quantified in Table 4-4.
Reptiles				
Border Thick-tailed Gecko	*Uvidicolus sphyrurus*	V	V	There are records of this species within the Roseglass, Wirradale & Wongala South and Mt Lindesay Offset Areas (Figures 7c and 7d).
Pale-headed Snake	*Hoplocephalus bitorquatus*	V	-	There are records of this species within the Louenville, Teston North, Wollandilly and Onavale Offset Areas (Figures 7a and 7b).
Birds				
Australian Brush-turkey population in the Nandewar and Brigalow Belt South Bioregions	*Alectura lathami - endangered population*	EP	-	There are records of this species within the Wirradale & Wongala South Offset Area (Figure 7d).
Black-necked Stork	*Ephippiorhynchus asiaticus*	E	-	Potential habitat.

Table 4-5 (Continued)
Threatened and Migratory Species and/or Their Habitat in the Offset Areas

Common Name	Scientific Name	Conservation Status[1]		Occurrence
		BC Act	EPBC Act	
Birds				
Square-tailed Kite	*Lophoictinia isura*	V	-	Potential habitat.
Spotted Harrier	*Circus assimilis*	V	-	There are records of this species within the Tralee, Wollandilly and Wirradale & Wongala South Offset Areas (Figures 7a, 7b and 7d).
Little Eagle	*Hieraaetus morphnoides*	V	-	There are records of this species within the Teston South and Teston North Offset Areas (Figure 7a).
South-eastern Glossy Black-Cockatoo	*Calyptorhynchus lathami*	V	V	There is a record of this species within the Wollandilly Offset Area (Figure 7b) and a record of this species within the Velyama Offset Area (NSW DCCEEW, 2024).
Little Lorikeet	*Glossopsitta pusilla*	V	-	There are records of this species within the Kelso, Louenville, Teston South, Teston North, Tralee, Wollandilly, Thornfield, Onavale, Roseglass, Bimbooria, Wirradale & Wongala South, Mt Lindesay, Triangle, Neranghi North, Coonoor and Long Gully Offset Areas (Figures 7a to 7h).
Turquoise Parrot	*Neophema pulchella*	V	-	There are records of this species within the Louenville, Teston South, Tralee, Wollandilly, Roseglass, Bimbooria, Wirradale & Wongala South, Neranghi North and Coonoor Offset Areas (Figures 7a to 7d, 7f, 7g).
Swift Parrot	*Lathamus discolor*	E	CE	Potential Habitat and Future Potential Habitat within the offset areas (Figures 7a to 7h). Records of the Swift Parrot within the Louenville, Wollandilly, Bimbooria and Wirradale & Wongala South Offset Area are shown on Figures 7a to 7d.
Masked Owl	*Tyto novaehollandiae*	V	-	There are records of this species within the Louenville and Roseglass Offset Areas (Figures 7a and 7c).
Powerful Owl	*Ninox strenua*	V	-	There are records of this species within the Wirradale & Wongala South Offset Area (Figure 7d).
Barking Owl	*Ninox connivens*	V	-	There are records of this species within the Kelso, Teston North and Wollandilly Offset Areas (Figures 7a and 7b).
White-throated Needletail	*Hirundapus caudacutus*	-	V, M	There are records of this species within the Wirradale & Wongala South and Mt Lindesay Offset Areas (Figure 7d).
Fork-tailed Swift	*Apus pacificus*	-	M	Potential habitat.
Rainbow Bee-eater	*Merops ornatus*	-	-*	This species was removed from the EPBC Act migratory species list in 2016 but was recorded within the Offset Areas (Australian Museum Consulting, 2014; Cumberland Ecology, 2011).
Brown Treecreeper (south-eastern)	*Climacteris picumnus victoriae*	V	V	There are records of this species within the Louenville, Teston South, Tralee, Wollandilly, Roseglass, Wirradale & Wongala South, Mt Lindesay, Triangle, Neranghi North, Coonoor and Long Gully Offset Areas (Figures 7a to 7h).

Table 4-5 (Continued)
Threatened and Migratory Species and/or Their Habitat in the Offset Areas

Common Name	Scientific Name	Conservation Status[1]		Occurrence
		BC Act	EPBC Act	
Birds				
Speckled Warbler	*Chthonicola sagittata*	V	-	There are records of this species within the Kelso, Velyama, Louenville, Teston South, Teston North, Tralee, Wollandilly, Roseglass, Bimbooria, Wirradale & Wongala South, Mt Lindesay, Triangle, Neranghi North, Coonoor and Long Gully Offset Areas (Figures 7a to 7h).
Black-chinned Honeyeater (eastern subspecies)	*Melithreptus gularis*	V	-	There are records of this species within the Wollandilly, Triangle, Neranghi North, Coonoor and Long Gully Offset Areas (Figures 7b, 7e to 7h).
Regent Honeyeater	*Anthochaera phrygia*	CE	CE	Potential Habitat and Future Potential Habitat within the offset areas (Figures 7a to 7h). There are records of this species close to the Teston North and Mt Lindesay Offset Areas (NSW DCCEEW, 2024).
Painted Honeyeater	*Grantiella picta*	V	V	There are records of this species within the Kelso Offset Area (Figure 7a).
Hooded Robin (south-eastern)	*Melanodryas cucullata*	E	E	There are records of this species within the Velyama, Teston South, Wollandilly and Wirradale & Wongala South Offset Areas (Figures 7a, 7b, 7d).
Scarlet Robin	*Petroica boodang*	V	-	There are records of this species within the Kelso, Louenville, Wirradale & Wongala South and Mt Lindesay Offset Areas (Figures 7a, 7d).
Grey-crowned Babbler (eastern subspecies)	*Pomatostomus temporalis*	V	-	There are records of this species within the Kelso, Velyama, Louenville, Teston South, Teston North, Tralee, Wollandilly, Thornfield, Onavale, Roseglass, Bimbooria, Wirradale & Wongala South, Mt Lindesay, Triangle, Neranghi North and Coonoor Offset Areas (Figures 7a to 7g).
Varied Sittella	*Daphoenositta chrysoptera*	V	-	There are records of this species within the Kelso, Velyama, Louenville, Teston South, Wollandilly, Roseglass, Bimbooria, Wirradale & Wongala South, Mt Lindesay, Triangle, Coonoor and Long Gully Offset Areas (Figures 7a to 7e, 7g, 7h).
Satin Flycatcher	*Myiagra cyanoleuca*	-	M	There is a record of this species within the Triangle Offset Area (NSW DCCEEW, 2024).
Dusky Woodswallow	*Artamus cyanopterus*	V	-	There are records of this species within the Velyama, Louenville, Teston South, Teston North, Tralee, Wollandilly, Roseglass, Wirradale & Wongala South, Neranghi North, Coonoor and Long Gully Offset Areas (Figures 7a to 7d, 7f to 7h).
Diamond Firetail	*Stagonopleura guttata*	V	V	There are records of this species within the Kelso, Louenville, Teston South, Wollandilly, Roseglass, Bimbooria, Wirradale & Wongala South, Mt Lindesay, Triangle, Neranghi North and Coonoor Offset Areas (Figures 7a to 7g).
Mammals				
Spotted-tailed Quoll	*Dasyurus maculatus*	V	E	There are records of this species within the Wirradale & Wongala South and Mt Lindesay Offset Areas (Figure 7d).

Table 4-5 (Continued)
Threatened and Migratory Species and/or Their Habitat in the Offset Areas

Common Name	Scientific Name	Conservation Status[1]		Occurrence
		BC Act	EPBC Act	
Mammals				
Koala	*Phascolarctos cinereus*	E	E	Records of the Koala are shown on Figures 7a, 7b and 7d. There are records of this species within the Wirradale & Wongala South and Mt Lindesay Offset Areas (Figure 7d).
Yellow-bellied Glider	*Petaurus australis*	V	-	There are records of this species within the Mt Lindesay Offset Area (Figure 7d).
Squirrel Glider	*Petaurus norfolcensis*	V	-	There are records of this species within the Onavale, Roseglass, Wirradale & Wongala South and Mt Lindesay Offset Areas (Figures 7b to 7d).
Greater Glider (southern and central)	*Petauroides volans*	E	E	There are records of this species within the Mt Lindesay Offset Area (Figure 7d).
Yellow-bellied Sheathtail-bat	*Saccolaimus flaviventris*	V	-	There are records of this species within the Kelso, Velyama, Louenville, Teston South, Teston North, Wollandilly, Onavale, Roseglass, Wirradale & Wongala South and Mt Lindesay Offset Areas (Figures 7a to 7d).
Large Bent-winged Bat	*Miniopterus orianae oceanensis*	V	-	There are records of this species within the Kelso, Velyama, Louenville, Teston South, Teston North, Wollandilly, Onavale, Roseglass, Wirradale & Wongala South and Mt Lindesay Offset Areas (Figures 7a to 7d).
Corben's Long-eared Bat	*Nyctophilus corbeni*	V	V	Potential Habitat and Future Potential Habitat within the offset areas (Figures 7a to 7h). There are records of this species within Kelso, Louenville, Teston South, Teston North, Wollandilly, Onavale, Roseglass, Bimbooria, Wirradale & Wongala South and Mt Lindesay Offset Areas (Figures 7a to 7d).
Large-eared Pied Bat	*Chalinolobus dwyeri*	V	E	There are records of this species within Kelso, Velyama, Louenville, Teston North, Wollandilly, Onavale, Roseglass, Wirradale & Wongala South and Mt Lindesay Offset Areas (Figures 7a to 7d).
Little Pied Bat	*Chalinolobus picatus*	V	-	There are records of this species within Kelso, Louenville, Teston North and Roseglass Offset Areas (Figures 7a and 7c).
Eastern False Pipistrelle	*Falsistrellus tasmaniensis*	V	-	There are records of this species within the Wollandilly and Wirradale & Wongala South Offset Areas (Figures 7b and 7d).
Greater Broad-nosed Bat	*Scoteanax rueppellii*	V	-	There are records of this species within Kelso, Louenville, Teston North, Wollandilly, Onavale and Wirradale & Wongala South Offset Areas (Figures 7a, 7b, 7d).
Eastern Cave Bat	*Vespadelus troughtoni*	V	-	There are records of this species within the Wollandilly, Roseglass and Wirradale & Wongala South Offset Areas (Figures 7b to 7d).

Current as of May 2024

[1] Threatened species conservation status V = Vulnerable, E = Endangered, EP = Endangered Population, CE = Critically Endangered, M = Migratory.

* The Rainbow Bee-eater was previously listed as Migratory under the EPBC Act.

5 MANAGEMENT OF THE OFFSET AREAS

This section provides short, medium and long-term measures that will be used to manage the vegetation and habitat in the offset areas. The management regime in the offset areas will be adapted over time to achieve the ecological management objectives and targets. These measures are SMART (Specific, Measurable, Achievable, Realistic, Timebound), as described below.

5.1 OBJECTIVES AND IMPLEMENTATION SCHEDULE

5.1.1 Ecological Management Objectives

Table 16 under Condition 44 of Schedule 3 of PA 10_0138 provides for existing native woodland/forest of approximately 10,547.8 ha in the offset areas to be protected and enhanced (which includes approximately 4,114.4 ha of Box-Gum Woodland [woodland form] and approximately 17.6 ha of Belah Woodland). Table 16 under Condition 44 of Schedule 3 of PA 10_0138 also provides for the restoration of woodland/forest within approximately 4,327 ha of derived native grassland and/or cleared land (including approximately 1,518 ha of Box-Gum Woodland CEEC [grassland form] and approximately 5 ha of Belah Woodland).

Condition 9 of EPBC Act Approval 2010/5566 provides for at least 9,334 ha of land within the offset areas to be managed to achieve "equivalent or better quality" habitat for the Regent Honeyeater, Swift Parrot and Corben's Long-eared Bat, and for at least 5,532 ha of Box-Gum Woodland CEEC to be managed to achieve "equivalent or better quality" (as defined under the EPBC Act Approval 2010/5566). The specific objectives of the offset areas are to:

- protect and enhance existing native woodland/forest (including areas of Box-Gum Woodland CEEC);
- restore self-sustaining vegetation communities within derived native grassland (including woodland within existing areas of Box-Gum Woodland CEEC [derived native grassland]) and 'non-native' areas;
- protect and enhance existing woodland and forest habitat for threatened species listed under the BC Act (those listed in Conditions 49 and 50 of Schedule 3 of PA 10_0138) and threatened species listed under the EPBC Act, namely the Regent Honeyeater, Swift Parrot, Corben's Long-eared Bat and Tylophora linearis;
- restore self-sustaining woodland and/or forest within derived native grasslands and 'non-native' areas to provide habitat for the Regent Honeyeater, Swift Parrot, Corben's Long-eared Bat and Tylophora linearis; and
- effectively manage the offset areas to achieve the habitat and Box-Gum Woodland CEEC outcomes identified in Condition 9 of EPBC Act Approval 2010/5566.

These objectives have informed the designation of management zones, final completion criteria and annual management performance criteria, and the design of the monitoring program.

5.1.2 Implementation Schedule

Table 5-1 summarises the management actions for the offset areas and the frequency/timing of when those actions are to occur.

Table 5-1
Biodiversity Management Plan Implementation Schedule

Section	Management Action	Frequency and/or Timing
5.3	Seed management	As required, and based on seasonal assessment results and revegetation requirements
5.4	Revegetation management	As required, and based on annual assessment results
5.5	Ecological thinning	As required, and based on thinning assessment results
5.6	Habitat augmentation	As required, and based on habitat needs assessment results
5.7	Heritage management	As required
5.8	Weed management	As required, and based on seasonal assessment results and/or from other opportunistic observations
5.9	Pest animal management	As required, and based on seasonal assessment results and/or from other opportunistic observations
5.10	Noisy miner control	As required, and based on seasonal assessment results
5.11	Erosion and soil management	As required, and based on annual assessment results
5.12	Agriculture management	As required
5.13	Access and infrastructure management	Biannually
5.14	Inspection of fire breaks and access trails	Annually, prior to the fire season
	Maintenance of fire breaks and access trails	As required
	Fuel load monitoring	Annually
	Controlled (Ecological) burns	As required (subject to consultation with NSW Rural Fire Services, Environment Protection Agency and Biodiversity Conservation Trust)
5.15.1	Management of *Tylophora linearis*	As required
5.15.2	Management of *Pomaderris queenslandica*	As required
5.17.1	Flora Monitoring Program	Annually
5.17.2	Fauna Monitoring Program	Annual/Biennial
	Monitoring for Regent Honeyeater and Swift Parrot	Annually
	Monitoring for Corben's Long-eared Bat	Annually

5.2 MANAGEMENT ZONES

The offset areas will be managed to achieve the ecological management objectives in Section 5.1.1. In order to facilitate the management of the offset areas and track progress towards meeting the objectives, the offset areas have been stratified into broad management zones based on (Figures 8a to 8h):

- presence of Box-Gum Woodland CEEC and its condition 'state' (i.e. woodland or derived native grassland);
- presence of other native vegetation and its condition (woodland/forest or derived native grassland); and
- presence of 'non-native' areas.

Existing woodland and forest will be mostly subject to a low level of management intervention, focusing on natural regeneration (including some areas assisted with active revegetation), whereas the derived native grassland and non-native areas will be subject to more intensive management intervention and active revegetation.

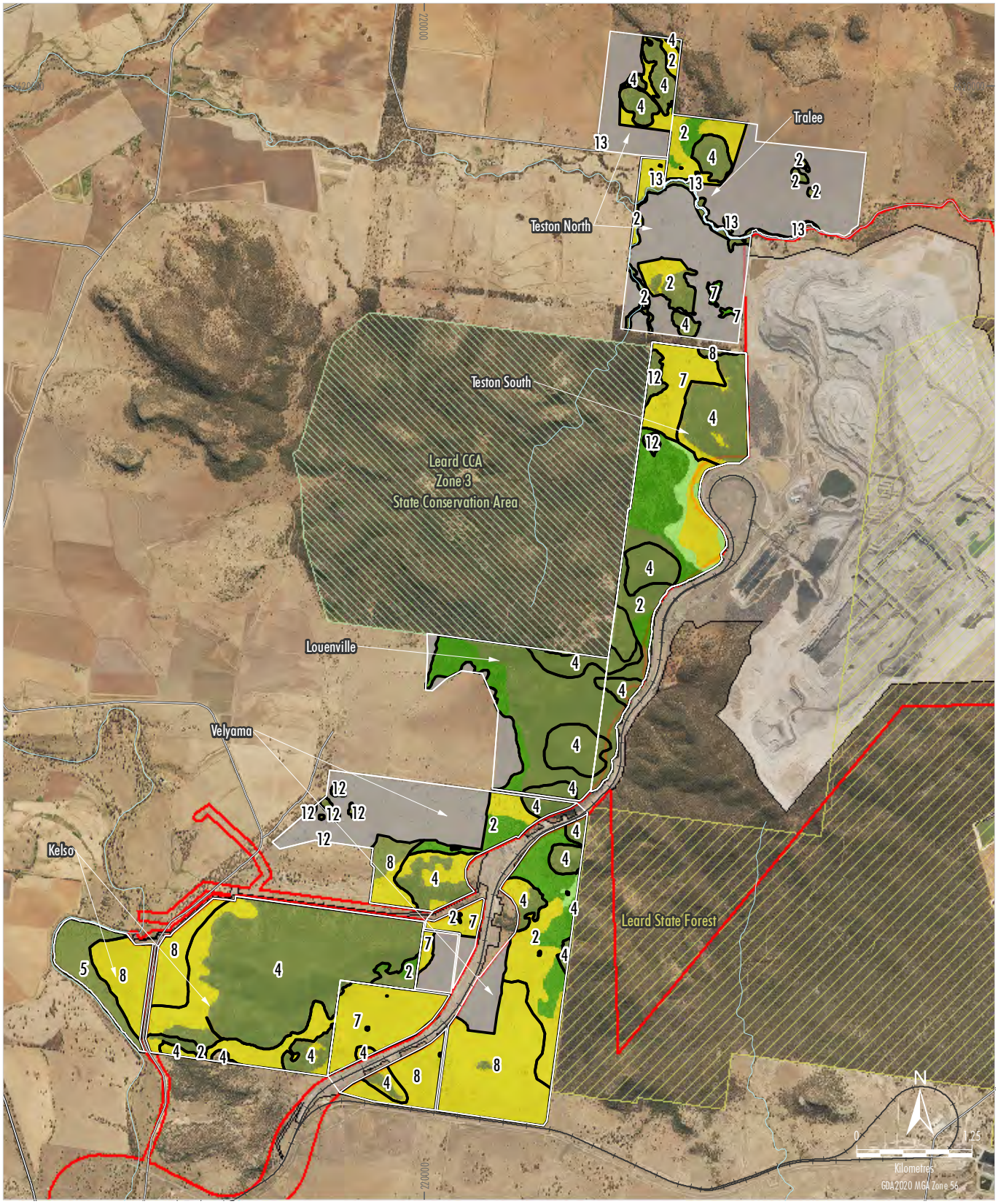
5.3 SEED MANAGEMENT

Whitehaven coordinates routine seed assessment programs designed to identify on a seasonal basis the life cycle and development stages of native plants across a range of offset areas to determine the best strategy in order to collect seeds for future revegetation programs. The format of the seed assessments ensures that timely and prioritised seed collection is implemented, and that reporting includes information required by seed collection contractors to undertake the required works. Seed collection will be based on seed assessment results and from other opportunistic observations, but the collection and propagation will only be undertaken as required depending on the revegetation needs.

Seed collection, management and storage will be undertaken in consideration of Greening Australia (various dates) *Florabank Guidelines* and Conservation Agreement limitations and permissions. Currently accepted best practice, as described in Rawlings *et al.* (2010) for local and regional provenance seed collection, which will be implemented includes:

- Collection of seed from several source sites with similar rainfall, soil, altitude, aspect, and slope position to the revegetation site to ensure they are most adapted to the landscape and environmental conditions;
- Collection of seed from between 20-50 plants of each species for genetic diversity; and
- Collection of seed from plants spaced approximately three plant-heights apart to prevent collection of too many closely related seeds.

A summary of annual seed collection activities will be reported in the MCCM Annual Review but details such as species, quantities, dates and locations will be recorded separately.



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LEGEND

- NPWS Estate
- State Forest
- MCCM Project Boundary
- Approximate Extent of Existing/Approved Surface Development
- MCCM Offset Area
- Box-Gum Woodland (Grassland Form)
- Box-Gum Woodland (Woodland Form)
- Other Derived Native Grassland
- Other Existing Woodland/Forest
- Not Native Area

Vegetation Class

- 2 North-west Slopes Dry Sclerophyll Woodlands
- 4 Western Slopes Dry Sclerophyll Forests
- 5 Inland Riverine Forests
- 7 Western Slopes Grassy Woodlands
- 8 Floodplain Transition Woodlands
- 12 Northwest Floodplain Woodlands

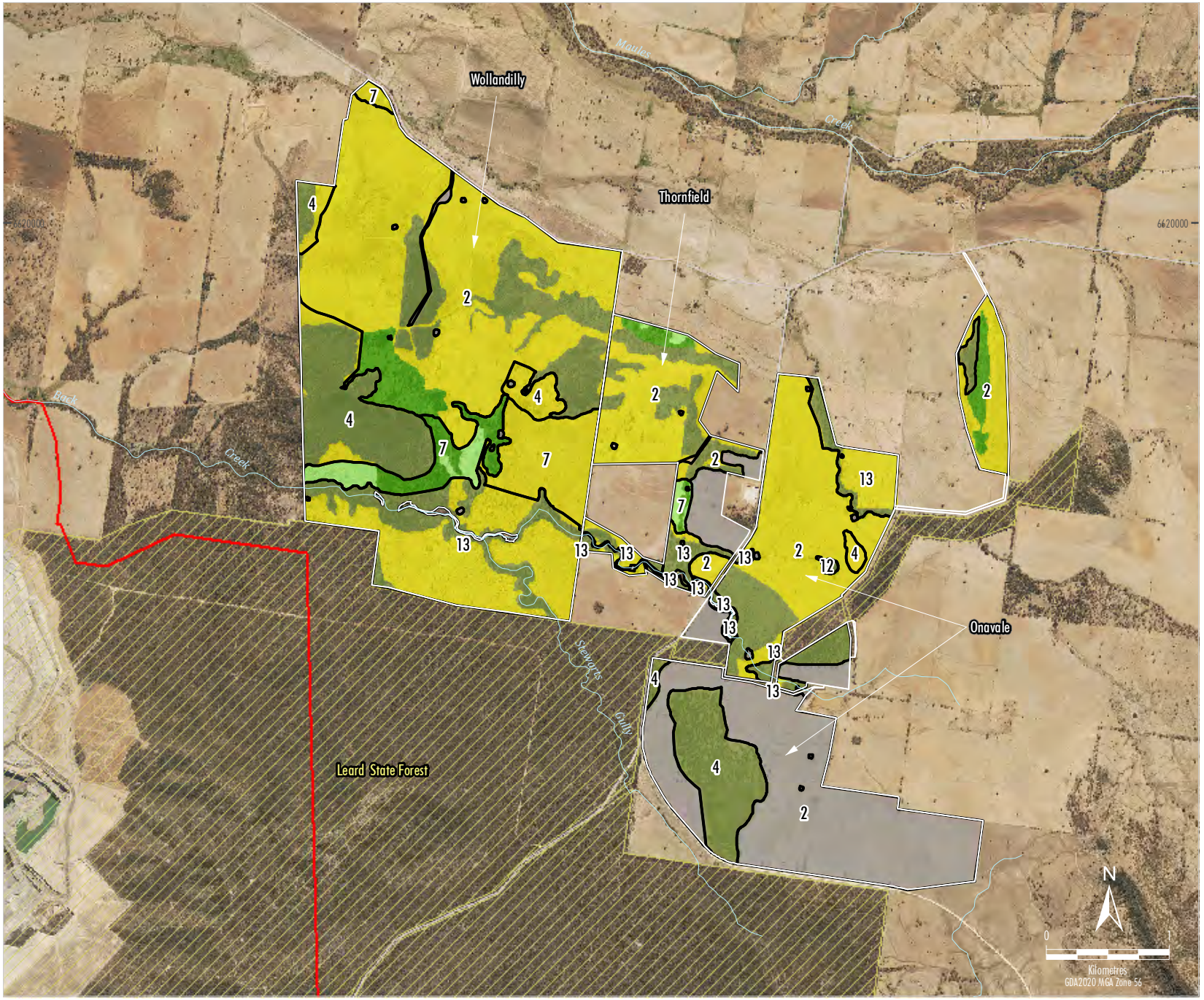
Source: NSW Spatial Services (2020); AMBS (2021) Orthophoto Whitehaven Coal (April 2019)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Management Zones - Kelso, Velyama, Louenville, Teston South, Teston North and Tralee

Figure 8a



LEGEND

- State Forest
- MCCM Project Boundary
- MCCM Offset Area
- Box-Gum Woodland (Grassland Form)
- Box-Gum Woodland (Woodland Form)
- Other Derived Native Grassland
- Other Existing Woodland/Forest
- Not Native Area

Vegetation Class

- 2 North-west Slopes Dry Sclerophyll Woodlands
- 4 Western Slopes Dry Sclerophyll Forests
- 7 Western Slopes Grassy Woodlands
- 12 Northwest Floodplain Woodlands
- 13 Brigalow Clay Plain Woodlands

Source: NSW Spatial Services (2020); AMBS (2021)
Orthophoto Whitehaven Coal (April 2019)

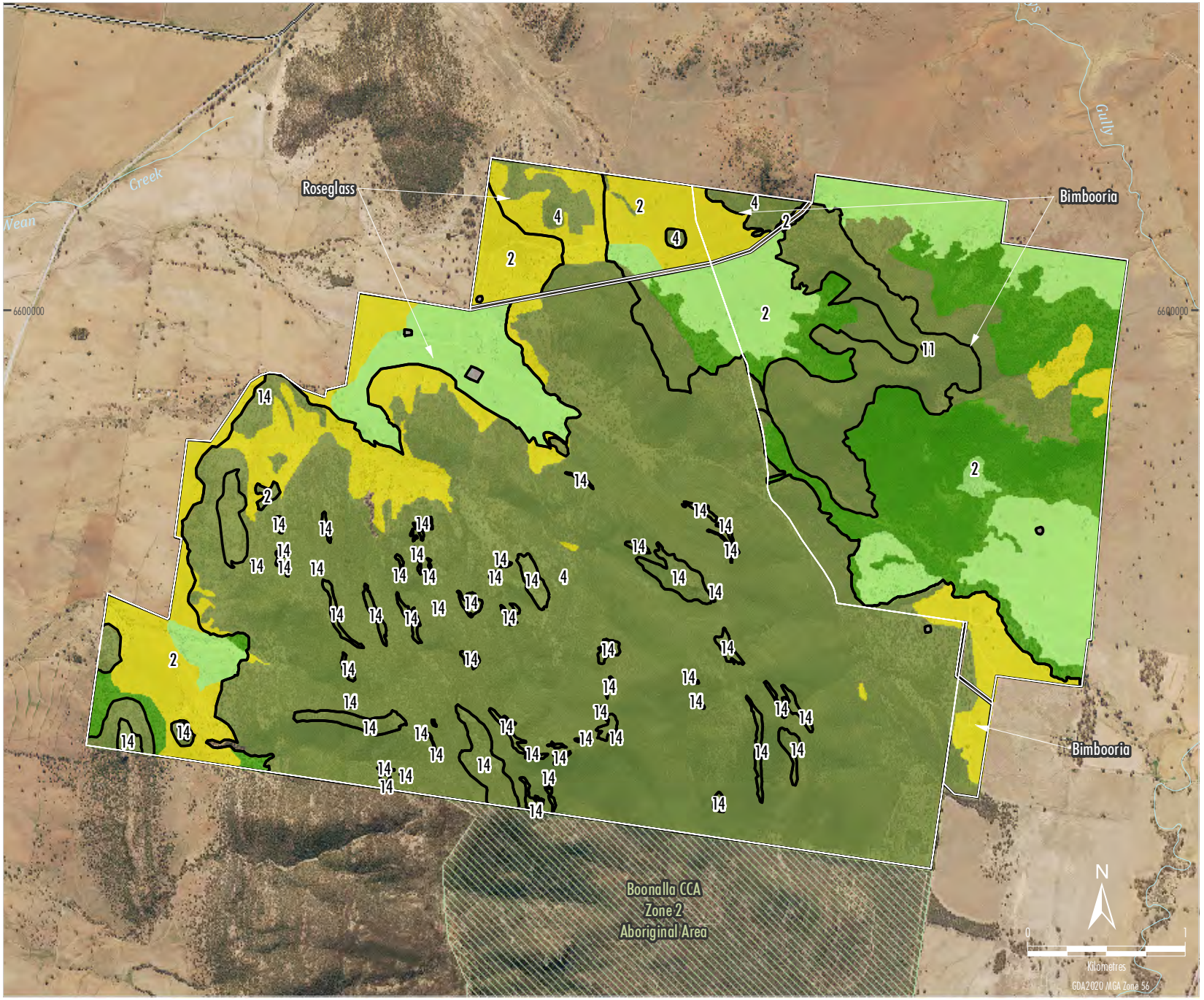
WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Mangement Zones -
Wollandilly, Thornfield and Onavale

Figure 8b

WHC-20-74_BMP24_219B



LEGEND

- NPWS Estate
- MCCM Offset Area
- Box-Gum Woodland (Grassland Form)
- Box-Gum Woodland (Woodland Form)
- Other Derived Native Grassland
- Other Existing Woodland/Forest
- Not Native Area

Vegetation Class

- 2 North-west Slopes Dry Sclerophyll Woodlands
- 4 Western Slopes Dry Sclerophyll Forests
- 11 Western Vine Thickets
- 14 Inland Rocky Hill Woodlands

Source: NSW Spatial Services (2020); AMBS (2021) Orthophoto Whitehaven Coal (April 2019)

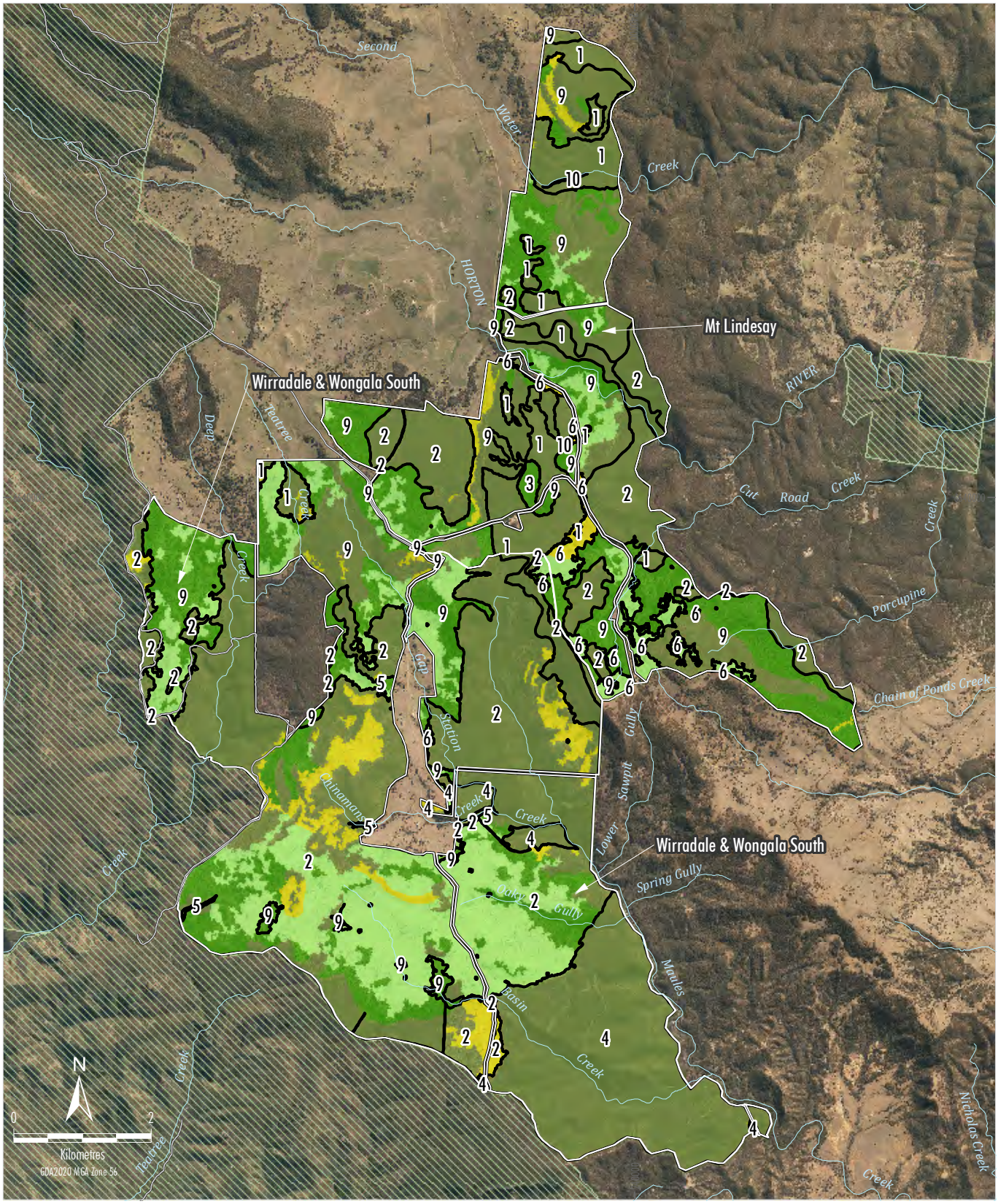
WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Management Zones - Roseglass and Bimbooria

Figure 8c

WHC.20-74_BMP24_221.A



LEGEND

- NPWS Estate
- State Forest
- MCCM Offset Area
- Box-Gum Woodland (Grassland Form)
- Box-Gum Woodland (Woodland Form)
- Other Derived Native Grassland
- Other Existing Woodland/Forest
- Not Native Area

Vegetation Class

- 1 New England Dry Sclerophyll Forests
- 2 North-west Slopes Dry Sclerophyll Woodlands
- 3 Northern Tableland Dry Sclerophyll Forests
- 4 Western Slopes Dry Sclerophyll Forests
- 5 Inland Riverine Forests
- 6 Temperate Montane Grasslands
- 9 New England Grassy Woodlands
- 10 Northern Montane Heaths

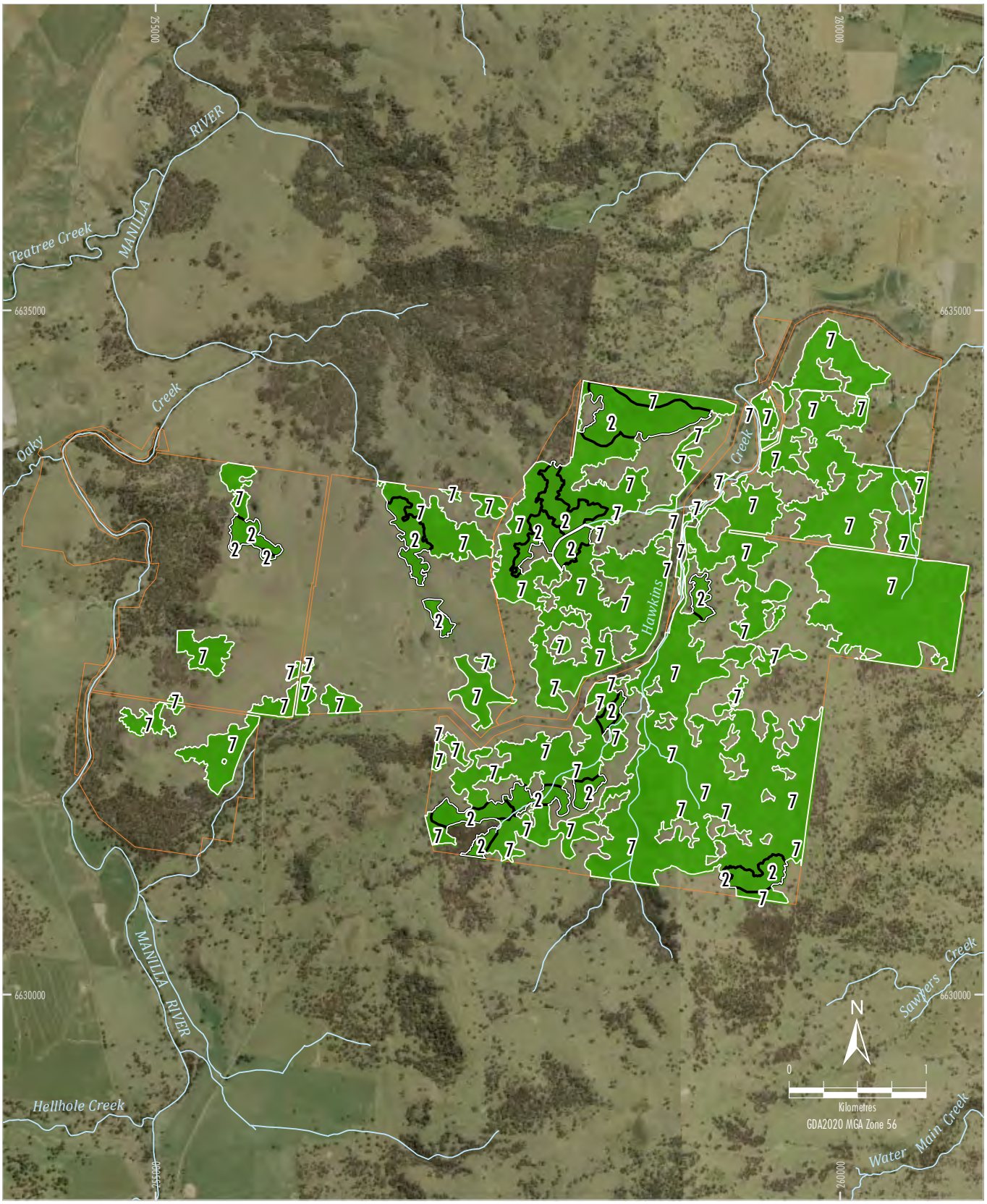
Source: NSW Spatial Services (2020); AMBS (2021) Orthophoto Whitehaven Coal (April 2019)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Management Zones - Mt Lindesay, Wirradale and Wongala South

Figure 8d



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LEGEND

Property Boundary

MCCM Offset Area

Box-Gum Woodland CEEC (Woodland Form)

Vegetation Class

2 North-west Slopes Dry Sclerophyll Woodlands

7 Western Slopes Grassy Woodlands

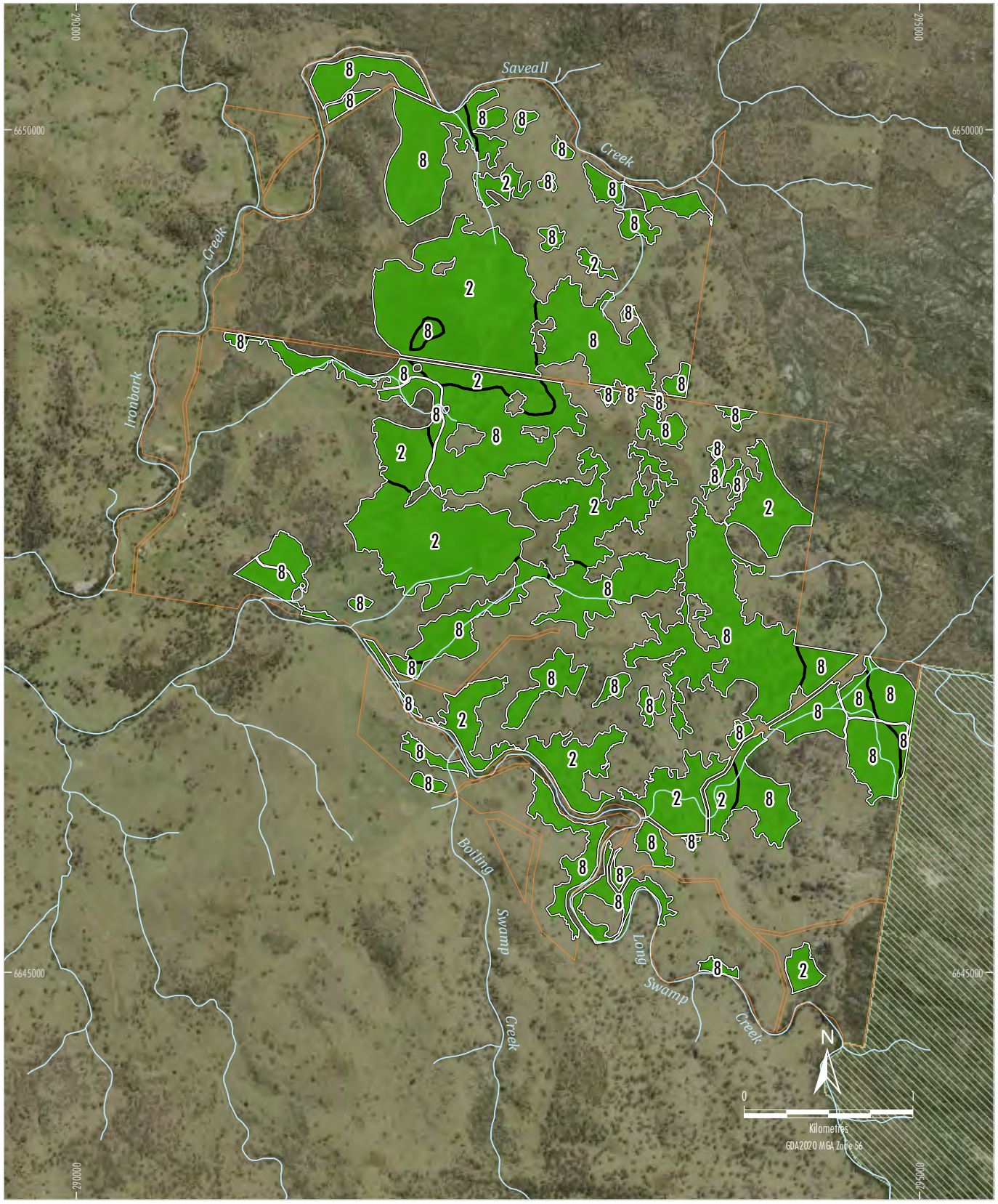
Source: NSW Spatial Services (2021)
AMBS (2021)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Management Zones - Triangle

Figure 8e



LEGEND

- NPWS Estate
- Property Boundary
- MCCM Offset Area
- Box-Gum Woodland CEEC (Woodland Form)

Vegetation Class

- 2 North-west Slopes Dry Sclerophyll Woodlands
- 8 Western Slopes Grassy Woodlands

Source: NSW Spatial Services (2021); AMBS (2021)

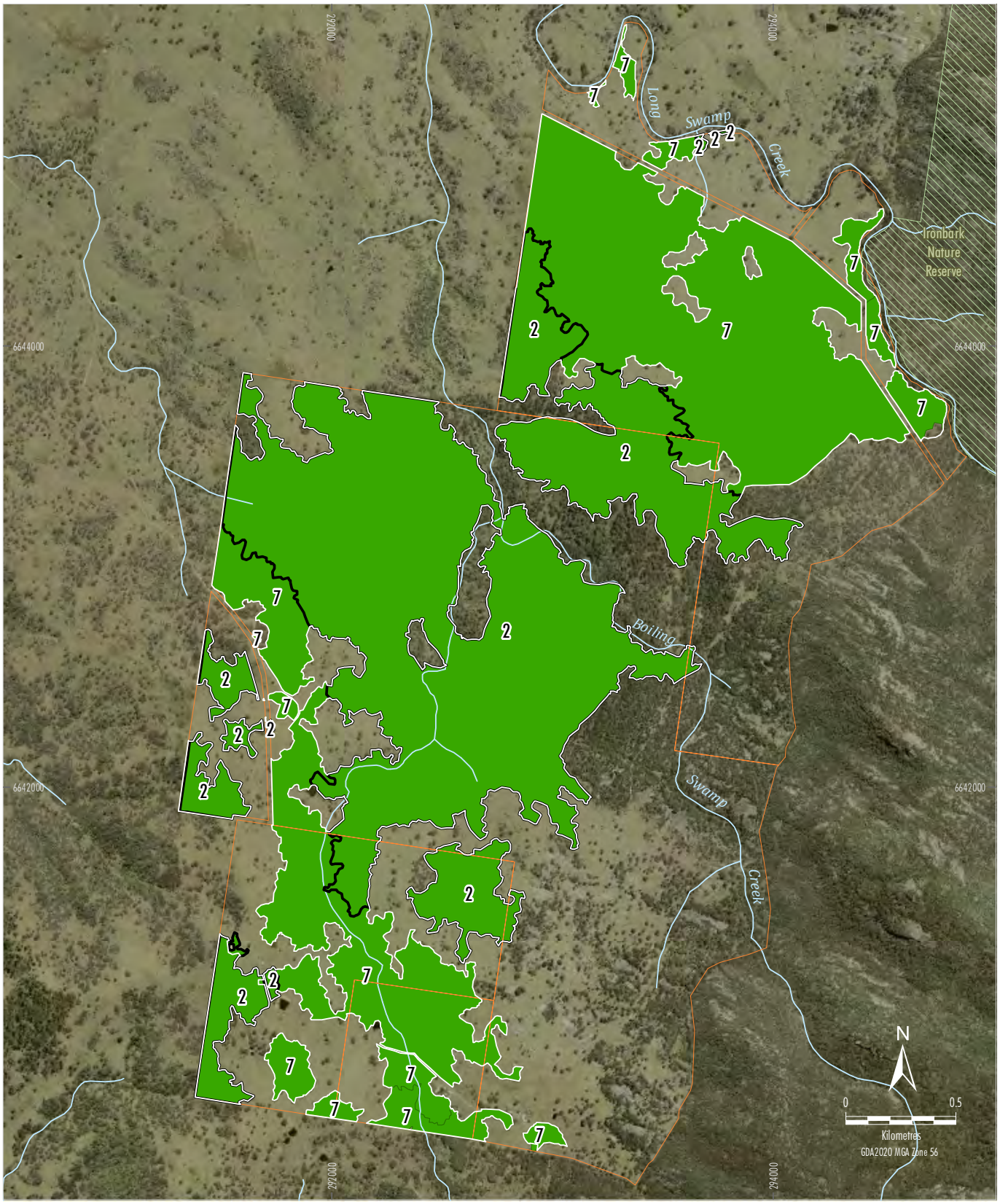
WHC-20-74_BMP24_247A

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Management Zones - Neranghi North

Figure 8f



LEGEND

- NPWS Estate
- Property Boundary
- MCCM Offset Area
- Box-Gum Woodland CEEC (Woodland Form)

Vegetation Class

- 2 North-west Slopes Dry Sclerophyll Woodlands
- 7 Western Slopes Grassy Woodlands

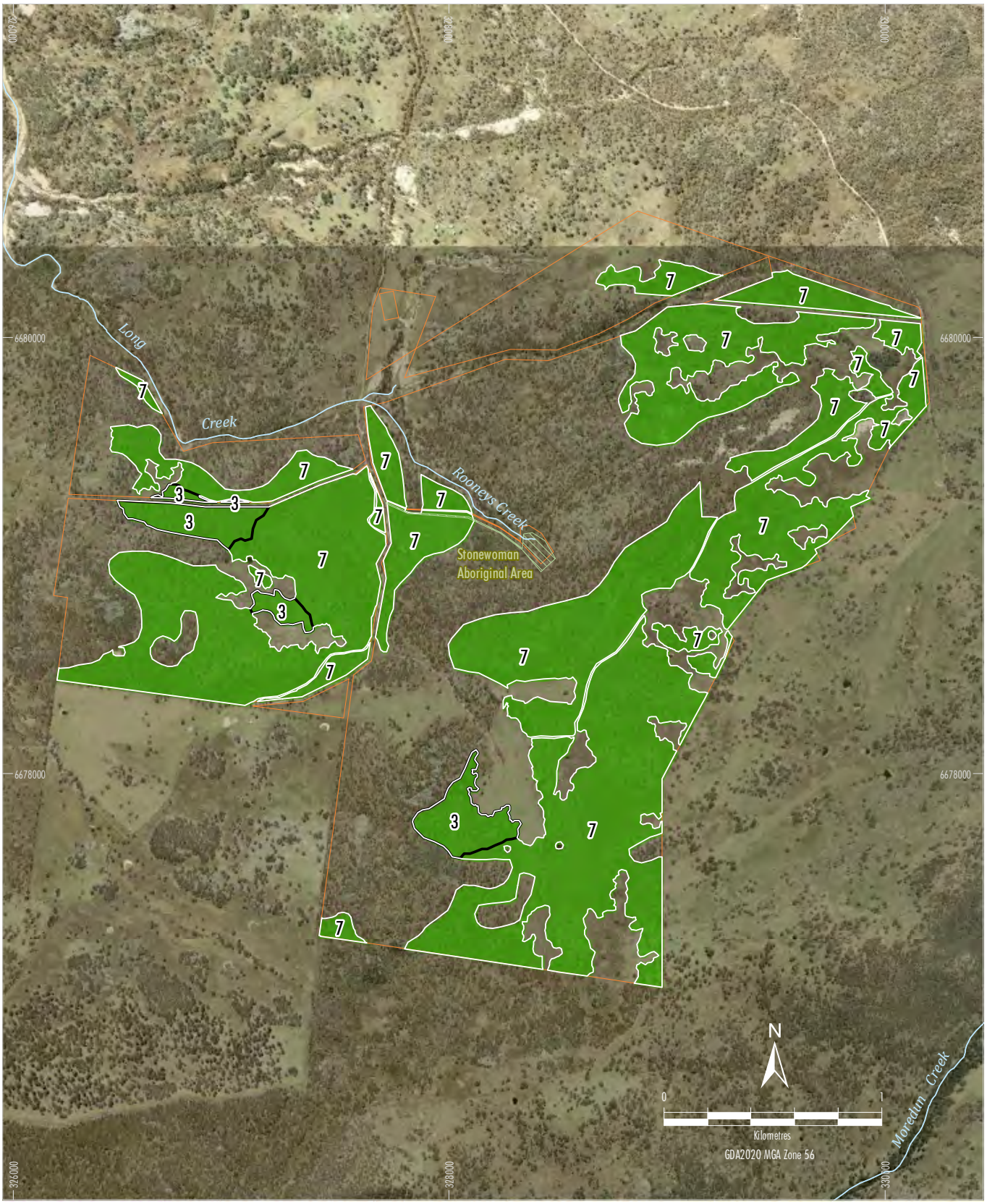
Source: NSW Spatial Services (2021); AMBS (2021)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Management Zones - Coonoor

Figure 8g



LEGEND

- NPWS Estate
- Property Boundary
- MCCM Offset Area
- Box-Gum Woodland CEEC (Woodland Form)

Vegetation Class

- 3 Northern Tableland Dry Sclerophyll Forests
- 7 Western Slopes Grassy Woodlands

Source: NSW Spatial Services (2021); AMBS (2021)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Management Zones - Long Gully

Figure 8h

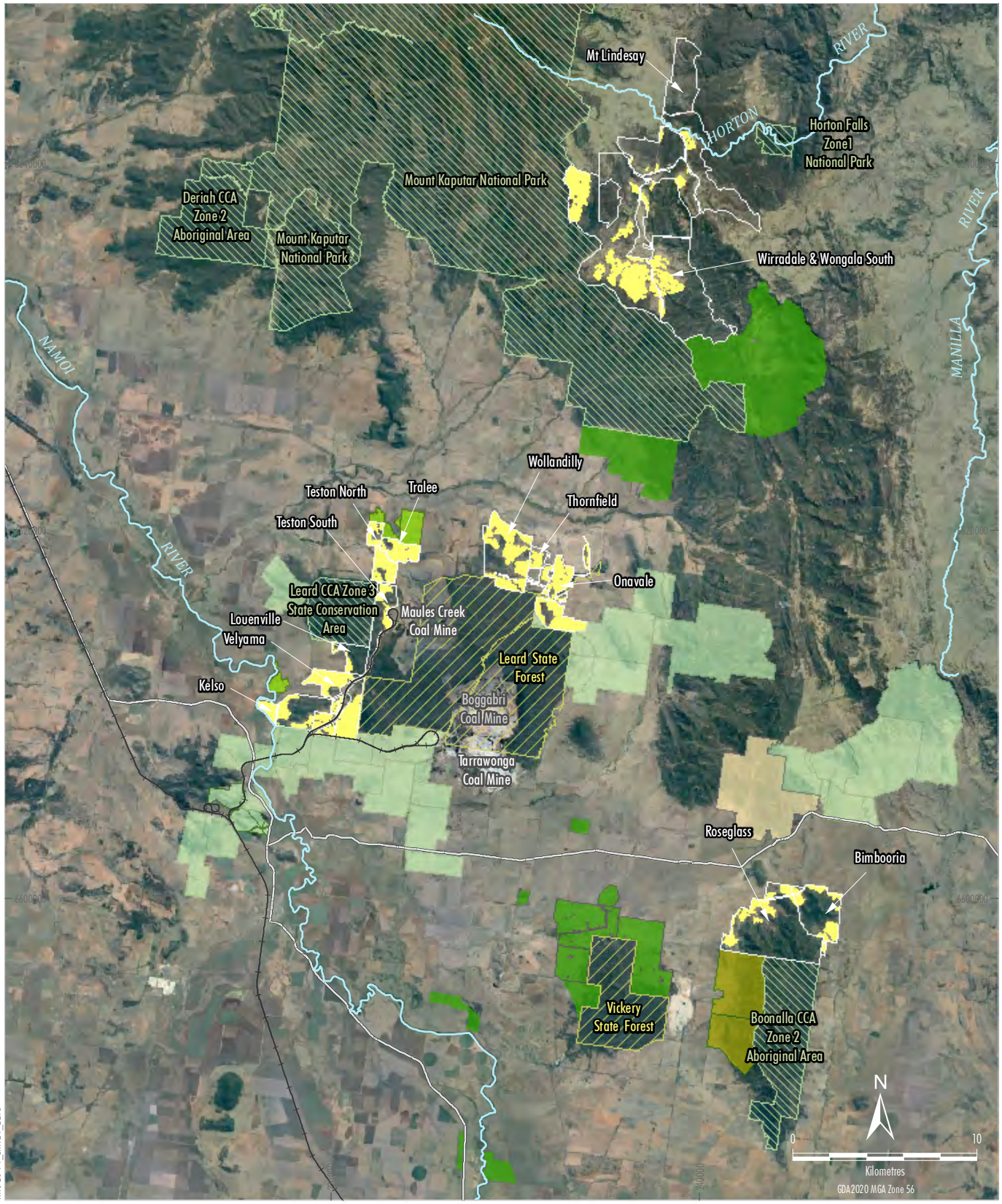
5.4 REVEGETATION MANAGEMENT

Natural regeneration will be favoured over planting or direct seeding in areas of native woodland/forest and derived native grassland (moderate to good condition) because natural regeneration conserves the natural genetic diversity of the local vegetation.

As determined by annual revegetation assessments, active revegetation (direct seeding and/or seedling planting) is undertaken to restore self-sustaining woodland within existing areas of Box-Gum Woodland CEEC and derived native grassland. Additionally, the restoration of self-sustaining woodland and/or forest including derived native grasslands and 'non-native' areas will provide a significant area of additional habitat for the Regent Honeyeater, Swift Parrot, Corben's Long-eared Bat and *Tylophora linearis.*

The objective of the revegetation program is to increase the area (woodland patch size), quality and connectivity of native vegetation and habitats, focusing on assisted natural regeneration and targeted vegetation community establishment using active revegetation methods such as direct seeding or seedling planting in consideration of Conservation Agreement conditions. This revegetation program is being implemented in consideration of the *Florabank Guidelines* (Greening Australia, various dates) and *A Guide to Managing Box Gum Grassy Woodlands* (Rawlings *et al.,* 2010).

Primary revegetation planting within the offset areas commenced in 2016 and is now materially complete (Figure 9) (Plate 3); only subject to maintenance revegetation activities as determined by annual revegetation assessments. Figures 6a to 6d also show the area undergoing active revegetation for *Tylophora linearis*. A total of 3,126 ha has been actively planted with new plantings since 2016 in the offset areas.



WHC-20-74_BMP24_227B

LEGEND

- NPWS Estate
- State Forest
- MCCM Offset Area
- Other Whitehaven Offset Area
- Other Whitehaven Conservation Agreement Area
- Whitehaven Biobanking Site
- Boggabri Coal Offset Area
- Piney Range Biobanking Site

Source: NSW Spatial Services (2020)
Orthophoto: Google Earth (2020)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Area Undergoing Active Revegetation 2016-2023

Figure 9

Plate 3 Example of Areas Undergoing Active Revegetation across MCCM Offset Areas

A secondary revegetation program involving passive or assisted natural regeneration (i.e. maintenance revegetation, ecological burns, weed and pest animal control) and ongoing revegetation maintenance programs will also be undertaken. MCC will undertake annual revegetation assessments of previous revegetation areas to determine what and where any active maintenance revegetation is required for the upcoming season of the annual revegetation program.

Annual revegetation assessments will consider key species required to match the target vegetation communities as well as natural or physical constraints to revegetation. The information from the annual revegetation assessments will be used to determine what plant species and the quantity of seed and seedlings that need to be ordered for the annual revegetation program. Orders will be placed in advance to allow sufficient time for additional seed collection (if required, Section 5.3) and for seedling germination/propagation to occur in time for the upcoming annual revegetation program. Revegetation in the offset areas will use both local providence seed as well as regionally provident seed sourced by reputable seed collectors.

Flora species indicatively used in areas under active revegetation (Table 5-2) include a variety of grasses, herbs, forbs, shrubs and trees (including species associated for Box-Gum Woodland CEEC such as Kangaroo Grass (*Themeda triandra*)) to create a structurally diverse habitat (for the Regent Honeyeater, Swift Parrot, Corben's Long-eared Bat and *Tylophora linearis*).

The annual revegetation program timing is to occur during periods of desirable seasonal conditions (times of opportunistic high soil moisture and moderate diurnal temperature variation) and/or will be undertaken between autumn and spring seasons when conditions are closest to optimal for revegetation.

The *MCCM Threatened Fauna Implementation Plan* (Whitehaven, 2015a) was developed to maximise the likely prospects of providing suitable habitats for threatened fauna within the offset areas (including those species listed in Condition 49 of Schedule 3 of PA 10_0138). Table 5-2 includes flora species known to be used as habitat resources for threatened fauna that were identified in the *MCCM Threatened Fauna Implementation Plan* (Whitehaven, 2015a).

Table 5-2
Indicative Revegetation Species List

Common Name	Scientific Name	Common Name	Scientific Name
Trees		**Grasses**	
Western Rosewood	*Alectryon oleifolius*	Kangaroo Grass	*Themeda triandra*
Red Ash	*Alphitonia excelsa*	Wallaby Grass	*Rytidosperma spp.*
Rough-barked Apple	*Angophora floribunda*	Plains Grass	*Austrostipa aristiglumis*
Whitewood	*Atalaya hemiglauca*	Barbed Wire Grass	*Cymbopogon refractus*
Kurrajong	*Brachychiton populneus*	Slender Bamboo Grass	*Austrostipa verticillata*
#White Cypress Pine	*Callitris glaucophylla*	Slender Rats Tail Grass	*Sporobolus creber*
#Belah	*Casuarina cristata*	Tall Oats Grass	*Themeda avenacea*
*#White Box	*Eucalyptus albens*	Red Grass	*Bothriochloa macra*
#Apple Box	*Eucalyptus bridgesiana*	Spear Grass	*Austrostipa scabra*
*#Blakely's Red Gum	*Eucalyptus blakelyi*	Blue Grass	*Dichanthium sericeum*

Table 5-2 (Continued)
Indicative Revegetation Species List

Common Name	Scientific Name	Common Name	Scientific Name
Trees		**Shrubs and Sub-shrubs**	
#Narrow-leaved Ironbark	*Eucalyptus crebra*	Native Olive	*Notelea microcarpa*
#River Red Gum	*Eucalyptus camaldulensis*	Sticky Daisy Bush	*Olearia elliptica subsp. Elliptica*
Tumbledown Red Gum	*Eucalyptus dealbata*	Sticky Hop-Bush	*Dodonaea viscosa ssp. angustifolia*
Dwyers Red Gum	*Eucalyptus dwyeri*	Wilga	*Geijera parviflora*
Silver-top Stringybark	*Eucalyptus laevopinea*	Bluebush	*Maireana microphylla*
Red Stringybark	*Eucalyptus macrorhyncha*	Ruby Saltbush	*Enchylaena tomentosa*
#Silver-leaved Ironbark	*Eucalyptus melanophloia*	**Forbs**	
*#Yellow Box	*Eucalyptus melliodora*	Yellow Burr-daisy	*Calotis spp.*
#Western Grey Box	*Eucalyptus microcarpa*	*Common Everlasting*	*Chrysocephalum apiculatum*
Pilliga Box	*Eucalyptus pilligaensis*	Winter Apple	*Eremophila debilis*
Poplar Box	*Eucalyptus populnea*	Narrawa Burr	*Solanum cinereum*
Manna Gum	*Eucalyptus viminalis*	Fuzz Weed	*Vittadinia spp.*

* Species associated with the Box-Gum Woodland CEEC to create structurally diverse habitat (as per the NSW Final Determination and Commonwealth Listing Advice for these communities).

\# Species associated with habitat for the Regent Honeyeater, Swift Parrot, Corben's Long-eared Bat and/or *Tylophora linearis*).

Ground truthing and mapping of proposed revegetation paddocks will determine what preparation and maintenance works are required for individual revegetation paddocks. Ground preparation methods that can be implemented (where required) include weed control, grass competition maintenance, soil disturbance (i.e. augering, mounding, ripping, harrowing or ploughing) as well as consideration of other ancillary items (i.e. tree guards to protect plants from grazing kangaroos) that are going to be needed to optimise revegetation success and growth/development of seedlings and seeding areas.

Post planting inspections will be undertaken progressively to survey performance/quality, methods and results to date, including a final end of season survival count of the previous annual revegetation program.

A summary of annual revegetation activities will be reported in the MCCM Annual Review.

As stated above, a component of the Biodiversity Offset Strategy is the restoration of woodland/forest including revegetation of derived native grassland areas of Box-Gum Woodland CEEC and Belah Woodland to maintain a possible future linkage from Nandewar Range to the Leard State Forest (through the Boggabri Coal Mine Offset Area and Onavale Offset Area), and from the Leard State Forest to the Namoi River (through Tralee, Teston North, Teston South, Louenville, Velyama and Kelso Offset Areas). Revegetation of these offset areas will improve the connectivity, and enhance and maintain the corridor function of, the offset areas to provide an east/west corridor to the Namoi River. Further, the Teston North, Teston South and Tralee offset areas are directly west of the mine site and the revegetation of these offset areas will integrate habitats with the overall rehabilitation of the site. Through the material completion of active revegetation on specifically Tralee, Teston North, Teston South, Louenville, Velyama and Kelso Offset Areas (Figure 9) has directly improved the connectivity and

corridor function of the east/west corridor to the Namoi River and the further enhancement of will be achieved by maintain the biodiversity management works planned with Habitat Augmentation (Section 5.6), Weed Management (Section 5.8) and Pest Animal Management (Section 5.9).

5.5 ECOLOGICAL THINNING

Ecological thinning will only be considered in habitats identified as having dense regrowth, in particular *Callitris* species. MCC will undertake ecological thinning assessments to identify across the offset areas where dense regrowth is impacting on flora and fauna habitat condition or is adverse to natural regeneration/ecological restoration. If determined that ecological thinning is required; it will be staged reflective of existing flora and fauna habitat condition in consideration of Conservation Agreement conditions. A summary of annual ecological thinning activities will be reported in the MCCM Annual Review.

Ecological Thinning Assessment is undertaken in a staged process to monitor over time dedicated full floristic plots to measuring potential impacts from dense Callitris regrowth in Box Gum Woodland vegetation communities against a set of assessment criteria including Callitris stem and basal densities. The WHC Offsets Ecological Thinning Stage 1 Assessment (AMBS, 2020a) concluded that there was no evidence of direct impacts from Callitris (Cypress Pine) regrowth to native plant species richness (composition) or density (structure) within remnant Box Gum Woodland vegetation communities and did not establish a relationship between those variables and Callitris density (i.e. basal area). The WHC Offsets Ecological Thinning Stage 2 Assessment (AMBS, 2022) undertook desktop remote sensing to spatially analyse where potentially dense Callitris occurs in Box Gum Woodland across MCCM BOA and undertook targeted ground truthing field surveys to validate and quantify against Ecological Thinning criteria. Stage 2 Assessment concluded that no areas on MCCM BOA supported inappropriate Callitris regrowth therefore finding that Ecological Thinning management could not be justified at this point in time on MCCM Offset properties (AMBS, 2022) but to be reviewed in 5 years time (after the original Stage 1 surveys in 2019). WHCs commitment to ongoing monitoring through 5 yearly reassessments will ensure that Ecological Thinning program can continue to be adaptive and reactively refined to match the actual restoration of Woodland vegetation communities overtime.

5.6 HABITAT AUGMENTATION

Habitat augmentation using salvaged resources (including from the MCCM site where possible) or nest boxes will be undertaken in offset areas with habitats identified as having low habitat resources. MCC will undertake habitat needs assessments to identify across the offset areas where low habitat resources are to determine what habitat augmentation is required. Habitat augmentation will be staged reflective of existing fauna habitat condition and will utilise available salvaged resources such as coarse woody debris, rocky debris (bush rocks) and artificial hollows (including nest boxes) in consideration of Conservation Agreement conditions.

Where nest boxes are to be installed; they will be made from high quality and durable materials that provide for a long lifespan and of designs that are targeted for hollow-dependent threatened species known to occur in the locality of the offset site such as small gliders, Greater Gliders, microbats, Turquoise Parrots, Brown Treecreepers and Pale-headed Snakes.

Habitat augmentation (using salvaged resources or nest boxes) located in the offset areas will be monitored in a staged program in conjunction with other annual fauna monitoring. The staged monitoring of nest boxes will commence the year following installation for their signs of use and condition at consistent times of the year across the offset areas targeting species type based on nest box design. Signs of use monitoring will aim to identify the species while minimising disturbance to any fauna if occupying the boxes at the time.

WHCs Habitat Augmentation program (AMBS, draft 2021e) estimated that approximately 2,900 nest boxes were needed for these low habitat resource areas across all WHC biodiversity properties to address the calculated deficit for hollow bearing trees in poor/medium broad habitat types; with Maules Offset Areas on average to have deploy nest boxes approximately 150 each year (varying dependent on suitable trees, size of habitat augmentation corridors and prevailing conditions) utilising designs suitable for the range of target species appropriate to the habitat at the installation locations/corridors. WHCs commitment to ongoing monitoring will ensure that the habitat augmentation program can continue to be adaptive and reactively refined to match the actual restoration of fauna populations and species measured overtime.

A summary of annual habitat augmentation activities will be reported in the MCCM Annual Review. A total of 327 next boxes have been installed on the offset areas between 2021 and 2023.

5.7 HERITAGE MANAGEMENT

Management of heritage sites and values across the offset areas have been identified in baseline surveys; the MCCM Heritage Management Plan as well as the Aboriginal Heritage Conservation Strategy (AHCS) (University of Queensland, 2017). There is not expected to be any conflict between biodiversity management works in the offset areas with any cultural and historical heritage values and sites by adopting the following measures:

- Heritage due diligence assessments will be completed prior to commencing biodiversity management works that cause surface disturbance within offset areas. In addition, biodiversity management works (such as fire break track maintenance, revegetation ground preparation or infrastructure/asset removal) proposed close to known cultural and historic heritage site locations will be reviewed to avoid impacts;
- Routinely maintain and update the Whitehaven Cultural and Historical Heritage Register and Spatial Database;
- All relevant identified cultural and historic heritage sites within offset areas will be demarcated and fenced (where appropriate). To avoid inadvertent disturbance; heritage sites will have demarcation fencing installed and signs that identify the offset area, type of heritage and site ID, and a Whitehaven contact number provided so that only authorised access can be permitted, and all activities must be authorised;
- All relevant identified cultural and historic heritage sites will have an Annual Heritage Site and Fencing Inspection undertaken by appropriately qualified heritage specialists to ensure the integrity

of the fencing and site condition has not been compromised and that heritage sites are appropriately managed;

- If any potential heritage sites, remains or artefacts are identified during biodiversity management; the work will immediately stop within the vicinity of the suspected area and appropriately qualified heritage specialists will be engaged and an assessment undertaken to determine what action and reporting is required. Offset areas will need to meet all statutory requirements under the NP&W Act and NSW *Heritage Act 1977*.

Status of Aboriginal Heritage Conservation Strategy (AHCS)

The AHCS was approved by the former DPIE in November 2017 in accordance with PA 10_0138 Schedule 3 Condition 57 outlining an approach for conserving regional Aboriginal heritage values within the BTM mines and associated Biodiversity Offset Areas including assessing Cultural Values. The initial Cultural Values Surveys of the Existing MCCM Offset Areas was completed in 2020 and the report was acknowledged by the former DPIE on 29 June 2020 as fulfilling a number of commitments of the AHCS including endorsement by Registered Aboriginal Participants involved in the survey. Following PA 10_0138 MOD 9 BOS approval and Conservation Agreement registration in 2024, Cultural Values Surveys of the Additional MCCM Offset Areas were completed. A final Cultural Values Report will be prepared and consulted with the Registered Aboriginal Participants and community including an 'On-Country' event with access and educational opportunities in planning for the Onavale Offset Area (subject to Conservation Agreement Variation VC00492 under assessment by NSW Biodiversity Conservation Trust).

Plate 4 Example of AHCS access to country in planning for the Onavale Offset Area

5.8 WEED MANAGEMENT

MCC aim to promote natural regeneration by reducing weeds so that perennial exotic plant cover does not comprise more than 20% of flora monitoring plots (aligned with the *Leard Forest Mining Precinct Regional Biodiversity Strategy* [Umwelt, 2017]) by implementing measures aiming to exclude WONS from the offset areas (EPBC 2010/5566, Condition 12C (e) iv).

MCC will manage weeds in accordance with the NSW *Biosecurity Act 2015* that introduced the "General Biosecurity Duty" (GBD) which requires all land managers and users to ensure as far as is reasonably practicable, that biosecurity risks are prevented, eliminated or minimised. In addition to MCC's GBD responsibility, weed management will be implemented to align with the *North West Regional Strategic Weed Management Plan* (NWRSWMP) 2023 – 2027 (North West Local Land Services, 2022) and weed control measures will be guided by published control measures (e.g. DPI, 2018a).

The NWRSWMP introduces a risk management approach (based on the weed invasion curve stages of prevention, eradication, containment and asset protection) to prioritise weeds for management based on those weeds that are "State Level Determined Priority Weeds for the Northwest Local Land Services Region" and additional "Regional Priority Weeds".

The spread and introduction of weeds can be prevented by the practice of weed hygiene measures. MCC will instruct contractor vehicles and equipment entering the offset areas to be clean and free from weeds and/or seeds. Access to the offset areas will also be controlled as described in Section 5.13.

Seasonal weed assessment programs are undertaken across the offset areas to identify weed species, extent and condition of any infestations and the opportunity for control/management depending on seasonal conditions. The weed assessments ensure that timely and prioritised weed control is undertaken on a seasonal basis with the information given to contractors to identify what, where, when and how to target appropriate resources across the offset areas for weed control.

A number of environmental and priority weeds are known to occur in the offset areas as listed in Table 5-3 that are a legacy inherited from previous owners' management regimes. Based on seasonal weed assessment results; weed control will take place targeting the priority weeds (Table 5-3) and any other environmental weeds present in the offset areas. However, if new weeds species are found, those new weeds species will also be managed in accordance with this BMP.

Recommended techniques for removal of priority weeds that have been published by DPI will be consulted prior to weed control, e.g. *New South Wales Weed Control Handbook* (DPI, 2018a). Relevant methods for controlling priority weeds known to occur in the offset areas are summarised in Table 5-3.

Table 5-3
Control of Example Target Priority Weeds

Common Name	Scientific Name	Example Control Methods (DPI, 2018a)
Mother of Millions	*Bryophyllum delagoense*	• herbicide application
Paterson's Curse	*Echium plantagineum*	• herbicide application
African Boxthorn	*Lycium ferocissimum*	• physically remove • herbicide application
Prickly Pear	*Opuntia* sp.	• physical removal • herbicide application
Tiger Pear	*Opuntia aurantiaca*	• physical removal • herbicide application
Sweet Briar	*Rosa rubiginosa*	• physical removal • herbicide application
Fireweed	*Senecio* spp.	• herbicide application
Cockle Burr	*Xanthium occidentale*	• physical removal • herbicide application
Bathurst Burr	*Xanthium spinosum*	• physical removal • herbicide application

In addition to species listed in Table 5-3, Coolatai Grass (*Hyparrhenia hirta*) is a recognised threat to Box-Gum Woodland CEEC (DECCW, 2011), although it is not a priority weed relevant to the offset areas. In the event that Coolatai Grass is found in the offset areas, individual plants can be physically removed or treated with herbicide (DPI, 2018a).

All personnel involved in weed management will be required to hold relevant and valid licences/permits for weed management works, including a chemical licence to use herbicides and a chainsaw certificate to operate chainsaws (where applicable).

A summary of annual weed management activities will be reported in the MCCM Annual Review. Guidance on weed control will be available to employees and/or contractors through ongoing communications and training to raise awareness of biodiversity issues in the region (e.g. weed spread prevention through the washing of vehicles and equipment and toolbox talk communications on potentially emerging weeds like Tiger Pear).

5.9 PEST ANIMAL MANAGEMENT

The overarching objective of the pest animal management program is to ensure that the impacts of pest animals to native species, existing vegetation and revegetation within offset areas are minimised. The goal of pest animal management is to achieve an overall reduction in pest animal species and population sizes targeted by control measures implemented across the offset areas (in consideration of potential drought conditions and seasonal trends).

MCC aims to apply an even and consistent pest animal management effort by routinely scheduling rolling monitoring and control programs across offset areas. This standardised approach can also be supplemented with periodic targeted programs that focus on specific areas with high pest animal detection, or, on species which have increasing rates of detection. Both the overall management and targeted programs are planned using data collected from grid-based motion detection camera monitoring program, pest animal observations and the results of previous control programs.

Pest animal management will focus on the pest animals in Table 5-4 that have been recorded in the offset areas that are a legacy inherited from previous owners' management regimes. However, if new pest animals are found, those new pest animals will also be managed in accordance with this BMP.

Control measures described in Table 5-4 will be implemented by Whitehaven staff or by an appropriate Pest Control Contractor(s) as required. All personnel involved in pest animal control will be required to hold relevant and valid licences/permits, including any relevant chemical licences for pesticide use or a firearms licence for shooting. Pest animal control will be undertaken in consideration of the control recommendations outlined in the *Ecology and Management of Vertebrate Pests in NSW* (DPI, 2018b) and *Northwest Regional Strategic Pest Animal Management Plan* 2018 – 2023 (Northwest Local Land Services, 2018).

A summary of annual pest animal management activities will be reported in the MCCM Annual Review. Key messages on pest animal prevention will be available to employees and/or contractors through ongoing communications and training to raise awareness of biodiversity issues in the region (e.g. reporting pest animal observations via centralised email address and toolbox talk communications on potentially emerging pest animal like Feral Deer).

Table 5-4
Control Methods for Target Pest Animals – Offset Areas

Common Name	Scientific Name	Example Control Method	Relevant Documents[1]
Feral Pig	*Sus scrofa*	• trapping/ground shooting; and/or • ground baiting (using poison).	• *Threat Abatement Plan for Predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs* (DEE, 2017); • *PestSmart Toolkit* (Centre for Invasive Species Solutions, 2023); and • *Ecology and Management of Vertebrate Pests in NSW* (DPI, 2018b).
Feral Goat	*Capra hircus*	• trapping/ mustering; and/or • ground shooting.	• *Threat Abatement Plan for Competition and Land Degradation by Unmanaged Goats* (DEWHA, 2008b); and • *PestSmart Toolkit* (Centre for Invasive Species Solutions, 2023).
European Red Fox	*Vulpes*	• trapping/ground shooting; and/or • ground baiting (using poison).	• *Threat Abatement Plan for Predation by European Red Fox* (DEWHA, 2008b); • *NSW Threat Abatement Plan For Predation by The Red Fox (Vulpes vulpes)* (OEH, 2011); • *PestSmart Toolkit* (Centre for Invasive Species Solutions, 2023); and • *Ecology and Management of Vertebrate Pests in NSW* (DPI, 2018b).
European Rabbit	*Oryctolagus cuniculus*	• warren ripping/fumigation; • trapping/ground shooting; and/or • ground baiting (using poison).	• *Threat Abatement Plan for Competition and Land Degradation by Rabbits* (DEE, 2016); • *PestSmart Toolkit* (Centre for Invasive Species Solutions, 2023); and • *Ecology and Management of Vertebrate Pests in NSW* (DPI, 2018b).
Brown Hare	*Lepus capensis*	• ground shooting.	• *Integrated Hare Control* (Department of Environment and Primary Industries [Victoria], 2015); and • *Ecology and Management of Vertebrate Pests in NSW* (DPI, 2018b).
Feral Deer	*Cervus spp., Axis spp., or Dama spp.*	• trapping; and/or • ground shooting.	• *Feral Deer* (DotE, 2011); and • *Ecology and Management of Vertebrate Pests in NSW* (DPI, 2018b).
Feral Cat	*Felis catus*	• trapping; and/or • ground shooting.	• *Threat Abatement Plan for Predation by Feral Cats* (DotE, 2015b)[5]; • *PestSmart Toolkit* (Centre for Invasive Species Solutions, 2023); and • *Ecology and Management of Vertebrate Pests in NSW* (DPI, 2018b).
Wild Dog	*Canis familiaris*	• trapping/ground baiting (using poison); and/or • ground shooting.	• *New South Wales Wild Dog Management Strategy 2017-2021* (DPI, 2017); • *PestSmart Toolkit* (Centre for Invasive Species Solutions, 2023); and • *Ecology and Management of Vertebrate Pests in NSW* (DPI, 2018b).

1 An alternative published method may be used as required.

5 Noting that there is a draft revision of the *Threat Abatement Plan for Predation by Feral Cats* (Cth DCCEEW, 2023b).

5.10 NOISY MINER CONTROL PROGRAM

Aggressive Exclusion of Birds from Woodland and Forest Habitat by Abundant Noisy Miners, (*Manorina melanocephala*) is a key threatening process listed under the BC Act and EPBC Act. The Additional Offset Independent Review (EastCoast Flora Survey, 2022) recommended the management of Noisy Miner (*Manorina melanocephala*) on the additional offset areas (Thornfield, Long Gully, Neranghi North, Triangle and Coonoor) to improve habitat value for the Regent Honeyeater and Swift Parrot.

The primary, long term, management measure to address Noisy Miners (and other potential aggressive honeyeater species) is to facilitate natural regeneration. Increasing the structural density and complexity of existing habitats for Regent Honeyeater, Swift Parrots and other threatened Woodland birds can reduce the suitability of habitats for Noisy Miners (DAWE, 2020).

Further, MCC will commit to a 5-year pilot Noisy Miner control program within existing potential Regent Honeyeater and Swift Parrot habitat on and adjoining the Offset Areas of Thornfield, Coonoor, Neranghi North, Long Gully and Triangle that is based on consultation with leading practice organisations, researchers and relevant government agencies (i.e. NPWS and BCT). Consistent with the Key Threatening Process Strategy for Noisy Miners (NSW DCCEEW, 2024), the aim of the pilot program will be to evaluate whether methods of control described in the published literature (i.e Crates *et al*., 2022, Melton *et al*., 2021) can be used to lower Noisy Miner population density on the additional offsets. A Noisy Miner control program will be implemented in 2024/2025 (subject to obtaining the relevant licenses and approvals) at all additional offset areas where Noisy Miner densities are above levels reported as being detrimental to native fauna. After this initial program, further controls will be initiated based on a series of thresholds, specifically:

1. Regent Honeyeaters are detected (resulting in an as soon as practicable control prior to or at the commencement of the next Regent Honeyeater breeding period);
2. Swift Parrots are detected (resulting in control prior to the next winter bird feeding season); or
3. Noisy Miners are above thresholds (resulting in control prior to or at the commencement of the next Regent Honeyeater breeding period).

Noisy Miner densities thresholds described in the published literature (i.e Crates *et al*., 2022, Melton *et al*., 2021) as being detrimental to native fauna are within a range between 0.44/ha to 0.83/ha.

Typically, the winter bird feeding season for Swift Parrots is May to August and the breeding period for Regent Honeyeaters is July through to January (Office of Environment and Heritage, 2014c). The Noisy Miner control program will be subject to obtaining any required licence and undertaking consultation with the BCT as relevant to Conservation Agreement conditions.

Monitoring of the Regent Honeyeater and Swift Parrot (plus other threatened Woodland birds) will occur as described in Section 5.17.2. The described program results in minimum of 20 hours of bird survey across 8 days targeting winter flowering eucalypts (DEWHA, 2010). In addition to the winter bird survey program, ecologists have implemented a diurnal bird survey program between August and October each year, with the additional offset areas being surveyed since 2021 as described in Section 5.17.2. This annual diurnal bird survey program tallies all birds within a 1-hectare grid over the course of 10 minutes and notes additional species outside the 1-hectare grid. Survey intensity varies biennially with sites sampled 5 times than 2 times in alternating years.

Estimates of baseline Noisy Miner density will be calculated from the existing monitoring data described above. The bird monitoring programs described above will also be used to determine if and when additional control programs will be required. At the end of the 5-year pilot program; MCC will analyse data from the two bird monitoring programs to determine what effects can be discerned from the Noisy Miner control and evaluate whether it is reasonable and feasible to continue such a control program for these offset areas.

Control of Noisy Miners will be implemented by an appropriate Pest Control Contractor(s) using methods similar to Crates *et al*. (2022). All personnel involved in Noisy Miner removal will be required to hold relevant and valid licences/permits, including any relevant firearms licence for shooting.

A summary of the Noisy Miner control program will be reported in the MCCM Annual Review. A report will be prepared at the end of the 5-year pilot program of Noisy Miner control that will outline recommendations on whether it is reasonable and feasible to continue such a control program for these offset areas.

5.11 EROSION AND SOIL MANAGEMENT

The proposed revegetation program (that aims to restore native vegetation cover) and exclusion of livestock grazing will likely mitigate any existing legacy erosion sites inherited from previous owners' management regimes, as well as reduce the potential for other erosion issues developing in the offset areas.

Erosion management is determined by annual inspection programs of known erosion sites, unsealed tracks and associated drainage structures across the offset areas to review appropriate erosion and sediment control measures required in accordance with the Blue Book (Managing Urban Stormwater: Soils and Construction Volume 1 [Landcom, 2004]) and in consideration of Conservation Agreement conditions. Should annual inspection programs identify areas of unstable and active erosion, the erosion register will be updated including what (if any) active remediation works are required to be undertaken. Any erosion and sedimentation identified with tracks and associated drainage structures will be maintained through annual fire break track maintenance program. A summary of annual erosion management activities will be reported in the MCCM Annual Review.

Salinity is not known to be an issue for the offset areas, and the actions specified in this BMP are not likely to increase the level of salinity, and therefore no specific salinity management measures are proposed to be undertaken in this BMP.

5.12 AGRICULTURE MANAGEMENT

Condition 46 of Schedule 3 of PA 10_0138 provides that the offset areas are to be managed primarily for the purposes of compensating for biodiversity impacts of the MCCM and improving regional biodiversity outcomes.

In this regard, agricultural production and livestock grazing is currently excluded from the offset areas. Any inadvertent grazing from stray neighbouring stock will be removed as soon as practicable. Any proposed grazing for high threat weed infestations will be planned in consideration of Conservation Agreement conditions and aligned with the BCT (2021) *Livestock Grazing Guideline* and include a detailed assessment of the suitability of grazing for conservation management outcomes in accordance with Condition 52 (e) of Schedule 3 of PA 10_0138.

Condition 46 of Schedule 3 of PA 10_0138 also provides that to the extent that limited agricultural production on the lots purchased for offsets is compatible with this BMP and other conditions of PA 10_0138, MCC must include in the BMP an agricultural suitability assessment of surplus land on the properties and maintain the agricultural productivity of the surplus areas. A Supplementary Report (Minesoils, 2024) to the original agricultural suitability assessment (McKenzie 2015) is provided in Appendix K. The original assessment was applied to those properties purchased by MCC for offset areas that included surplus land outside of the offset area which is suitable for agriculture.

In the time since the original agricultural suitability assessment report was completed, the offset areas have been revised (both in the preparation of Conservation Agreements aligned with PA10_0138 MOD9 and EPBC Act Approval 2010/5566 variation 2022) and relevant land has successfully been transitioned from agricultural production to biodiversity management. The Supplementary Report provides updated recommendations for the agricultural exclusion management of the offset areas (reflecting the advanced stages of restoration and revegetation of biodiversity values within the offset areas), as well as updated recommendations for the continued agricultural production and livestock grazing on the relevant surplus land of the offset properties which is outside of the approved offset and conservation agreement areas.

5.13 ACCESS AND INFRASTRUCTURE MANAGEMENT

Vehicle access will be restricted to designated tracks to minimise ground disturbance (e.g. compaction); with the exception for biodiversity management actions and inspections which unavoidably result in vehicles and machinery travelling off-tracks within the offset areas. Fencing, gates, access tracks/fire trails and signage inspections will occur biannually. Maintenance of fences and gates will be undertaken as required, while access tracks/fire trails will be maintained in accordance with Section 5.14.

Fence lines are to be located on or adjacent to the actual offset area wherever practicable in consideration of biodiversity (such as threatened species) and heritage constraints. Maintenance and new fences will be constructed in consideration of Conservation Agreements which limits total clearing to 6 m total width. The use of existing fences will be maximised in the first instance as the offset area boundary, to reduce additional disturbance. This will secure the offset area by minimising the likelihood of inadvertent grazing, unauthorised disturbance, or unauthorised access into the offset area. If inspections note that any fences are causing impacts to the flight paths of birds, bats and gliders, alternatives to barbed wire fencing will be considered. Where offset areas share common boundaries, fencing designs will not be restrictive to native fauna movement or connectivity between habitats. Wherever the need to restrict livestock is not required, new fencing will be plain strand wire fencing to minimise the use of barbed wire.

Offset areas can contain legacy infrastructure assets and items that are inherited from previous owners' agricultural management regimes. Existing infrastructure (such as electricity transmission lines, windmills/water bores and pipes, homesteads and sheds) wholly or partly within the offset areas will be retained and managed as required by the relevant owners and/or managers/licensees. New infrastructure will be located, if required, in consideration of biodiversity (such as threatened species) and heritage constraints, and due diligence inspections will be undertaken prior to any disturbance in consideration the limits specified in Conservation Agreements. Any remaining derelict assets/infrastructure items will continue to be assessed and if no longer required, will be progressively removed overtime and remediated as required.

Visitor impacts will be managed such that disturbance to the offset areas is minimised. Visitors must keep to designated tracks and trails except for management purposes, and equipment entering the area must be clean from weeds and/or seeds. Firewood collection will not be permitted unless in accordance with Conservation Agreements.

5.14 BUSHFIRE MANAGEMENT

MCC will annually quantify bushfire fuel loads and threats to assess the bushfire hazard of various offset areas prior to each bushfire season. The assessment will consider human, environment and infrastructure assets within and adjacent to offset areas to quantify an overall bushfire risk. The feasibility of various hazard reduction methods will then be considered (for example, but not limited to, fire exclusion, mechanical fuel reduction such as slashing, or undertaking ecological burns) prior to determining annual treatment/actions for each offset property. Existing fire break tracks across the offset areas are shown on Figures 10a to 10h.

Offset areas with moderate to high overall bushfire risks will be prioritised as part of an annual ecological burn program and will be subject to conceptual and strategic fire planning and mapping. Once annual fire planning has identified individual paddocks in which ecological burns can feasibly be undertaken, and a burn plan has been prepared; MCC will consult where required with relevant stakeholders such NSW Rural Fire Services (RFS), Councils and neighbours/local community, as well as the NSW Environment Protection Authority (EPA Approval for Open Burning is required for ecological burns) and BCT in consideration of Conservation Agreement conditions.

MCC will establish and maintain fire breaks (using access tracks/fire trails) around the perimeter of and internally within offset areas (where practicable) to passively mitigate fire spreading onto or off the offset property, as well as for active ecological burning and bushfire containment purposes, in consideration of Conservation Agreement conditions. Fire breaks will be periodically maintained as zero fuel barriers (preferably mineral earth barriers up to 6 m total width of clearing); acknowledging that some fuel accumulation will occur in between maintenance. Fire breaks will be inspected annually prior to the fire season and the maintenance of fire breaks will be prioritised as required by the inspection.

MCC will undertake an annual ecological burn program within the feasible paddocks/burn blocks identified through the above assessment within the prioritised offset areas. The burn program will be conducted by suitably experienced and capable professionals with adequate firefighting resources and training to safely and competently light and extinguish ecological burns.

WHC-20-74_BMP24_250A

LEGEND

- NPWS Estate
- State Forest
- MCCM Project Boundary
- MCCM Offset Area
- Fire Breaks

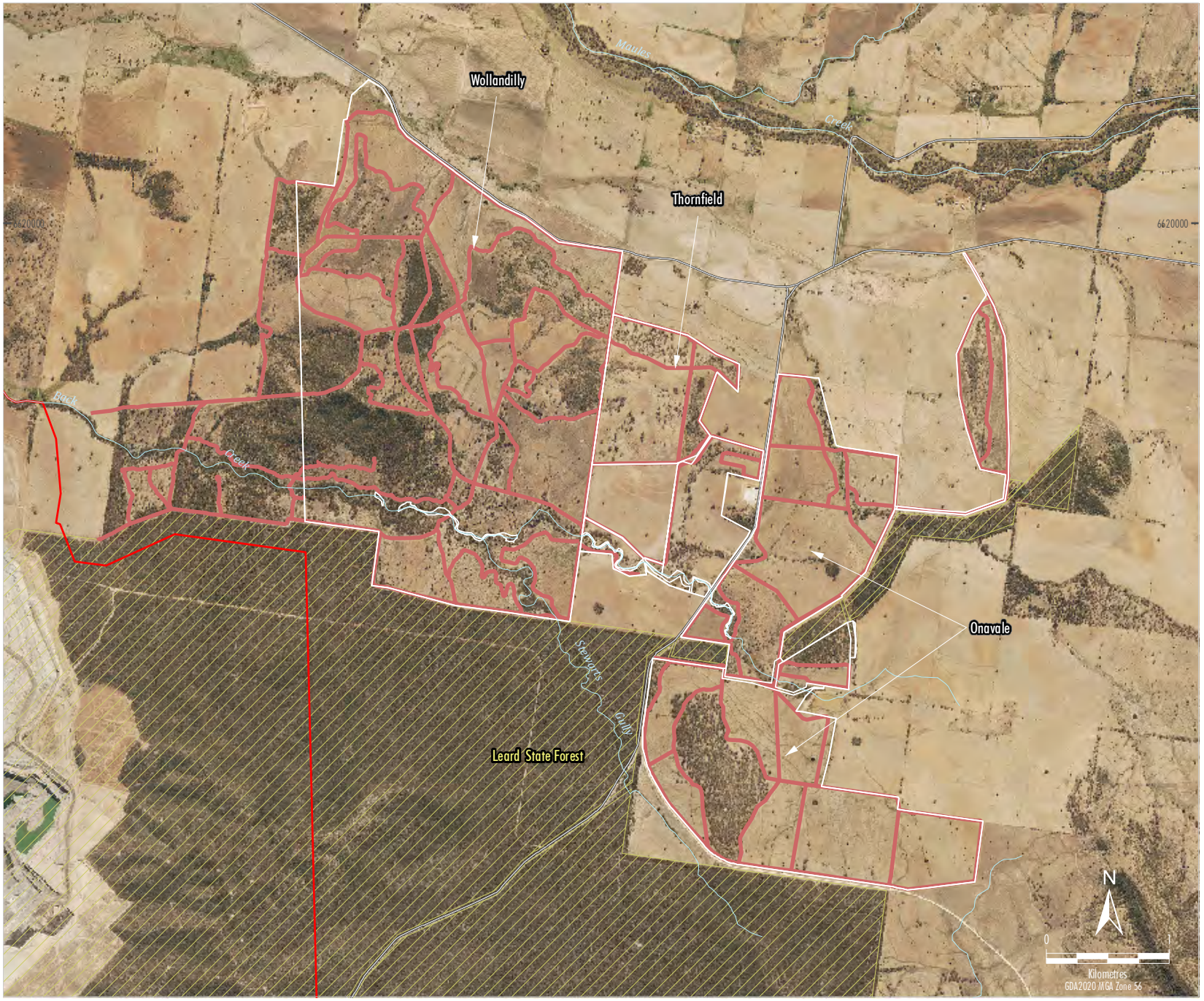
Source: NSW Spatial Services (2021); AMBS (2022) Orthophoto Whitehaven Coal (April 2019)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Bushfire Management - Kelso, Velyama, Louenville, Teston South, Teston North and Tralee

Figure 10a



LEGEND

- State Forest
- MCCM Project Boundary
- MCCM Offset Area
- Fire Breaks

Source: NSW Spatial Services (2021); AMBS (2021) Orthophoto Whitehaven Coal (April 2019)

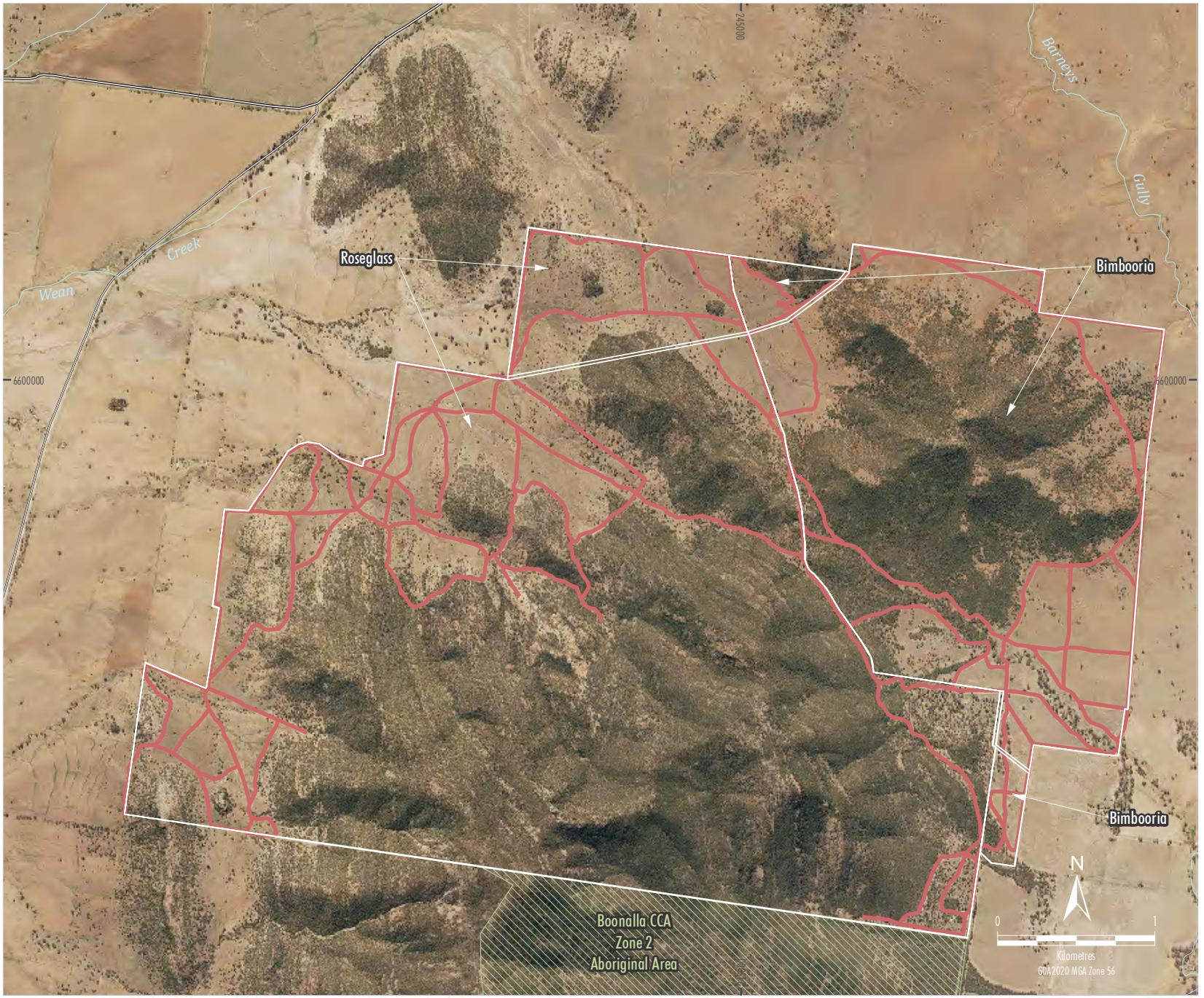
WHITEHAVEN COAL

MAULES CREEK COAL MINE

Bushfire Management - Wollandilly, Thornfield and Onavale

Figure 10b

WHC-20-74_BMP24_251A



LEGEND

- NPWS Estate
- MCCM Offset Area
- Fire Breaks

Source: NSW Spatial Services (2021); AMBS (2021) Orthophoto Whitehaven Coal (April 2019)

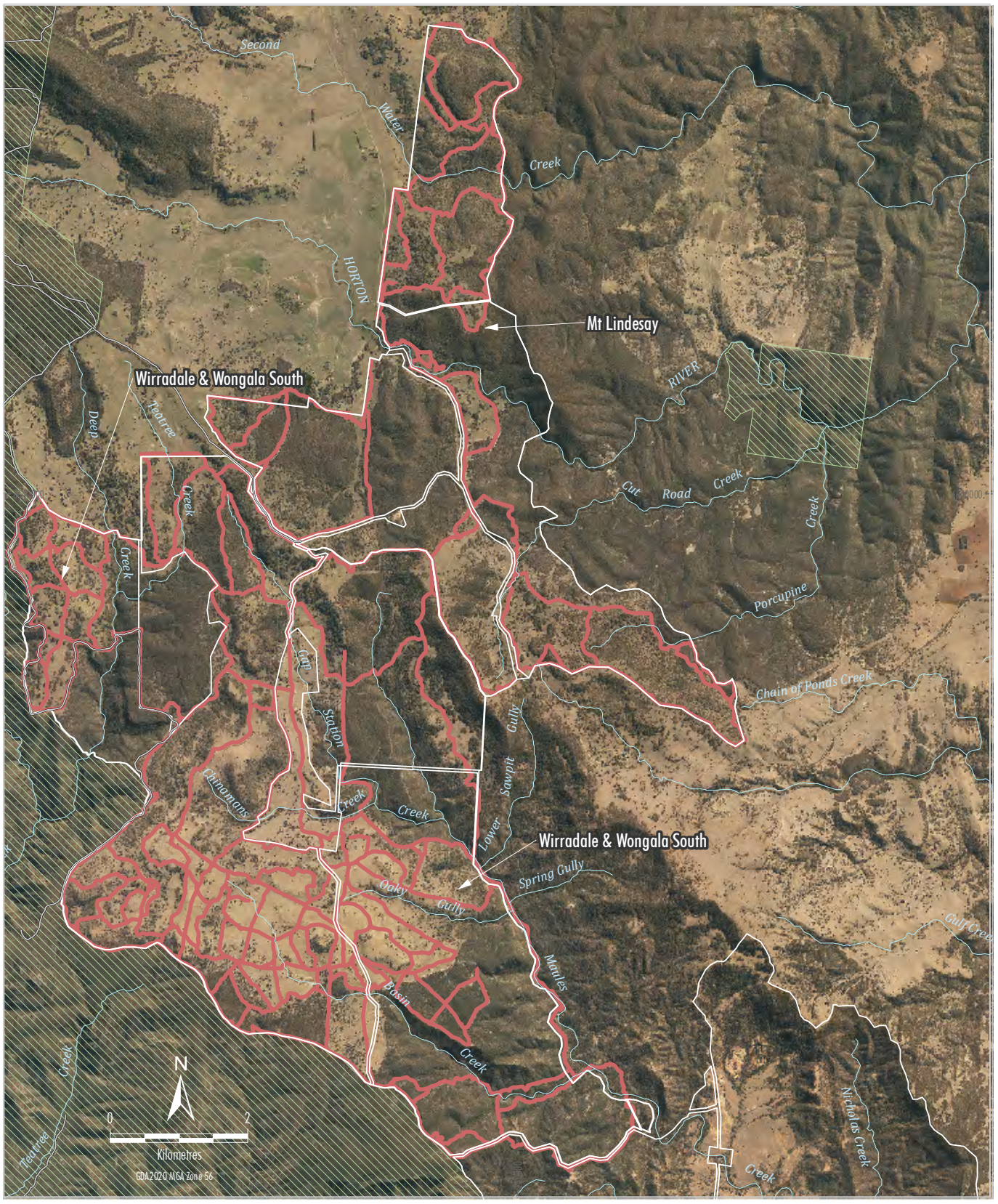
WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Bushfire Management - Roseglass and Bimbooria

Figure 10c

WHC-20-74_BMP24_252A



WHC-20-74_BMP24_253A

LEGEND

- NPWS Estate
- MCCM Offset Area
- Fire Breaks

Source: NSW Spatial Services (2021); AMBS (2021) Orthophoto Whitehaven Coal (April 2019)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Bushfire Management - Mt Lindesay, Wirradale and Wongala South

Figure 10d

WHC-20-74_BMP24_254A

LEGEND

- Property Boundary
- MCCM Offset Area
- Fire Breaks

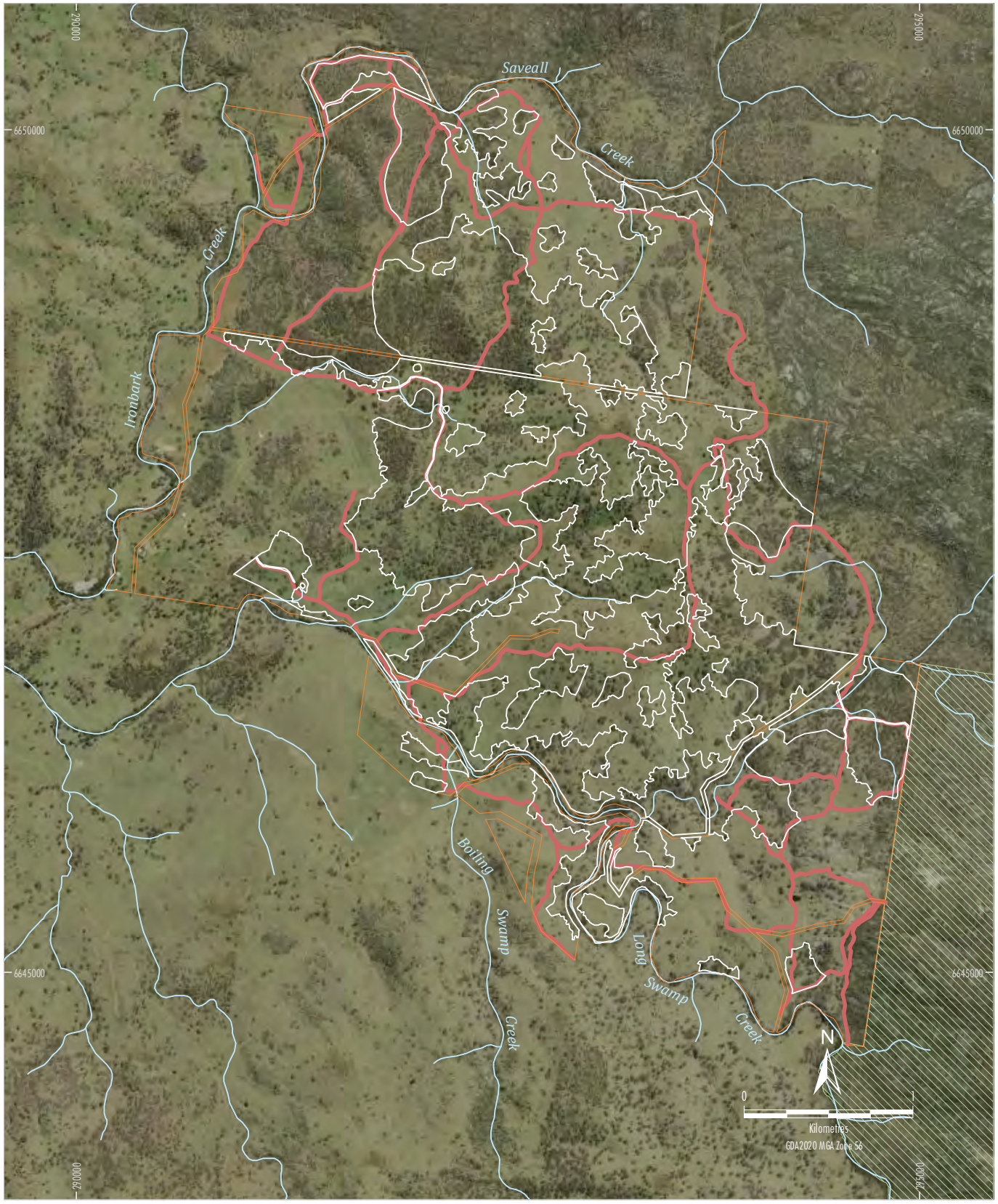
Source: NSW Spatial Services (2021)
AMBS (2021)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Bushfire Management - Triangle

Figure 10e



WHC-20-74_BMP24_255A

Source: NSW Spatial Services (2021); AMBS (2021)

LEGEND

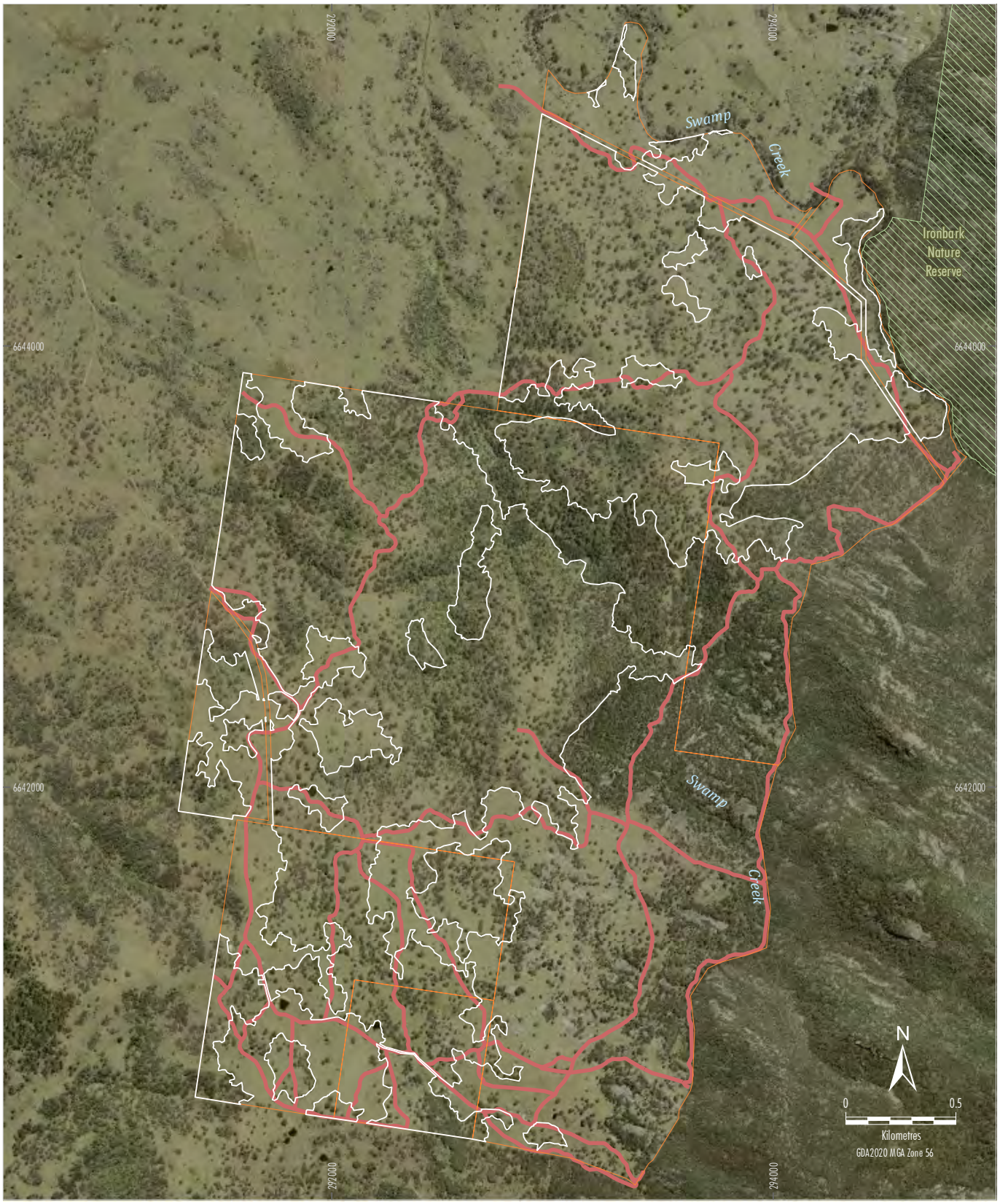
- NPWS Estate
- Property Boundary
- MCCM Offset Area
- Fire Breaks

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Bushfire Management - Neranghi North

Figure 10f



WHC.20-74_BMP24_256A

LEGEND

- NPWS Estate
- Property Boundary
- MCCM Offset Area
- Fire Breaks

Source: NSW Spatial Services (2021); AMBS (2021)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Bushfire Management - Coonoor

Figure 10g

LEGEND

- NPWS Estate
- Property Boundary
- MCCM Offset Area
- Fire Breaks

Source: NSW Spatial Services (2021); AMBS (2021)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Bushfire Management - Long Gully

Figure 10h

The location of ecological burns will consider existing fire intervals (in consideration of NSW RFS Bush Fire Coordinating Committee [2008] *Bushfire Fire Risk Management Guideline* intervals for grassy woodlands of 8 to 40 years; grasslands of 3 to 10 years; and dry sclerophyll forest shrub/grass sub-formation of 8 to 50 years) within non-woody (any areas considered with revegetation will be sufficiently mature to avoided fire impacts) and woody (existing remnant vegetation) areas, in consideration of Conservation Agreement conditions. Ecological burns will aim for low to moderate fire intensity burns by undertaking cool season burns when conditions are suitable (generally autumn to spring), as well as undertaking other burn preparations to mitigate impacts to environmental assets (such as hollow bearing trees) and other constraints identified within mapped burn blocks.

In the event of a bushfire within or adjacent to offset areas; MCC will assist bushfire emergency services and neighbours (such RFS, NPWS and Forestry Corporation NSW) as much as practicable, including, but not limited to, coordinating access to offset areas and facilitating available water sources.

A summary of annual bushfire management activities will be reported in the MCCM Annual Review.

5.15 THREATENED FLORA MANAGEMENT

MCC will manage, protect and enhance habitat for threatened flora species within and adjacent to the MCCM mining operations and offsets areas. While the focus is to guide management of those threatened flora species which are known to occur within MCCM, general principles and actions are also outlined which will be implemented for additional threatened flora species detected. Current and future management actions for the threatened flora species undertaken as required are:

- Maintenance of threatened flora database, sighting register and spatial data;
- Habitat protection with threatened flora fences and signage;
- Threat abatement and habitat enhancement within offset areas;
- Undertake translocations and transplantations where propagative material is available; and
- Monitoring of threatened flora habitat and populations.

In summary, to avoid inadvertent disturbance of known populations, MCC will maintain a threatened flora register and spatial database as well install demarcation fencing and signage of known threatened flora sites within offset areas. Additionally, the management program includes routine inspections and monitoring of known threatened flora sites with the aim to gain more knowledge of the threatened flora species, identify and respond to any identified threats, and as required prepare propagation and translocation programs for the following species.

5.15.1 Tylophora linearis

Tylophora linearis (a threatened flora species listed under the BC Act and EPBC Act) was identified in the MCCM Project Boundary during pre-clearing flora surveys in 2014. Following the identification of *Tylophora linearis* in the MCCM Project Boundary, MCC engaged Niche to undertake regional targeted surveys for *Tylophora linearis* within seven NPWS reserves and six State Forests within northern NSW. The study area was approximately 371,629 ha (Niche, 2014).
These surveys confirmed the presence of *Tylophora linearis* in six NPWS reserves and six State Forests, all of which were modelled as containing suitable habitat, namely: Bibblewindi State Forest; Pilliga East State Forest; Pilliga National Park; Pilliga Nature Reserve; Pilliga State Conservation Area;

Timallallie National Park; Breeza State Forest; Boonalla Aboriginal Area; Kerringle State Forest; Baradine State Forest; Euligal State Forest; and Trinkey State Conservation Area.

Following the identification of *Tylophora linearis*, a propagation and translocation program was implemented in 2014 and 2015. This research approach has resulted in the examination of *Tylophora linearis* root architecture and species phenology; as well as the successful collection and germination of seed from *Tylophora linearis* plants and subsequent translocation of 77 seedlings within the Wollandilly offset property in December 2015. The threatened flora program will continue to inspect existing and translocated *Tylophora linearis* sites within offset areas as well as attempt to identify reproductive material for future potential translocation and/or transplantation opportunities. Superseding the previous propagation and translocation program, a revised propagation and translocation program is included in Appendix F; but in addition, the MCCM offset area has established direct and other compensatory measures for the species as part of the offsets package (Appendix F) including:

1. Conservation of existing habitat for *Tylophora linearis* within offset areas (Section 4.6);
2. Revegetation of woodland/forest within areas of former *Tylophora linearis* habitat (Section 4.6);
3. Implementation of a root architecture and growth study for *Tylophora linearis* completed in 2014 and 2015 (Appendix F);
4. Seed production monitoring for *Tylophora linearis* completed in 2014 and 2015 (Appendix F);
5. Collection and storage of seed (Appendix F);
6. *Tylophora linearis* propagation (Appendix F);
7. Translocation trials within Wollandilly Offset Area (Appendix F); and
8. Regional surveys completed in 2014 (Section 5.15).

Previous flowering observed for the transplanted *Tylophora linearis* indicates that the transplantation project is contributing towards an established and viable population of *Tylophora linearis* within the Wollandilly Offset Area.

Tylophora linearis was recognised as a little known and cryptic species (OEH, 2014a) and the measures have led to a greater understanding of the species and how it can be managed for conservation purposes. The approved *Tylophora linearis* offset package (Appendix F, Hunter Eco, 2021) provides a significant addition to the reserved *Tylophora linearis* habitat (including additional confirmed records). A summary of annual threatened flora management activities will be reported in the MCCM Annual Review.

5.15.2 Pomaderris queenslandica

Scant Pomaderris (*Pomaderris queenslandica*) (a threatened flora species listed under the BC Act) was identified in the MCCM Project Boundary in 2015 during pre-clearing flora surveys .

Following the identification of *Pomaderris queenslandica*, a propagation and translocation program was implemented in 2015. This research approach has resulted in the examination of *Pomaderris queenslandica* root architecture; as well as the successful seed collection/germination and soil translocation of *Pomaderris queenslandica* with over 400 surviving plants within the Teston South, Louenville, Kelso and Wollandilly offset properties as at the end of 2023. The threatened flora program will continue to inspect existing and translocated *Pomaderris queenslandica* sites within offset areas as well as attempt to identify reproductive material for future potential translocation and/or transplantation opportunities. Superseding the previous program, a revised propagation and translocation program is included in Appendix G. A summary of annual threatened flora management activities will be reported in the MCCM Annual Review.

5.15.3 Pultenaea imminuta

Boggabri Bush-pea (*Pultenaea imminuata*) was identified in the MCCM Project Boundary in 2024 during pre-clearing flora surveys. As this Pultenaea species has only been recently described as a separate species; it is neither listed under the BC Act or EPBC Act. Because it is currently only known from 3 sites restricted to the Leard State Forest that it could meet the criteria for a threatened listing under the BC Act. WHC has become aware through genetic testing work undertaken by the Botanic Gardens of Sydney; that an application to nominate *Pultenaea imminuata* for listing as Critically Endangered is being planned.

While the timing of the BC Act threatened listing is unknown; in anticipation a Translocation and Propagation Program has been prepared and has been incorporated into this BMP. Following the identification of *Pultenaea imminuata*, these translocation actions have commenced ahead of any potential threatened listing nominations:

- A count/population estimate and map of Pultenaea imminuata plants within the clearing and adjoining areas was undertaken estimating a total population with the Leard State Forest of approximately 3,000 individuals;
- An estimated 300 cuttings and seeds of Pultenaea imminuata collected from the clearing area will survive to become seedlings that could be transplanted in 2025/2026;
- In October 2024, additional seed was collected from another Pultenaea imminuata site in Leard State Forest and will be germinated/propagated for these seedlings to be transplanted with the original cuttings; and
- Samples of the Pultenaea imminuata were taken for genetic studies that found moderately high levels of diversity. Testing confirmed that this species is genetically distinct from other Pultenaea species. The genetic material from the two Pultenaea sites that were tested can be mixed for translocations to minimise further inbreeding risks.

The propagation and translocation program are included in Appendix H. A summary of annual threatened flora management activities will be reported in the MCCM Annual Review.

5.16 PERFORMANCE AND COMPLETION CRITERIA

This section provides detailed performance and completion criteria for evaluating the performance of the Biodiversity Offset Strategy and triggering remedial action (if necessary) in accordance with Condition 52 (d) of Schedule 3 of PA 10_0138 and Condition 12C of EPBC Act Approval 2010/5566. Contingency measures are provided in Section 5.18.

Performance criteria are interim yearly targets for assessing the performance of biodiversity management activities at plots, while completion criteria are the desired targets to be attained across a whole Vegetation Class, then maintained (at or above the desired target) averaged across five years. Once achieved; completion criteria indicate that management has been successful at obtaining the desired result towards woodland ecological restoration and annual monitoring can cease. MCC can revise the management descriptions/actions to reflect the lower intensity management required. In accordance with Condition 55 of Schedule 3 of PA 10_0138, if the Biodiversity Offset Strategy is completed generally in accordance with the completion criteria in this BMP to the satisfaction of the NSW Secretary of the DPHI, the NSW Secretary of the DPHI will release the conservation bond (Section 1.5).

5.16.1 Box-Gum Woodland CEEC

Condition 12C (e) i of EPBC Act Approval 2010/5566 requires a set of measurable ecological indicators for detecting changes to the Box-Gum Woodland CEEC. Table 5-5 outlines the ecological indicators relevant to the offset areas.

Table 5-5
Ecological Indicators for Detecting Changes to the Box-Gum Woodland CEEC

Ecological Indicators for Detecting Changes to the Box-Gum Woodland CEEC	Measure	Monitoring Method (Section 5.18)
Overstorey		
Native overstorey cover	Projected foliage cover %	Native overstorey cover
Overstorey regeneration	Proportion of over-storey species occurring as regeneration	Recruitment of saplings
Vegetation water stress	Projected foliage cover %	Native overstorey cover
Understorey		
Understorey cover	Cover of perennial native groundcover species	Native plant species richness (estimate % cover and abundance of each species)
Understorey diversity	Number of native and exotic understorey species present (excluding grasses)	Native plant species richness s
Important species	Number of important species present	Native plant species richness
Native groundcover (grasses and weeds)	Measured proportionately as a presence/absence metric	Native groundcover grasses

As described in Section 5.1.1, the ecological management objectives for Box-Gum Woodland CEEC are to:

- protect and enhance existing Box-Gum Woodland CEEC (woodland form); and
- restore self-sustaining woodland within existing areas of Box-Gum Woodland CEEC (derived native grassland).

Condition 9 of EPBC Act Approval 2010/5566 requires at least 5,532 ha of Box-Gum Woodland CEEC to be managed to achieve "equivalent or better quality" (as defined in the EPBC Act Approval 2010/5566). To this end, the outcomes being targeted include a reduction in weeds, evidence of natural regeneration in the woodland form of the Box-Gum Woodland CEEC and the establishment of additional woodland within existing areas of derived native grassland. Performance and completion criteria have been defined for the above selected ecological indicators that best assess the trajectory towards the ecological management objectives.

The performance of the offset areas towards meeting the ecological management objectives for the Box-Gum Woodland CEEC will be monitored against the measurable performance and completion criteria provided in Table 5-6. Table 5-6 links the above specific ecological indicators with the performance and completion criteria relevant to the two management objectives. The performance criteria have been measured annually since 2017 on the Kelso, Velyama, Louenville, Teston South, Wollandilly, Onavale, Roseglass, Bimbooria, Wirradale and Wongala South and/or Mt Lindesay Offset Areas, and the target is to meet the completion criteria within 20 years of 2017 (2037) and prior to the expiry date of the EPBC Act approval for all offset areas. Monitoring on the additional offset areas (Thornfield, Long Gully, Neranghi North, Triangle and Coonoor) commenced in 2023 in accordance with the Integrated Monitoring Strategy as a condition of the various Conservation Agreements for these offset areas.

Table 5-6
Performance and Completion Criteria for Box-Gum Woodland CEEC

Management Objective	Ecological Indicators	Performance Criteria	Completion Criteria
Maintenance and enhancement of existing Box-Gum Woodland CEEC (woodland form)	Overstorey regeneration	Natural regeneration of all dominant overstorey Eucalypts relevant to the PCT within each patch sampled by a monitoring plot	Natural regeneration in >50% of plots in vegetation zone have dominant overstorey Eucalypts relevant to the PCT
	Weeds (as perennial exotic plant cover)	An overall decrease in weed (perennial exotic plant) cover compared to the baseline condition	Weed (perennial exotic plant) cover is less than 20% on average across monitoring plots
Restoration of self-sustaining woodland within existing areas of Box-Gum Woodland CEEC (derived native grassland)	Native overstorey cover	Native overstorey cover trending towards benchmark range for the relevant Vegetation Class (Appendix I*)	Native overstorey cover within benchmark range for the relevant Vegetation Class (Appendix H)
	Native midstorey cover	Native midstorey cover trending towards benchmark range for the relevant Vegetation Class (Appendix I*)	Native midstorey cover within benchmark range for the relevant Vegetation Class (Appendix H)
	Native species diversity (also indicator for: • perennial native groundcover; • important species; and • weed richness.	Native species diversity trending towards benchmark range for the relevant Vegetation Class (Appendix I*)	Native species diversity within benchmark range for the relevant Vegetation Class (Appendix H)
	Native groundcover grass cover	Cover trending towards benchmark range for the relevant Vegetation Class (Appendix I*)	Native groundcover grass cover within benchmark range for the relevant Vegetation Class (Appendix H)
	Weeds (as perennial exotic plant cover)	An overall decrease in weed (perennial exotic plant) cover compared to the baseline condition	Weed (perennial exotic plant) cover is less than 20% on average across monitoring plots

* Annual performance criteria in Appendix I are calculated by back-extrapolating lower and upper threshold completion criteria over 20 years to Year 0.

The benchmark ranges for four ecological indicators in Table 5-6 and Appendix H (i.e. native overstorey cover, native midstorey cover, native species diversity and native groundcover grasses) are sourced from the *BioMetric Vegetation Condition Benchmarks* (OEH, 2017). These benchmarks are relevant as these were in place at the time of the original PA10_0138 and EPBC 2010/5566 Approvals and therefore are compatible with the baseline data, subsequent monitoring data, and data collected by Whitehaven in other company-owned offset areas which is based on the *BioBanking Assessment Methodology* (BBAM) (OEH, 2014b). These benchmarks have an upper and lower threshold value (Appendix H).

Annual performance criteria in Appendix I are calculated by back-extrapolating lower and upper threshold completion criteria from 2037 to Year 0. Analysis of annual performance data aims to track progress towards the vegetation management objectives and allows for timely intervention with remedial action. Plots that fall below upper or lower threshold annual performance criteria will trigger a review of contingency measures as outlined in Section 5.18.

5.16.2 Vegetation Communities (Other than Box-Gum Woodland CEEC)

As described in Section 5.1.1, specific objectives of the offset areas relating to vegetation communities (other than Box-Gum Woodland CEEC) include to:

- protect and enhance existing native woodland/forest; and
- restore self-sustaining vegetation communities within derived native grassland and 'non-native' areas.

Table 16 in Condition 44 of Schedule 3 of PA 10_0138 provides for existing native woodland/forest in the offset areas to be protected and enhanced (approximately 10,547.8 ha) as well as restoration of woodland/forest within approximately 4,327 ha of derived native grassland and/or cleared land.

Performance and completion criteria have been defined that best assess the trajectory towards the above ecological management objectives. The performance of the offset areas towards meeting the ecological management objectives will be monitored against the measurable performance and completion criteria provided in Table 5-7.

Table 5-7
Performance and Completion Criteria for Vegetation Communities (other than Box-Gum Woodland CEEC)

Management Objective	Ecological Indicators	Performance Criteria	Completion Criteria
Protect and Enhance Existing Native Woodland/Forest	Overstorey regeneration	Natural regeneration of all dominant overstorey Eucalypts relevant to the PCT within each patch sampled by a monitoring plot	Natural regeneration in >50% of plots in vegetation zone have dominant overstorey Eucalypts relevant to the PCT
	Weeds (as perennial exotic plant cover)	An overall decrease in weed (perennial exotic plant) cover compared to the baseline condition	Weed (perennial exotic plant) cover is less than 20% on average across monitoring plots
Restoration of self-sustaining vegetation communities within derived native grassland and 'non-native' areas	Native overstorey cover	Native overstorey cover trending towards benchmark range for the relevant Vegetation Class (Appendix I*)	Native overstorey cover within benchmark range for the relevant Vegetation Class (Appendix H)
	Native midstorey cover	Native midstorey cover trending towards benchmark range for the relevant Vegetation Class (Appendix I*)	Native midstorey cover within benchmark range for the relevant Vegetation Class (Appendix H)
	Native species diversity	Native species diversity trending towards benchmark range for the relevant Vegetation Class (Appendix I*)	Native species diversity within benchmark range for the relevant Vegetation Class (Appendix H)
	Native groundcover grass cover	Cover trending towards benchmark range for the relevant Vegetation Class (Appendix I*)	Native groundcover grass cover within benchmark range for the relevant Vegetation Class (Appendix H)
	Weeds (as perennial exotic plant cover)	An overall decrease in weed (perennial exotic plant) cover compared to the baseline condition	Weed (perennial exotic plant) cover is less than 20% on average across monitoring plots

* Annual performance criteria in Appendix I are calculated by back-extrapolating lower and upper threshold completion criteria over 20 years to Year 0.

5.16.3 Habitat for Threatened Species

As described in Section 5.1.1, the ecological management objectives for threatened species listed under the EPBC Act are to:

- protect and enhance existing woodland and forest habitat for threatened species threatened species listed under the BC Act (those listed in Conditions 49 and 50 of Schedule 3 of PA 10_0138) and listed under the EPBC Act, namely the Regent Honeyeater, Swift Parrot, Corben's Long-eared Bat and Tylophora linearis; and
- restore self-sustaining woodland and/or forest within derived native grasslands and 'non-native' areas to provide habitat for the above listed threatened species listed under the EPBC Act.

Condition 9 of EPBC Act Approval 2010/5566 requires 9,334 ha of land within the offset areas to be managed to achieve "equivalent or better quality" habitat for the Regent Honeyeater, Swift Parrot and Corben's Long-eared Bat (as defined in the EPBC Act Approval 2010/5566).

The existing woodland and forest habitat will be enhanced by reducing weeds and achieving natural regeneration. Restoration in derived native grasslands and 'non-native' areas will aim to provide potential foraging habitat for the Regent Honeyeater, Swift Parrot and Corben's Long-eared Bat and structure suitable to provide potential habitat for *Tylophora linearis*.

Box-Gum Woodland CEEC also provides habitat for the Regent Honeyeater, Swift Parrot and Corben's Long-eared Bat and *Tylophora linearis* and therefore Box-Gum Woodland CEEC is also suitable as a surrogate for monitoring improvements over time to woodland and forest habitat quality for key fauna threatened species. Performance and completion criteria have been defined that best assess the trajectory towards the above ecological management objectives. The performance of the offset areas to meet these ecological management objectives for the Box-Gum Woodland CEEC will be monitored against the performance and completion criteria provided in Table 5-6. Habitat areas not associated with the Box-Gum Woodland CEEC will be monitored against the measurable interim performance and completion criteria provided in Table 5-8. Further, annual monitoring has demonstrated that measurement of these performance and completion criteria is both repeatable and reliable surrogate method of tracking against the ecological management objectives rather than adopting alternative metrics in this BMP (*Leard Forest Mining Precinct Regional Biodiversity Strategy* [Umwelt, 2017]).

Table 5-8
Performance and Completion Criteria for Habitat

Management Objective	Ecological Indicators	Performance Criteria	Completion Criteria
Enhancement of existing woodland/forest	Overstorey regeneration	Natural regeneration of all dominant overstorey Eucalypts relevant to the PCT within each patch sampled by a monitoring plot	Natural regeneration in >50% of plots in vegetation zone have dominant overstorey Eucalypts relevant to the PCT
	Weeds (as perennial exotic plant cover)	An overall decrease in weed (perennial exotic plant) cover compared to the baseline condition	Weed (perennial exotic plant) cover is less than 20% on average across monitoring plots
Restoration of self-sustaining woodland/forest	Native overstorey cover	Cover trending towards benchmark range for the relevant Vegetation Class (Appendix I*)	Cover within benchmark range for the relevant Vegetation Class (Appendix H)
	Native midstorey cover	Cover trending towards benchmark range for the relevant Vegetation Class (Appendix I*)	Cover within benchmark range for the relevant Vegetation Class (Appendix H)
	Native species diversity	Native species diversity trending towards benchmark range for the relevant Vegetation Class (Appendix I*)	Native species diversity within benchmark range for the relevant Vegetation Class (Appendix H)
	Native groundcover grasses	Cover trending towards benchmark range for the relevant Vegetation Class (Appendix I*)	Cover within benchmark range for the relevant Vegetation Class (Appendix H)
	Weeds (as perennial exotic plant cover)	An overall decrease in weed (perennial exotic plant) cover compared to the previous year.	Weed (perennial exotic plant) cover is less than 20% on average across monitoring plots

* Annual performance criteria in Appendix I are calculated by back-extrapolating lower and upper threshold completion criteria over 20 years to Year 0.

5.17 ECOLOGICAL MONITORING PROGRAM

Condition 52 (f) of Schedule 3 of PA 10_0138 requires a seasonally based program to monitor and report on the effectiveness of offset management measures, and progress against the detailed performance and completion criteria. Condition 12C (e) ii of EPBC Act Approval 2010/5566 requires a monitoring plan to assess the success of the management activities for Box-Gum Woodland CEEC and habitat for the Regent Honeyeater, Swift Parrot and Corben's Long-eared Bat measured against the baseline condition.

Australia Museum Consulting commenced the monitoring data collection in November 2014 on the Kelso, Velyama, Louenville, Teston South, Wollandilly, Onavale, Roseglass, Bimbooria, Wirradale and Wongala South and/or Mt Lindesay Offset Areas. Monitoring on the additional offset areas (Thornfield, Long Gully, Neranghi North, Triangle and Coonoor) commenced in 2023 in accordance with the Integrated Monitoring Strategy as a condition of the various Conservation Agreements for these offset areas. The monitoring program described below is based on the continuation of the most relevant, and effective, components of the existing monitoring program for continuity of data collection and analysis, and to allow comparison against baseline data. Suitably qualified ecologists will be engaged to undertake the monitoring program in accordance with Condition 12C(e) ii of EPBC Act Approval 2010/5566.

5.17.1 Vegetation and Habitat Monitoring

Purpose

Vegetation and habitat monitoring will be undertaken to track changes in vegetation and habitat in the offset areas in response to management measures. The data collected will be used to evaluate the progress of the offset areas towards meeting the performance and completion criteria (Section 5.17). This monitoring program is based on the draft "Integrated Monitoring Strategy – Maules Creek Coal Mine Biodiversity Offset Area (Maules Offsets)" (Ecoplanning, 2024), which is currently in preparation in consultation with the BCT. The draft IMS (v4.3) succeeds the BCT approved version (final v2.4, dated 4 April 2023). The IMS is aligned with WHC's Biodiversity's Flora Monitoring Project Plan that provides overarching consistency across Whitehaven's other company-owned offset areas. Flora monitoring will be undertaken on an annual basis in spring, when the highest diversity of plants is expected to be present (Rawlings *et al.,* 2010). The season of monitoring plots will be consistent (not rotated) in order to monitor trends in the data and that a similar range of species diversity has been found in other seasons (AMBS, 2020) not warranting seasonal surveys. Therefore, no autumn (or other seasonal) monitoring will be undertaken in offset areas.

Monitoring Design

Relevant ecological indicators (outlined in Table 5-9), based on a modified BioBanking Assessment Methodology (BBAM) (OEH 2014b), are monitored annually at treatment plots (within the offset areas) and compared to control plot and reference zone data (outside the offset areas) over time. All monitoring plots (treatment, control and reference) are 0.1 ha (20 x 50 m) inclusive of a 20 x 20 m floristic plot and 50 m transect (see Plate 4).

Treatment plots are established in the largest VZs, where the majority of MCC management actions occur, and are replicated based on Biobanking Assessment Method (BBAM) area threshold recommendations (OEH 2014) as per the Integrated Monitoring Strategy. VZs within the MCC offset areas are stratified based on:

1) Interim Biogeographic Regionalisation for Australia (IBRA) region (Nandewar [NAN], Brigalow Belt South [BBS] and New England Tablelands [NET])
2) Box-Gum Woodland CEEC, Potential Box-Gum Woodland CEEC* and Non-Box-Gum Woodland vegetation
3) Vegetation Class (Keith 2004) (known herein as Keith Class), and
4) Broad condition state (Good or DNG/Cleared)

*Areas mapped as 'Potential Box-Gum Woodland CEEC' are those in Plant Community Type (PCT) 435 (DNG/Cleared condition), that under management, have the potential to conform to EPBC criteria for Box-Gum Woodland CEEC.

The aim is not to sample every vegetation community, but to adequately sample to detect trends and changes in the vegetation condition. Treatment plots are permanently marked with star pickets at the start and end of the 50 m transect and at the four corners of the 20 m x 20 m floristic plot. The location of the start and end of the 50 m transect have been recorded using a GPS.

Control plots will be established in accordance with Condition 12C(e) ii of EPBC Act Approval 2010/5566 and are located outside the biodiversity offset area (called the 'control zone'), within the same Interim Biogeographic Regionalisation for Australia (IBRA) region as the dominant Vegetation Classes (Keith, 2004) and representing a 'business as usual' land management scenario (as per BCT

2021), where agricultural management continues. Where it is not possible to establish control plots in the same IBRA and Keith Class as treatment plots, control plots within the adjoining IBRA will be used.

The comparison of treatment and control plot data aims to account for changes that occur due to background environmental change and subsequently determine to what extent biodiversity management actions within vegetation zones are trending away from control plots still subject to agricultural management. Each control site is to have a minimum of three plots to allow for statistically robust data analysis. Additional monitoring sites may also be progressively established for testing specific management techniques in an adaptive management framework (e.g. testing a management technique and revising the technique based on a monitoring outcome). Control plots are not necessarily permanently marked as they are within land that is not under the direct management control of WHC Biodiversity.

Reference plots are located outside of the offset area/Conservation Agreements (CAs), within 'reference sites' that are in high-quality remnants of the dominant Keith Classes within the offset area/CA. The monitoring of reference sites provides local benchmark data for aspirational 100-year targets achievable beyond WHC's period of management. The comparison of VZ data (with relatively short management history) to the appropriate reference site, is to assess whether under WHC management VZ restoration is trending towards or away from reference site condition. This gives confidence that it will continue to trend towards reference condition after achievement of completion criteria and the WHC management period ends. Reference plots are not permanently marked as they are within public land. Some reference sites are used for more than one offset area/CA.

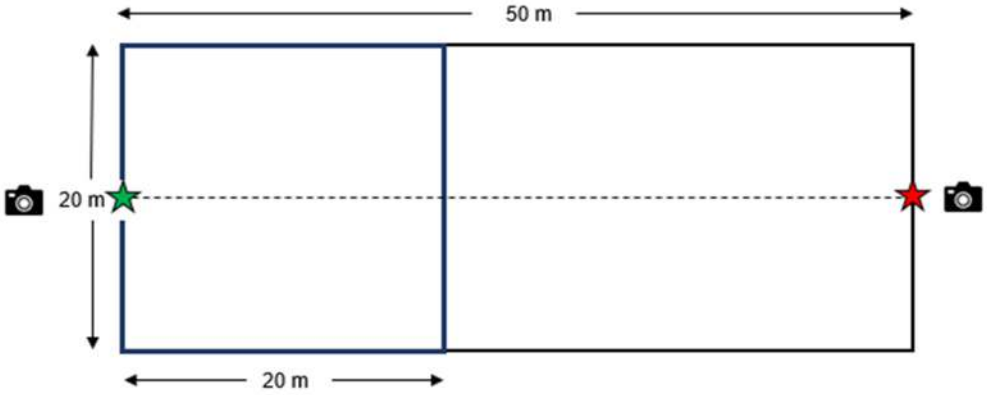


Plate 4 Layout of Flora Monitoring Plot

Treatment monitoring plots will be located across Vegetation Classes (Keith, 2004) in Table 5-10. The location of monitoring sites is shown on Figures 11a to 11h.

Figures 11a to 11f also include the locations of the control and reference sites surveyed in parallel with the treatment plots as part of Spring Flora Monitoring.

Photographic Monitoring

Photos will be taken at chest height at the start and end of each plots transect.

General Observations

General observations on vegetation and habitat outside monitoring sites will also be made annually.

Table 5-9
Vegetation and Habitat Monitoring Methods

Management Objective	Ecological Indicators	Measure	Monitoring Method	
Maintenance and enhancement of existing native woodland/forest (including areas of Box-Gum Woodland CEEC)	Over-storey regeneration	Proportion of over-storey species occurring as regeneration	Recruitment of saplings	Observation 20 x 50 m plot.
	Weeds	Number and percentage cover of non-native weed species	Mid-storey cover	10 points along a 50 m transect
			Ground cover	50 points along a 50 m transect
			Species richness	Count utilising a species list recorded within 20 x 20m sub-plot (estimate % cover and abundance of each species)
Restoration of self-sustaining woodland within derived native grassland (including woodland within existing areas of Box-Gum Woodland CEEC [derived native grassland]) and 'non-native' areas	Native overstorey cover	Projected foliage cover %	Native overstorey cover	10 points along a 50 m transect (source BBAM [OEH, 2014b])
	Vegetation water stress	Projected foliage cover %	Native overstorey cover	10 points along a 50 m transect (source BBAM [OEH, 2014b])
	Native midstorey cover	Projected foliage cover %	Native midstorey cover	10 points along a 50 m transect (source BBAM [OEH, 2014b])
	Native species diversity	Number of native understorey species present (excluding grasses)	Native plant species richness	Count utilising a species list recorded within 20 x 20m sub-plot (source BBAM [OEH, 2014b])
	Understorey cover	Cover of perennial native groundcover species	Native plant species richness	Count utilising a species list recorded within 20 x 20m sub-plot (estimate % cover and abundance of each species) (source BBAM [OEH, 2014b])
	Important species	Number of important species present	Native plant species richness	Count utilising a species list recorded within 20 x 20m sub-plot (source BBAM [OEH, 2014b])
	Native groundcover grass cover	Measured proportionately as a presence/absence metric	Native groundcover grasses	10 points along a 50 m transect (source BBAM [OEH, 2014b])
	Weeds	Number and percentage cover of non-native weed species	Mid-storey cover	10 points along a 50 m transect (source BBAM [OEH, 2014b])
			Ground cover	10 points along a 50 m transect (source BBAM [OEH, 2014b]).

			Species richness	Count utilising a species list recorded within 20 x 20m sub-plot (estimate % cover and abundance of each species)

Table 5-10
Schedule of Flora Monitoring Sites

Vegetation Classes	Total Area (ha)	No. of plots	Performance and Completion Criteria
Maintenance and Enhancement of Existing Woodland and Forest			
New England Dry Sclerophyll Forests (NAN)	595.2	7	Table 5-7
New England Grassy Woodlands (NAN), BGW	1,033.8	8	Table 5-6
New England Grassy Woodlands (NET), BGW	359.0	7	Table 5-6
North-west Slopes Dry Sclerophyll Woodlands (BBS) BGW	230.9	6	Table 5-6
North-west Slopes Dry Sclerophyll Woodlands (NAN)	2,664.0	8	Table 5-7
North-west Slopes Dry Sclerophyll Woodlands (NAN) BGW	633.3	7	Table 5-6
Western Slopes Dry Sclerophyll Forests (BBS)	777.9	7	Table 5-7
Western Slopes Dry Sclerophyll Forests (NAN)	2,052.6	8	Table 5-7
Western Slopes Grassy Woodlands (NAN), BGW	1,262.9	8	Table 5-6
Restoration of Self-sustaining Woodland/Forest			
Floodplain Transition Woodlands (BBS)	648.37	7	Table 5-7
New England Grassy Woodlands (NAN), BGW	376.0	7	Table 5-6
North-west Slopes Dry Sclerophyll Woodlands (BBS)	721.33	7	Table 5-7
North-west Slopes Dry Sclerophyll Woodlands (BBS) Potential BGW	148.3	6	Table 5-6
North-west Slopes Dry Sclerophyll Woodlands (NAN) BGW	981.7	7	Table 5-6
North-west Slopes Dry Sclerophyll Woodlands (NAN) Potential BGW	616.3	7	Table 5-6
Western Slopes Grassy Woodlands (NAN), BGW	591.0	8	Table 5-6
Total monitored	**13,692.66**	**115**	

Highlight = Vegetation Classes relevant to the Box-Gum Woodland CEEC
NAN = Nandewar Interim Biogeographic Regionalisation for Australia Bioregion
BBS = Brigalow Belt South Interim Biogeographic Regionalisation for Australia Bioregion
NET = New England Tablelands Interim Biogeographic Regionalisation for Australia Bioregion

Back Creek Vegetation Monitoring

Consistent with the above monitoring methods in Table 5-9; MCC will monitor the health of the vegetation within Back Creek at existing replicated monitoring sites upstream (Site VS13) and downstream (Site VS14) of areas affected by water management at the MCCM (under agreement with

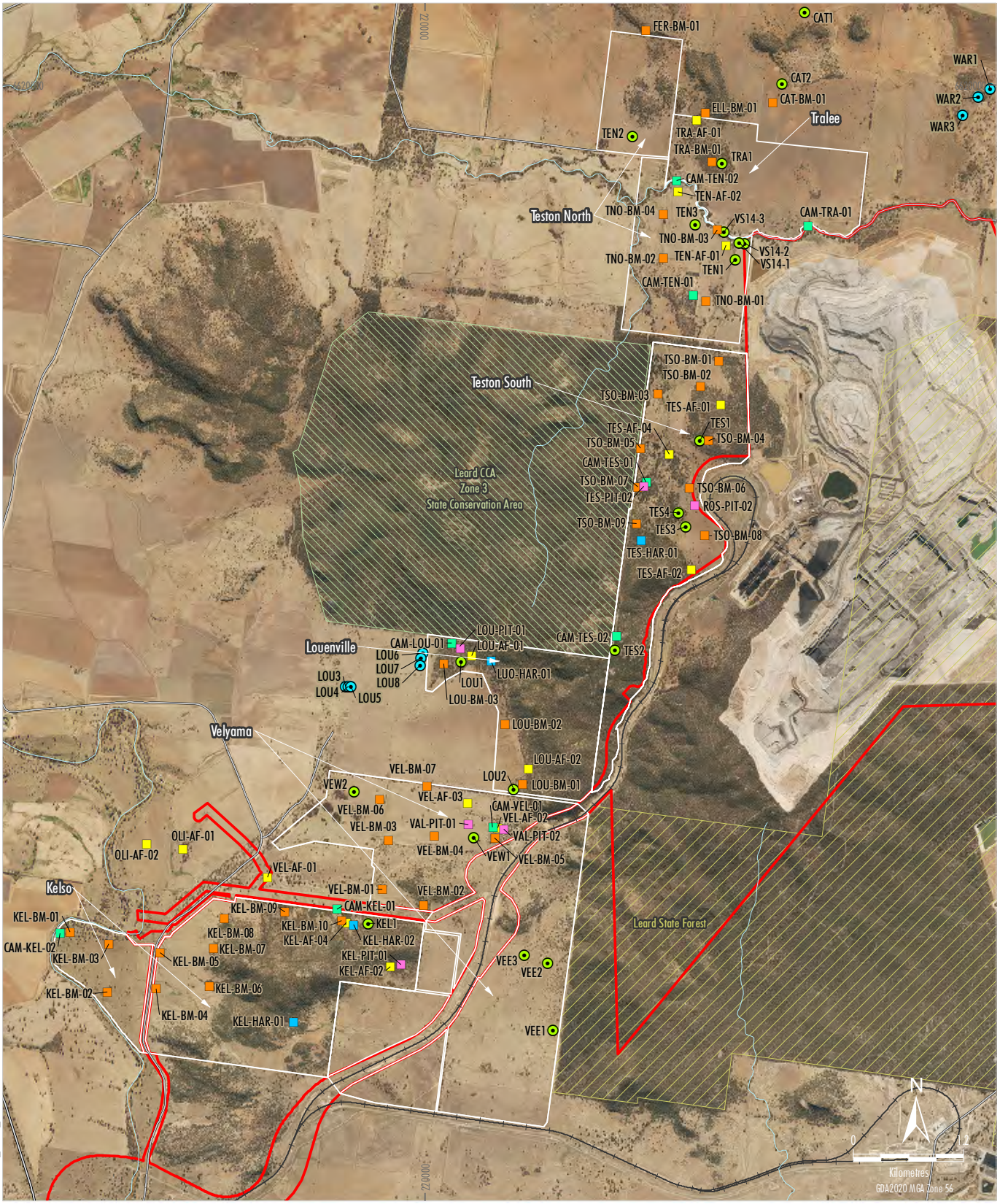
Natural Resources Access Regulator dated 2021) (Figure 11a and 11b). Three monitoring plots are established at each site. The trigger points/thresholds and contingency measures associated with these monitoring locations are presented in Tables 5-8 and 5-12 respectively.

Bushfire Treatment Plots

Two bushfire treatment plots have been installed in Wirradale Offset Area following a bushfire event in October 2019. This is in response to the requirements of the Leard Forest Regional Biodiversity Strategy Stage 2 – Strategy Report (RBS-2; Umwelt, 2017), Table 2.2, Section 4.2, which states *"In habitat restoration areas and regeneration/revegetation zones, monitoring will be required to record the response to a fire event and guide the need for potential active and adaptive management.".* Three monitoring plots are established at each site, with a total of six plots monitored.

Threatened Flora

Monitoring of *Tylophora linearis* and *Pomaderris queenslandica* in the offset areas will also occur as part of the threatened flora management program as described in Sections 5.15.



LEGEND

- NPWS Estate
- State Forest
- MCCM Project Boundary
- MCCM Offset Area
- Flora Monitoring Sites (Treatment)
- Flora Monitoring Site (Control)

Fauna Monitoring Sites

- Pitfall Trap
- Camera Trap
- Harp Trap
- Bird Survey
- Active Foraging

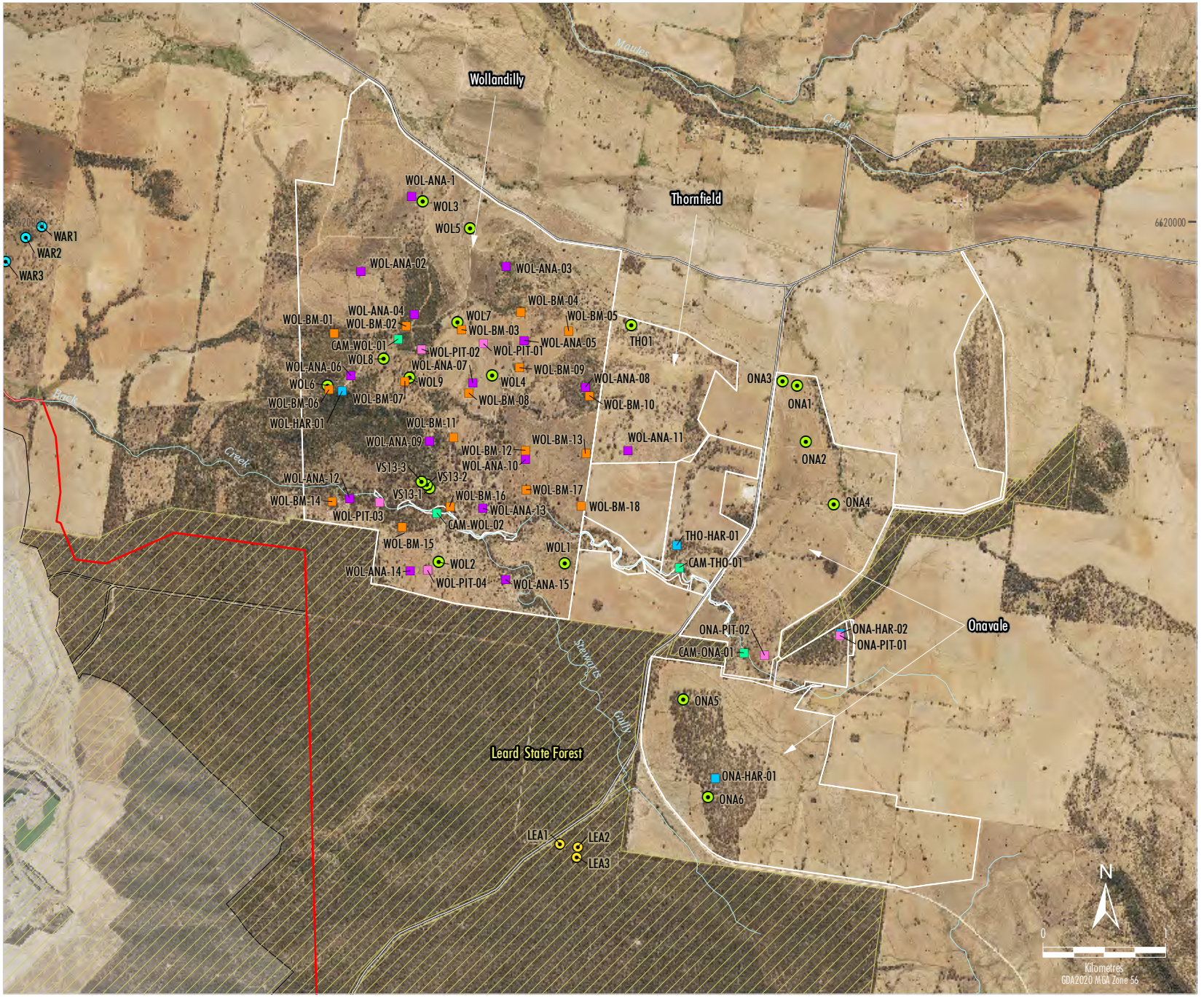
Source: NSW Spatial Services (2021); AMBS (2022); Whitehaven (2024)
Orthophoto Whitehaven Coal (April 2019)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Monitoring Sites - Kelso, Velyama, Louenville, Teston South, Teston North and Tralee

Figure 11a



LEGEND

- State Forest
- MCCM Project Boundary
- Approximate Extent of Existing/Approved Surface Development
- MCCM Offset Area
- Flora Monitoring Sites (Treatment)
- Flora Monitoring Site (Control)
- Flora Minitoring Site (Reference)

Fauna Monitoring

- Pitfall Trap
- Camera Trap
- Harp Trap
- Bird Survey
- Anabat Detector

Source: NSW Spatial Services (2021); AMBS (2021); Whitehaven (2024)

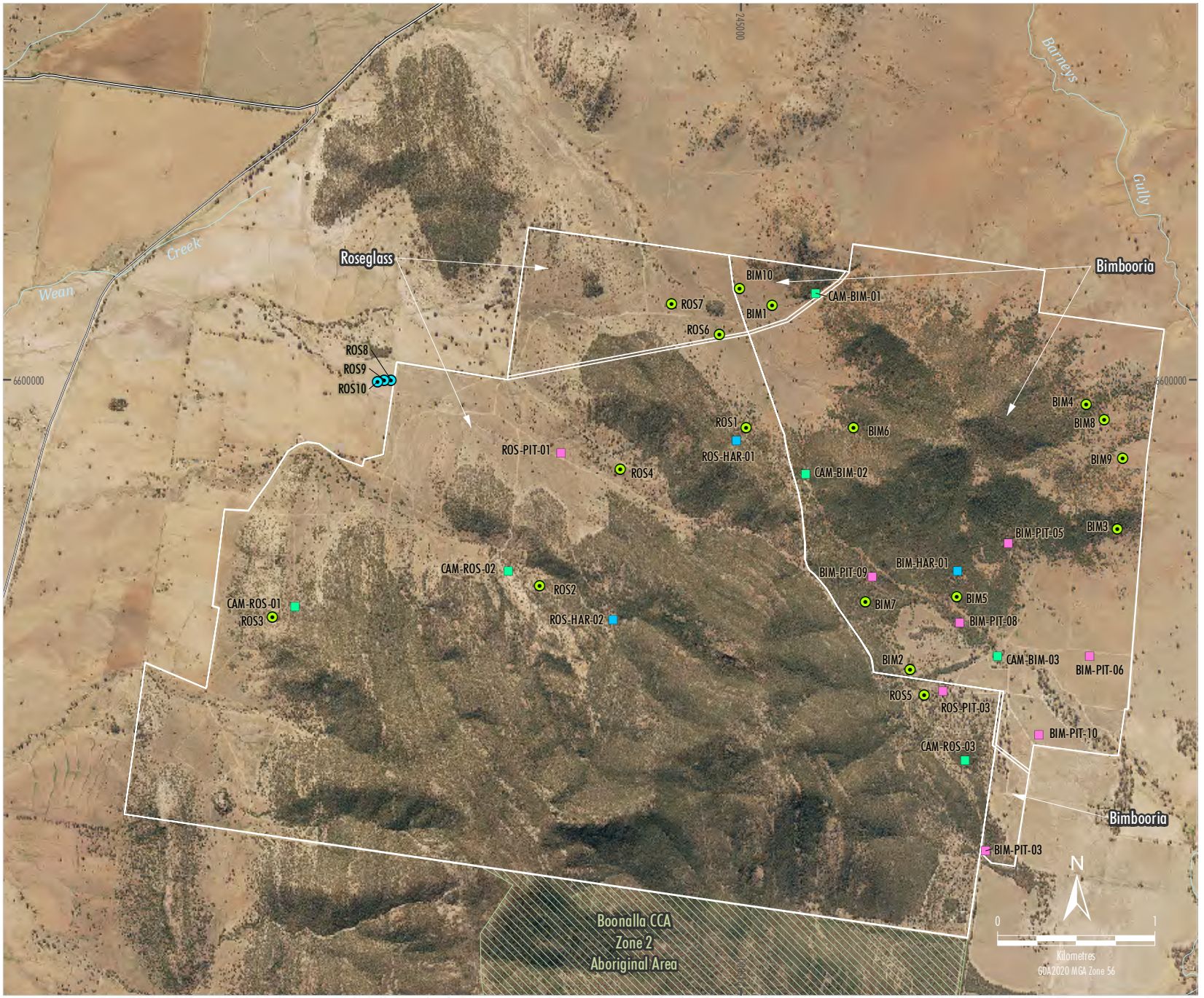
WHITEHAVEN COAL

MAULES CREEK COAL MINE

Monitoring Sites - Wollandilly, Thornfield and Onavale

Figure 11b

WHC-20-74_BMP24_259B



Source: NSW Spatial Services (2021); AMBS (2021); Whitehaven (2024)
Orthophoto Whitehaven Coal (April 2019)

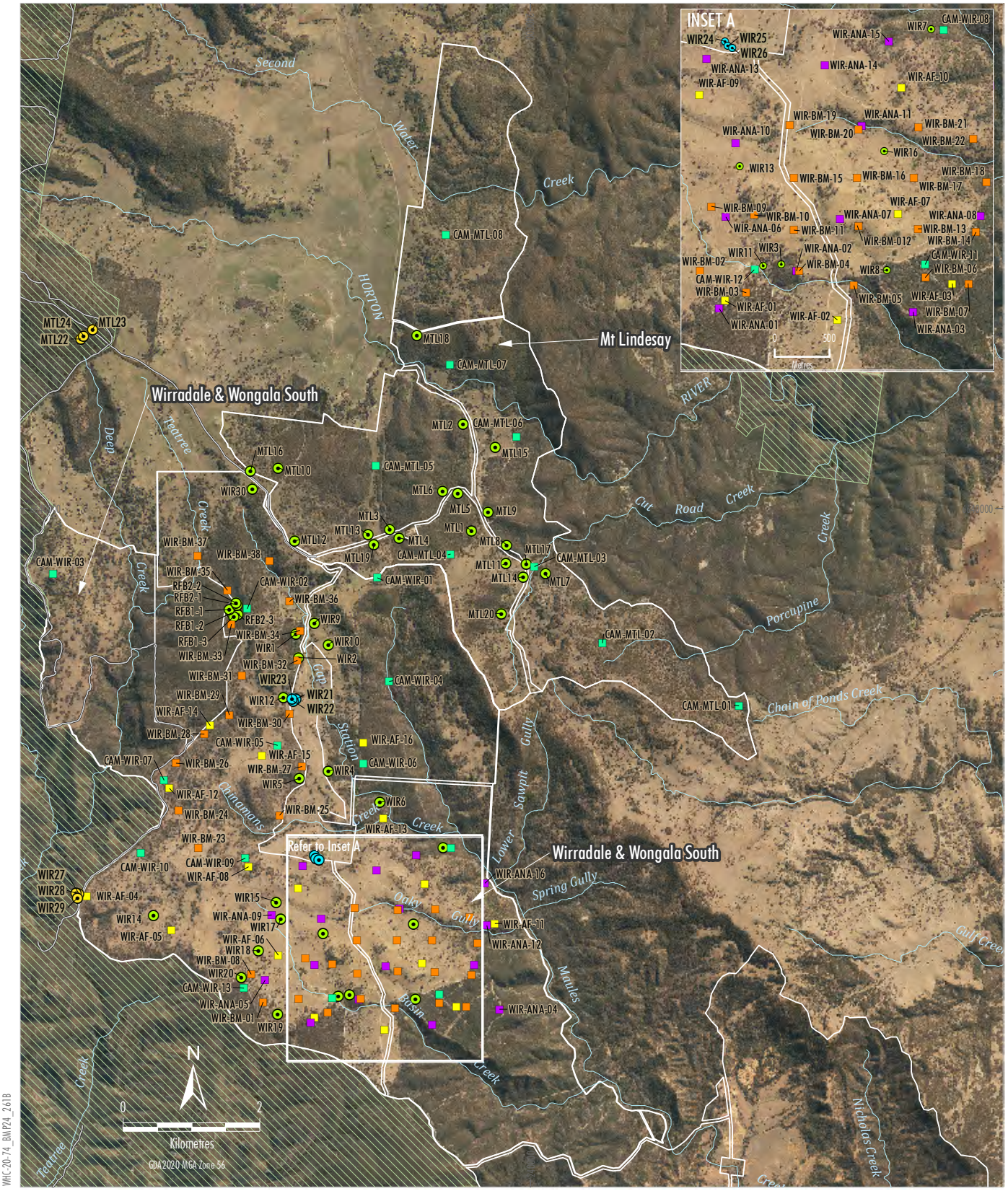
WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Monitoring Sites - Roseglass and Bimbooria

Figure 11c

WHC-20-74_BMP24_260B



LEGEND

- NPWS Estate
- MCCM Offset Area
- Flora Monitoring Sites (Treatment)
- Flora Monitoring Site (Control)
- Flora Minitoring Site (Reference)

Fauna Monitoring

- Camera Trap
- Bird Survey
- Anabat Detector
- Active Foraging

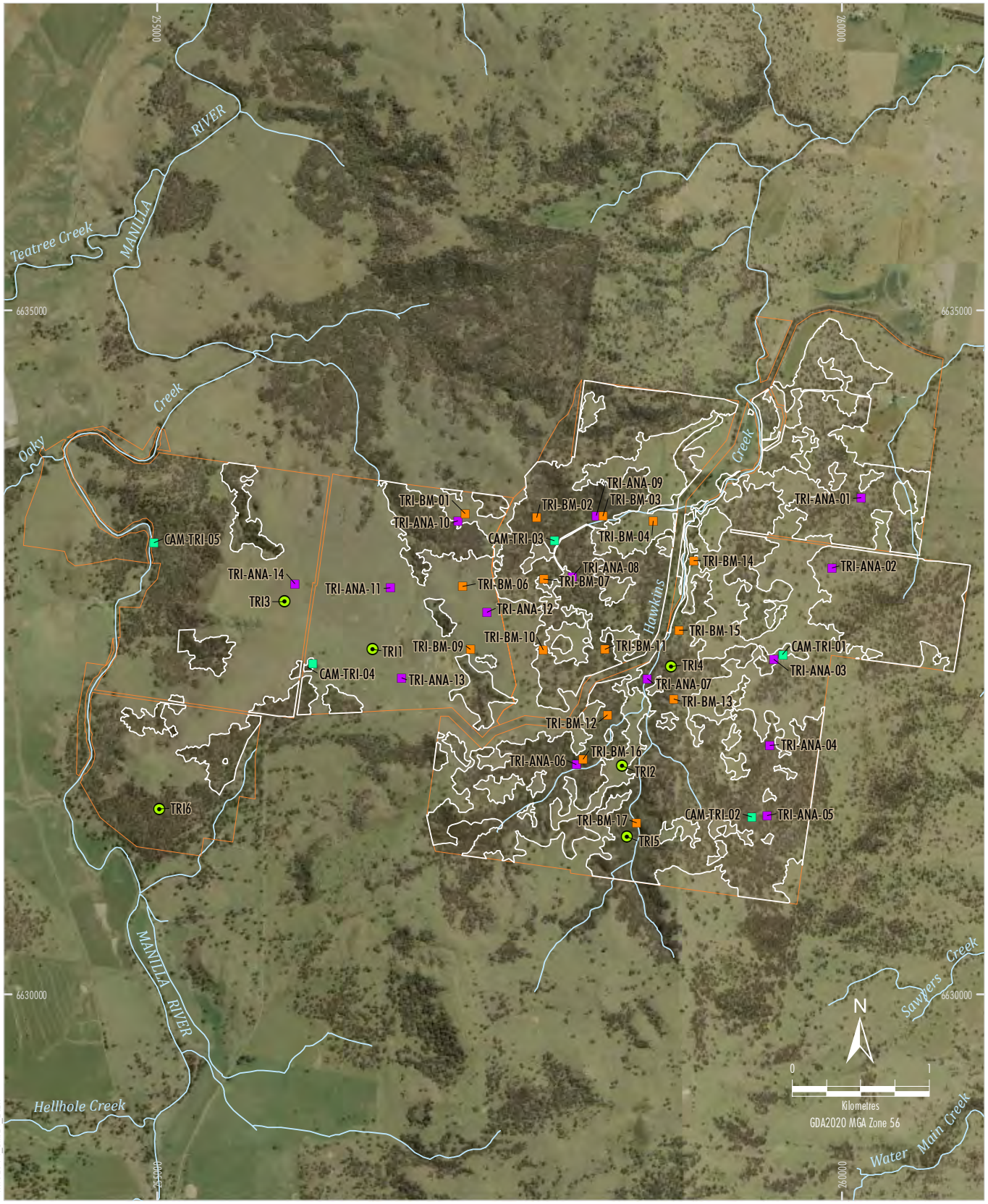
Source: NSW Spatial Services (2021); AMBS (2021); Whitehaven(2024) Orthophoto Whitehaven Coal (April 2019)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Monitoring Sites - Mt Lindesay, Wirradale and Wongala South

Figure 11d



Source: NSW Spatial Services (2021)
AMBS (2021); Whitehaven (2024)

LEGEND

- Property Boundary
- MCCM Offset Area
- Flora Monitoring Sites (Treatment)

Fauna Monitoring

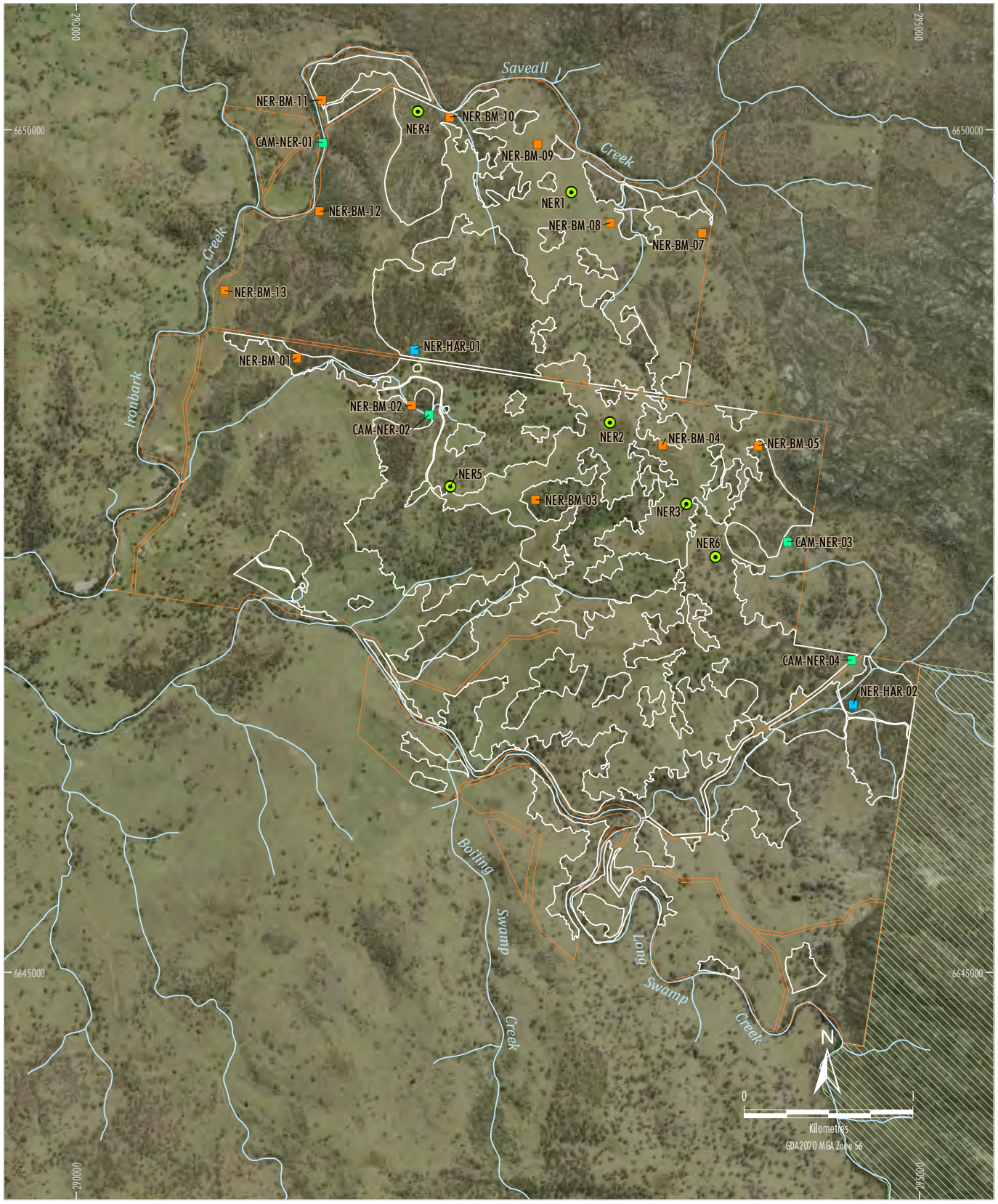
- Camera Trap
- Bird Survey
- Anabat Detector

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Monitoring Sites - Triangle

Figure 11e



WHC-20-74_BMP24_263A

Source: NSW Spatial Services (2021); AMBS (2021); Whitehaven (2024)

LEGEND

- NPWS Estate
- Property Boundary
- MCCM Offset Area
- Flora Monitoring Sites (Treatment)

Fauna Monitoring

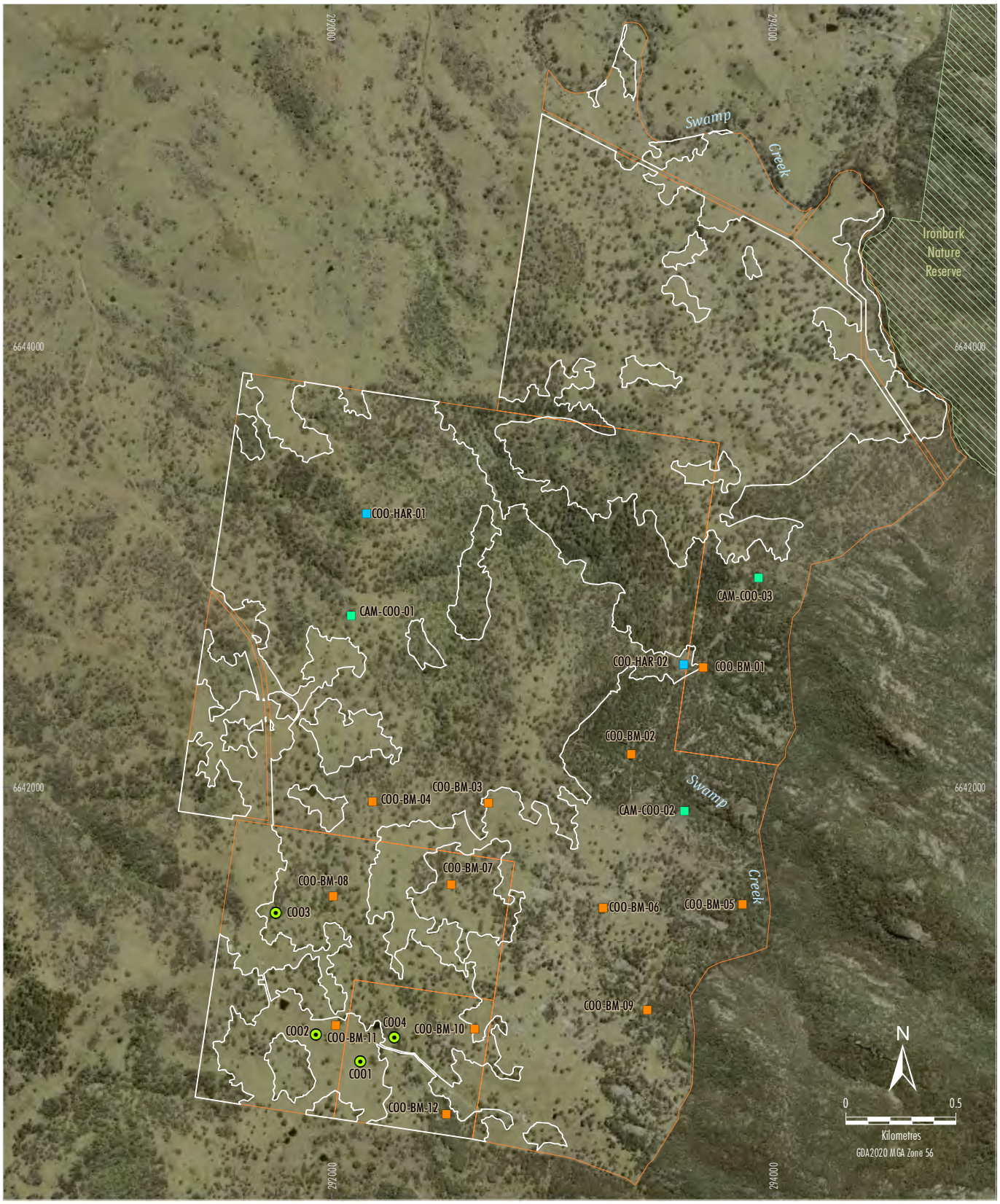
- Camera Trap
- Harp Trap
- Bird Survey
- Anabat Detector
- Active Foraging

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Monitoring Sites - Neranghi North

Figure 11f



WHC-20-74_BMP24_264A

LEGEND

- NPWS Estate
- Property Boundary
- MCCM Offset Area
- Flora Monitoring Sites (Treatment)

Fauna Monitoring

- Camera Trap
- Harp Trap
- Bird Survey

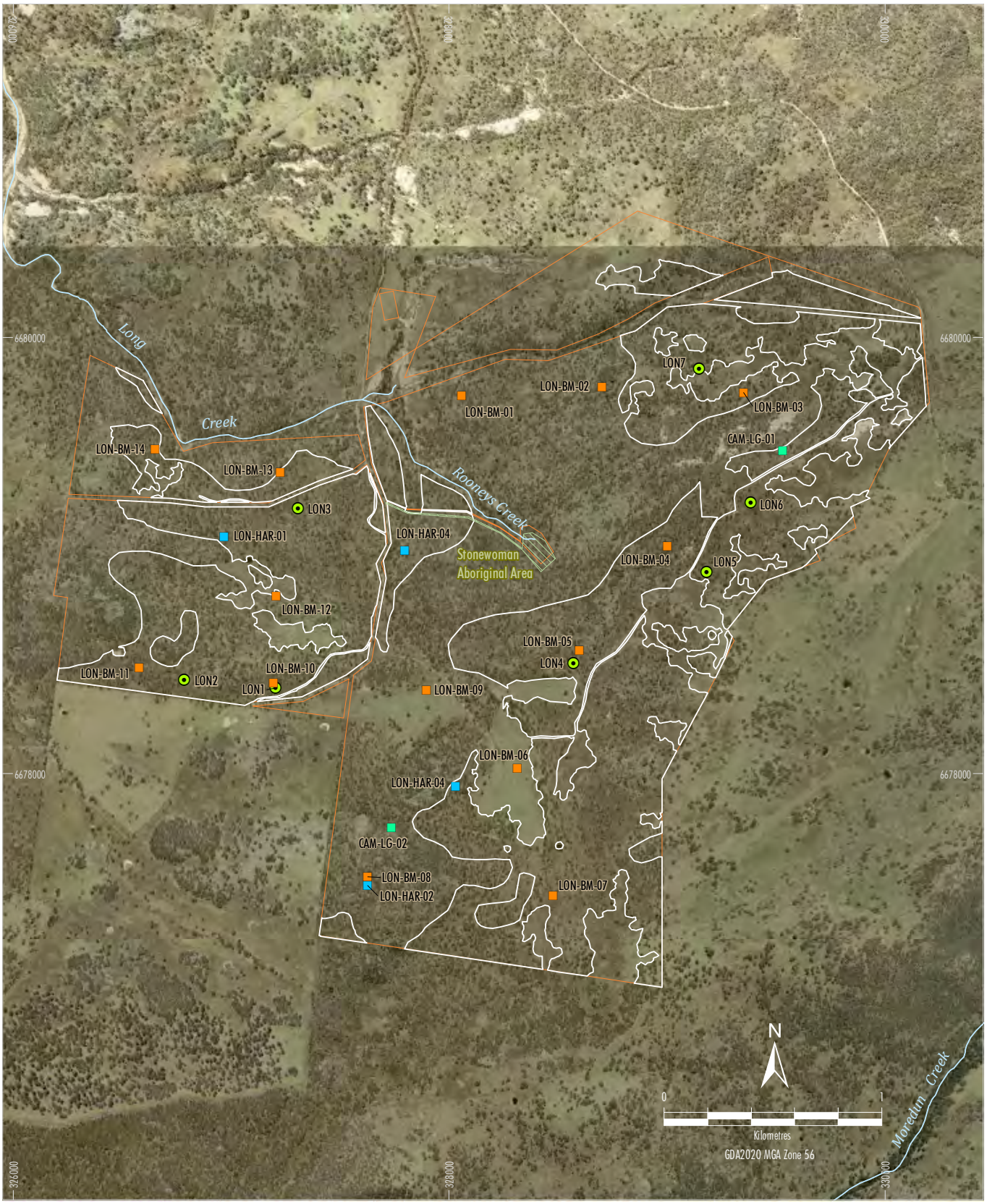
Source: NSW Spatial Services (2021); AMBS (2021); Whitehaven (2024)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Monitoring Sites - Coonoor

Figure 11g



LEGEND

- NPWS Estate
- Property Boundary
- MCCM Offset Area
- Flora Monitoring Sites (Treatment)

Fauna Monitoring

- Camera Trap
- Harp Trap
- Bird Survey

Source: NSW Spatial Services (2021); AMBS (2021); Whitehaven (2024)

WHITEHAVEN COAL

MAULES CREEK OFFSET MANAGEMENT PLAN

Monitoring Sites - Long Gully

Figure 11h

5.17.2 Fauna Monitoring

Purpose

Monitoring will be undertaken to document the fauna species response to improvement in vegetation and habitat in the offset areas. Generally, an increase in the species richness and/or abundance is anticipated as the quantity and/or quality of habitat resources increases over time.

A 5-year review of the data collected from the Maules Creek and Willeroi Offset Annual Fauna Monitoring Programs surveyed between 2015 and 2019 (AMBS, 2020b) indicated that while general trends in species richness and abundance over time were detected by the current survey methodologies and survey effort, the variance in the data set was extremely high and no meaningful statistical analysis linking changes in species richness and abundance to specific variables was possible. A further review was undertaken for all fauna monitoring methodologies and survey designs used across all WHC Offset Areas (AMBS, draft 2020c) that identified the existing methods were somewhat effective at detecting fauna species richness and abundance, however there were aspects of each monitoring design and methodology that were contributing to high levels of variance in the data set. The previous monitoring design was struggling to deal with the spatial challenges associated with the large area of Offset Areas required to be monitored by WHC and the associated variables that were generated as a result of the large area. While the methods would continue to generate indicative species richness and abundance data sets, the data sets would not be sufficiently robust to link changes with specific variables including the management actions currently being undertaken by WHC.

Given the challenges faced by the monitoring projects managed by WHC and the strong desire of WHC to generate statistically robust data on the response of fauna assemblages to biodiversity management strategies; a series of structural modifications to the monitoring programs were implemented. The modifications to survey design and methods were selected after undertaking a thorough review of peer reviewed literature and consulting academic and industry experts in the fields of fauna that were being targeted. The modifications aimed to increase the likelihood that informative data on the influence of biodiversity management actions would be collected. The recommended modifications focused on adjustments to the timing of surveys, the number of survey sites, the number of replicates undertaken at each site, the area focused on by the surveys, and the methodology of the surveys. Specific modifications included:

- Changing the frequency of sampling for some monitoring components from annual to biennial, with the purpose of pooling resources for other structural survey modifications such as increasing the number of survey sites and increasing the number of replicates at each site.
- Designing sites to target specific target fauna groups rather than having generic sites focusing on all fauna groups.
- Using the focus on target groups to select appropriate seasons for each survey (i.e. bird surveys conducted early spring independent of microbat surveys which are conducted in summer).
- Selecting sites that better sampled revegetation and non-revegetation treatments.
- Targeting surveys on spatially explicit focus areas representative of the broader habitat variability of the Offset Areas but likely to show detectable responses to biodiversity management actions that are influencing fauna response while maximising the chance of revealing total Offset Areas species richness.

In addition, Condition 12D of EPBC Act Approval 2010/5566 requires annual monitoring for the Regent Honeyeater, Swift Parrot and Corben's Long-eared Bat in the offset areas, unless otherwise agreed to in writing by Cth DCCEEW. These species are known to use habitat within, or connected to, the offset areas (Sections 4.4 and 4.5).

Annual monitoring of fauna has been divided into a series of targeted programs focusing on specific fauna guilds. The surveys are primarily designed to detect changes in species richness and abundance over the duration of the management of the offset area. In addition to this overall aim, the monitoring program will attempt to evaluate guild and species level responses to revegetation programs, habitat augmentation and pest animal management. The ecological management objectives relevant to the purpose of fauna monitoring are:

- Protect and enhance existing woodland and forest habitat for Regent Honeyeater and Swift Parrot
- Protect and enhance existing woodland and forest habitat for Corben's Long-eared Bat
- Protect and enhance existing woodland and forest habitat for Superb Parrot
- Restore self-sustaining woodland and/or forest within derived native grasslands and 'non-native/Cleared' areas to provide habitat for the threatened species listed under the BC Act and EPBC Act

Each survey method will target spatially explicit focus areas. The focus areas were designed to incorporate a matrix of remnant woodland, naturally regenerating woodland and revegetated woodland. As such, properly stratified survey designs should allow for a robust evaluation of fauna assemblage responses to revegetation program by comparing detection to other, non-revegetated habitats. The focus areas are different sizes and in different locations for each fauna guild. The location of all fauna monitoring sites for each offset area are shown in Figures 11a to 11h. The individual fauna monitoring methods are outlined below.

Diurnal Bird Surveys

Diurnal bird surveys will be undertaken within target focus areas between late winter into spring. Each bird survey focus area has been divided into grid areas, with one bird survey site placed within each grid. Bird surveys will be undertaken using a fixed time/area rapid survey design with survey site boundaries defined by having fixed start and end points. Counts of birds will be made for "in plot", "outside plot, same habitat", and "outside plot, different habitat". Survey effort will vary across a biennial schedule. In year one, all sites will be surveyed up to five times and in year two, sites will be surveyed twice. Surveys will be spread between morning and afternoon survey windows, and if possible, on non-consecutive days.

Microbat Surveys

Microbat assemblages will be monitored using a combination of echolocation recorders and harp traps. Echolocation surveys will be undertaken each microbat focus area divided into a standardised grid appropriate for each focus area. One echolocation recorder will be placed within each grid and units deployed to start recording 30 minutes before last light and will stop recording 2 hours after last light. Survey effort will vary across a biennial schedule. Most sites will be surveyed once every two years while a selection of sites will be sampled annually to act as a control.

In addition, harp traps will be deployed as a component of a broader targeted survey program focusing on monitoring Corben's Long-eared Bat (*Nyctophilus corbeni*) consistent with the *Survey Guidelines for Australia's Threatened Bats* (DEWHA 2010) as described below. Surveys will be undertaken annually, with each harp trap site comprised of at least one individual harp trap to sample revegetated habitats. All harp traps will be moved to a new location within the focus area after each survey night. All bats captured will be processed during the day and released the night following the morning of capture. Nontarget bat species will also be identified to species level (where possible), and have their sex, age and breeding condition noted.

Pitfall and Funnel Trap Surveys

Ground dwelling fauna will be monitored using grids of pitfall traps and funnel traps. Pitfall and funnel trap surveys will be conducted biennially within target focus areas. Pitfall trap arrays will be deployed at each focus area with sites paired between remnant woodland areas and revegetated areas. Revegetated areas will further be paired between augmented habitats and non-augmented habitats. Each pitfall trap array will consist of pitfall traps and funnel traps. Pitfall traps will be plastic buckets with lids dug into the ground. Each bucket will be joined by a drift fence. When the sites are open, the lid will be perched above the bucket to provide shade. Funnel traps will be covered with reflective shields or vegetation to ensure trapped fauna can thermally equilibrate. When traps are open, they will be checked in the morning and evening. Sites have been selected to evaluate the response of fauna to revegetation and habitat augmentation through the provision of coarse woody debris and rocks.

Motion Detection Camera Survey

A network of motion detection camera sites has been established across all offset areas for the purpose of native and pest animal monitoring (Figures 11a to 11h). Site selection was designed on an area grid to maximise the even spread of cameras across the entire area of the offset area with a portion of the motion detection cameras to specifically inform pest animal management (Section 5.9). The remaining cameras will be activated annually to target native vertebrate fauna. Motion detection camera survey data will be analysed for the following purposes:

1. Native Fauna – Cameras will be used to detect other native species that don't already have targeted survey methods for and will aim to identify longer-term trends in native animal species richness;

2. Pest Animals - Separate to the monitoring for pest animal management, data will be analysed to identify longer-term trends in pest animal occupancy and identify interaction with native fauna trends.

Cameras activated annually will use bait stations comprising of an enclosed PVC pipe on a small star picket with the other cameras to focus on animal activity points. Separate to the permanent motion detection camera surveys; habitat augmentation installation areas will be monitored using cameras as follows:

1. Nest Boxes – the results of annual ground-based inspections and 5 yearly direct inspections (either climbing or pole cameras to look inside boxes) will inform where and what boxes are to be targeted with seasonally based camera surveys;

2. Coarse Woody & Rock Debris piles – Annual ground-based inspections will inform where and what piles are to be targeted with seasonally based camera surveys.

Corben's Long-eared Bat

Annual monitoring for the Corben's Long-eared Bat will be undertaken between October to April, consistent with the *Survey Guidelines for Australian Threatened Bats* (DEWHA, 2010a). Baseline surveys for the Corben's Long-eared Bat were undertaken within this period, during November 2014 for all of the offset areas except Thornfield, Long Gully, Neranghi North, Triangle and Coonoor; which were undertaken in January 2024.

The monitoring program is designed to measure abundance, occupancy and habitat use of Corben's Long-eared Bat to assess suitability and can be used to identify important areas of habitat for population connectivity and movement.

Regent Honeyeater and Swift Parrot

Baseline bird surveys for offset areas were undertaken in November 2014, February 2015, May 2015 and August 2015 except for Thornfield, Long Gully, Neranghi North, Triangle and Coonoor; which were undertaken in July/August 2021 and June/July 2022 (a habitat assessment was undertaken in Thornfield due to the smaller quantity of habitat compared to other offset areas). The ongoing monitoring for the Regent Honeyeater and Swift Parrot will be undertaken annually between May and August, coinciding with the likely flowering period for winter-flowering Eucalypts, such as White Box.

The monitoring program is designed to detect and confirm presence (or absence) of the Regent Honeyeater and Swift Parrot in targeted areas with flowering resources to identify its use over time.

The monitoring program is summarised as follows:

1. Trigger point for survey – Starting May each year, relevant Whitehaven staff to report on any observed presence of Winter flowering eucalypts. This will provide a trigger to initiate the scoping survey. If no trigger is provided, scoping survey to be initiated by the last week in July.
2. Scoping survey – Ecologists traverse the study area noting indicators for survey, such as flowering eucalypts and/or congregations of nectar feeding birds. Linear, well-connected patches will also be noted. Flower intensity score and patch quality to be used to inform subsequent surveys.
3. Field survey – Ecologists to traverse the study area and conduct bird surveys at previously identified sites (as in the Scoping survey above). Survey effort will be guided by the intensity score at a site. At each site, flowering intensity scores and all bird species (sighted or heard) are to be recorded. A total survey effort cannot be prescribed because this is ultimately dependant on flowering intensity in any one year. However, to meet Commonwealth survey guidelines for targeted surveys (DEWHA 2010a), there will be a minimum of 20 hours of bird surveys across 8 days targeted to sampling winter flowering species across all Whitehaven offset areas.

The application of the above method targeted to the location of and timing for winter flowering trees will enable increased survey effort for nectivorous birds during the optimum seasonal conditions increasing the chance of detection for rare species like the Regent Honeyeater and Swift Parrot. Further, the selection of survey locations for the field survey step will prioritise high blossom areas within or adjoining known preferred habitat areas (such as riparian Casuarina species and presence of Mistletoe; presence of positively correlated species and absence of negatively correlated species like despotic/aggressive honeyeater species) as well as considering previous records of sightings and the mapped existing &

potential habitat areas for these species (Section 4.5). The existing Winter Bird Survey timing overlaps with the commencement of Regent Honeyeater breeding season as well as the Diurnal Bird Surveys (Section 5.17.2) also replicate high survey effort within or adjoining known preferred habitat areas during the breeding season further extending the probability to detect this species.

5.18 POTENTIAL RISKS AND CONTINGENCY MEASURES

MCC intends to adopt an adaptive management approach for the purpose of achieving the environmental management objectives identified in Section 5.1.1 of this BMP. More specifically, MCC proposes to adopt a four-step "Plan, Do, Check, Review" adaptive management cycle (Cth Department of the Environment, March 2016).

A risk assessment was undertaken to confirm that appropriate measures are included in the BMP to manage risks (impediments) to achieving the objectives of the offset areas. A table analysing the risks and measures is provided in Appendix J in consideration of the *Environmental Management Plan Guidelines* (Cth DCCEEW, 2024).

Annual flora performance criteria (Section 5.16 and Appendix I) established interim yearly targets for tracking change in condition and activating management response. Table 5-12 outlines the offset areas Trigger, Action, Response Plan (TARP) which provides trigger points for contingency measures (corrective actions/response) to be implemented if the flora monitoring program identifies that the annual performance criteria are not being met. Contingency measures may not be limited to those listed in Table 5-12 and will only be implemented if in accordance with the relevant Conservation Agreements.

Table 5-12
Trigger, Action, Response Plan (TARP)

Aspect	Trigger	Action/Response
Native species richness (NPS)	1st TIER – Offset treatment plots are below 80% annual performance benchmark following offset establishment	• Review factors leading to below benchmark performance. • Evaluate whether supplementary planting of appropriate seedling or seeding is required.
	2nd TIER – Offset treatment plots are below 100% annual performance benchmark value but above 80% annual performance benchmark following offset establishment	• Determine whether NPS is increasing or decreasing. If decreasing, investigate factors leading to decrease and monitor for further change.
Native overstorey cover (NOS)	1st TIER – Offset treatment plots are below lower annual performance criteria following offset establishment	• For revegetation younger than five years – no action required, continue to monitor. • For revegetation older than five years – Review factors leading to below benchmark performance. • For revegetation older than five years – Evaluate whether supplementary planting of appropriate seedling is required.
	2nd TIER – Offset treatment plots are above upper annual performance criteria following offset establishment	• Review factors leading to above benchmark performance such as Biometric Vegetation Type (BVT)/PCT assigned to the treatment plot and/or management zone. • If shown to be an increasing trajectory overtime, evaluate whether additional management is required.
Native midstorey cover (NMS)	1st TIER – Offset treatment plots are below lower annual performance benchmark following offset establishment	• Review factors leading to below benchmark performance. • Evaluate whether supplementary planting of appropriate seedling is required.
	2nd TIER – Offset treatment plots are above upper annual performance benchmark following offset establishment	• Review factors leading to above benchmark performance such as BVT/PCT assigned to the treatment site and/or management zone. • Evaluate whether additional management is required.
Native groundcover – Grass (NGCG)	1st TIER – Offset treatment plots are below lower annual performance benchmark following offset establishment	• Review factors leading to below benchmark performance. • If shown to be a decreasing trajectory overtime, evaluate whether additional management (i.e. supplementary seeding or weed control) is required.
	2nd TIER – Offset treatment plots are above upper annual performance benchmark following offset establishment	• Review factors leading to above benchmark performance such as BVT/PCT assigned to the treatment site and/or management zone. • Evaluate whether additional management (i.e. burning) is required.
Perennial exotic plant cover (PEPC)	1st TIER – All offset treatment plots across a management zone show an increase in PEPC	• Review factors leading to increase in perennial weed cover. • Identify the location of weed infestations and review additional management (i.e. the need for control measures such as broad-acre spraying, spot-spraying, slashing, hand-removal or controlled burns).
	2nd TIER – Offset treatment plots record PEPC above 20%	• Review factors leading to high perennial weed cover. • Identify the location of weed infestations and review additional management (i.e. the need for control measures such as broad-acre spraying, spot-spraying, slashing, hand-removal or controlled burns).

6 REPORTING AND REVIEW

6.1 REPORTING SURVEY DATA AND RECORD KEEPING

In accordance with Condition 31 of the EPBC Act Approval 2010/5566, survey data will be recorded so as to conform to data standards notified from time to time by Cth DCCEEW. When requested by the Cth DCCEEW, MCC will provide all species and ecological survey data and related survey information from ecological surveys undertaken for MNES. This survey data will be provided within 30 business days of request, or in a timeframe agreed to by Cth DCCEEW in writing.

In accordance with Condition 39 of EPBC Act Approval 2010/5566, MCC will maintain accurate records substantiating all activities and outcomes associated with or relevant to EPBC Act Approval 2010/5566, including measures taken to implement the BMP, and make them available upon request to Cth DCCEEW.

6.2 BIODIVERSITY MANAGEMENT PLAN PUBLISHING

This BMP will be published on the Whitehaven website in accordance with Condition 40 of EPBC Act Approval 2010/5566. Any revisions to this BMP will be published on the Whitehaven website within one month of being approved.

6.3 COMMONWEALTH APPROVAL COMPLIANCE REPORTS

A report pertaining to the annual compliance with EPBC Act Approval 2010/5566 will be published on the MCC website by the end of March each year after the commencement of the MCCM in accordance with Condition 34 of EPBC Act Approval 2010/5566. Non-compliance with any of the conditions will be reported to Cth DCCEEW at the same time as the compliance report is published.

6.4 MCCM ANNUAL REVIEW REPORT

An Annual Review which outlines the environmental performance of the MCCM over the previous calendar year will be submitted by the end of March each year in accordance with Condition 4, Schedule 5 of PA 10_0138. The Annual Review will include:

- a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against the:
  - the relevant statutory requirements, limits or performance measures/criteria;
  - the monitoring results of previous years; and
  - the relevant predictions in the "EA";
- identification of any non-compliance over the last year, and a description of what actions were (or are being) taken to ensure compliance;

- identification of any trends in the monitoring data over the life of the development;
- identification of any discrepancies between the predicted and actual impacts of the development, and analysis of the potential cause of any significant discrepancies; and
- a description of what measures will be implemented over the next year to improve the environmental performance of the MCCM.

The Annual Review will include a review of the actions undertaken against the performance criteria relevant to the previous calendar year. This BMP may be reviewed and revised as a result of the compilation of the Annual Review to improve environmental performance as per Condition 5 in Schedule 5 of PA 10_0138. This review will be conducted within three months of submission of the Annual Review.

In the Annual Review, a detailed section on Biodiversity Offset Management is included each year that will be the process by which Whitehaven will report:

- the progress of management activities undertaken in the offset areas;
- the outcome of those management activities;
- any need for improved management; and
- activities to undertake such improved management.

6.5 REVISION OF THE BIODIVERSITY MANAGEMENT PLAN

This BMP will be reviewed and revised from time to time. An overview of the Commonwealth and NSW triggers are provided below.

Commonwealth Requirements

In accordance with Condition 36 of EPBC Act Approval 2010/5566, if MCC wishes to carry out any activity otherwise than in accordance with this BMP (as it pertains to EPBC Act Approval 2010/5566), MCC will submit a revised BMP to Cth DCCEEW for the Minister's written approval. The varied activity will not commence until the Minister has approved the revised plan in writing. It is noted that the Minister will not approve a revised plan, unless the revised plan would result in an equivalent or improved environmental outcome.

In accordance with Condition 37 of EPBC Act Approval 2010/5566, if the Commonwealth Minister believes that it is necessary or convenient for the better protection of listed threatened species and communities or listed migratory species to do so, the Minister may request MCC to make specified revisions to this BMP and submit the revised plan for the Minister's written approval. MCC must comply with any such request. The revised approved plan must be implemented. Unless the Minister has approved the revised plan, MCC must continue to implement the originally approved plan, as specified in the conditions.

NSW Requirements

In accordance with Condition 5 of Schedule 5 of PA 10_0138, this BMP will be reviewed, and revised if necessary to the satisfaction of the NSW Secretary of DPHI, within three months of:

- the submission of an annual review (see Section 6.4);
- the submission of an incident report (Condition 8 of Schedule 5 of PA 10_0138);
- the submission of an audit report (see Section 6.6); or
- any modification to the conditions of this consent, (unless the conditions require otherwise).

Further, under Condition 4 in Schedule 2 of PA 10_0138, MCC must comply with reasonable requirements of the Secretary of DPHI in respect of DPHIs assessment of this BMP or the implementation of actions or measures under this BMP, including any reasonable request to amend this BMP. Under Condition 16 in Schedule 2 of PA 10_0138, MCC may progressively submit a BMP with the approval of the Secretary of the DPHI.

6.6 REGIONAL BIODIVERSITY STRATEGY ANNUAL BIODIVERSITY SUMMARY REPORT

MCCM undertakes routine communications between and with Tarrawonga and Boggabri Coal Mines (BTM Complex) inclusive of biodiversity issues regarding the mine and offset sites. In addition, the BTM Complex collaborate to prepare Annual Biodiversity Summary Reports in accordance with the *Leard Forest Mining Precinct Regional Biodiversity Strategy* (Umwelt, 2017) that detail the combined biodiversity performance of the individual mine sites and associated offset areas using the information sourced from each sites own individual reports on biodiversity monitoring in a consistent template to allow for the comparison of results including for areas of White Box – Yellow Box – Blakely's Red Gum Woodland CEEC. The Annual Biodiversity Summary Reports are reviewed during Biodiversity Audits and available to be used for targeted consultation with key stakeholders (i.e. neighbouring land managers and agencies such as NSW DPHI, NSW DCCEEW, NPWS, FCNSW, Councils and Local Land Service) as required.

6.7 BIODIVERSITY AUDIT

6.7.1 Commonwealth Audit

In accordance with Condition 35 of EPBC Act Approval 2010/5566, upon the direction of the Commonwealth Minister, MCC will ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Commonwealth Minister. The independent auditor will be approved by the Commonwealth Minister prior to the commencement of the audit. Audit criteria will be agreed to by the Commonwealth Minister and the audit report will address the criteria to the satisfaction of the Commonwealth Minister.

6.7.2 NSW Audits

Independent Environmental Audit

Every three years after the end of June 2015, an Independent Environmental Audit will be conducted in accordance with Condition 10, Schedule 5 of PA 10_0138. This Environmental Audit will be conducted by a suitably qualified, experienced and independent team of experts whose appointment was endorsed by the NSW Secretary of the DPHI. The Independent Environmental Audit will assess the environmental performance of the MCCM and the MCCM's compliance with the conditions of PA 10_0138.

Independent Audit Reports and MCCM response to audit findings will be submitted to the Planning Secretary within two months of undertaking the independent audit site inspection as outlined in the Independent Audit Post Approvals Requirements (2020 or as updated) unless otherwise agreed by the Planning Secretary.

Biodiversity Audit

In accordance with Condition 56 of Schedule 3 of PA 10_0138, MCC will commission suitably qualified, experienced and independent person/s, whose appointment was approved by the NSW Secretary of the DPHI, to undertake an audit of the revegetation of the rehabilitation area, management and restoration within the Biodiversity Offset Strategy areas. In correspondence between Whitehaven (dated 18 August 2022) and DPHI (formerly DPE dated 26 August 2022), the five yearly audits scheduled for December 2022 was extended to September 2023 and a revised three yearly time period committed to so as to align future biodiversity audits with Tarrawonga Coal Mine (PA 11_0047) frequency and timing.

6.8 COMMUNITY CONSULTATIVE COMMITTEE

MCC has established a CCC for the MCCM in accordance with Condition 7 of Schedule 5 of PA 10_0138. The condition is reproduced below:

> *The Applicant must establish and operate a Community Consultative Committee (CCC) for the project to the satisfaction of the Planning Secretary. This CCC must be operated in general accordance with the Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects (Department of Planning, 2007, or its latest version), and be operating within 6 months of the date of this approval.*
>
> *The CCC must include at least one member representing the Maules Creek community, one member from Aboriginal stakeholder groups, and seek to include some joint membership with CCCs for other operating coal mines within the Leard State Forest Mining Precinct, unless otherwise agreed by the Planning Secretary.*
>
> *Notes:*
> - *The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Applicant complies with this approval; and*
> - *In accordance with the Department's guideline, the CCC should be comprised of an independent chair and appropriate representation from the Applicant, Council, recognised environmental groups and the local community.*

6.9 BIODIVERSITY TRAINING

Inductions for staff and contractors will be conducted to make them aware of the environmental issues relevant to MCC. Further targeted training (i.e. fire management) is to be undertaken appropriate to their role and responsibilities. Additional training relevant to this BMP will be undertaken for the Maules Creek Offset Area for the management of impacts to biodiversity and records will be retained by WHC.

6.10 ENVIRONMENTAL NON-COMPLIANCE

An environmental non-compliance is identified if one or more of the following has occurred:

- failure to comply with legislative requirements;
- failure to comply with the PA 10_0138, including Schedule 5 Condition 2 and operational criteria;
- failure to comply with EPBC 2010/5566 requirements;
- failure to comply with reasonable directions from regulatory agencies;
- failure to comply with management plans;
- repeated environmental incidents of similar nature;

The Planning Secretary must be notified in writing via the Major Projects website within seven days after MCC becomes aware of any non-compliance. A non-compliance notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance. A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

6.11 EXTERNAL NOTIFICATION PROCEDURE

The Planning Secretary will be notified via the Major Projects website and the notification will include the development application number, the name of the development and identify the location and nature of the incident that has actual or has the potential for material harm to the environment as defined in section 147 of the POEO Act:

> *147 Meaning of material harm to the environment*
> *(1) For the purposes of this Part:*
> *(a) harm to the environment is material if:*
> *(i) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or*
> *(ii) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000 (or such other amount as is prescribed by the regulations), and*
> *(b) loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.*
> *(2) For the purposes of this Part, it does not matter that harm to the environment is caused only in the premises where the pollution incident occurs.*

6.12 ACCESS TO INFORMATION

In accordance with Schedule 5 Condition 12, MCC will within three months of the date of the approval, make the following information available on the company website:

- the EA;
- all current statutory approvals for the project;
- approved strategies, plans and programs required under the conditions of this consent;
- a comprehensive summary of the monitoring results of the project, which have been reported in accordance with the various plans and programs approved under the conditions of this consent;
- a complaints register, which is to be updated on a monthly basis;
- minutes of CCC meetings;
- the last five annual reviews;
- any independent environmental audit, and the Applicant's response to the recommendations in any audit;
- any other matter required by the Planning Secretary; and
- keep this information up to date, to the satisfaction of the Planning Secretary.

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APPENDIX B

RECONCILIATION OF THE BIODIVERSITY MANAGEMENT PLAN AGAINST THE LEARD FOREST MINING PRECINCT REGIONAL BIODIVERSITY STRATEGY

Table B-1
Strategic Biodiversity Offset Management Actions

Management Component	Management Actions	Section of this BMP
Strategic Focus Area 1 - Enhance the quality of habitats and landscapes at the offset sites for White Box – Yellow Box – Blakely's Red Gum Woodland EEC and CEEC		
1.1 Natural regeneration (undertaken in semi-cleared and remnant native woodland vegetation in good condition)	• Natural regeneration is promoted through management of threatening processes including: – the management of weeds (refer to Strategic Focus Area 3) – the management of pest animals (refer to Strategic Focus Area 3) – livestock restriction (where appropriate, in conjunction with strategic grazing). • Natural regeneration management options (such as thinning, slashing, controlled burning) can be undertaken to promote canopy species regeneration in dense grasslands and cypress pine regrowth areas. Methods and results of this should be communicated and made available for future similar regeneration efforts in the region.	Section 5 including Sections 5.4, 5.5, 5.8, 5.9, 5.10, 5.12, 5.14
1.2 Collect and propagate seed	• Seed collection, management and storage should be undertaken in consideration of the Florabank Guidelines (www.florabank.org.au/).	Section 5.3
1.3 Active revegetation (undertaken in semi-cleared woodland, derived native grasslands and cleared land)	• When restoring areas of White Box – Yellow Box – Blakely's Red Gum Woodland EEC and CEEC, active revegetation should be undertaken generally in accordance with the *Guide to Managing Box Gum Grassy Woodlands* (Rawlings *et al.* 2010). • Direct seeding and/or tubestock planting should be undertaken in areas where natural regeneration is unlikely to occur (such as low-diversity derived native grassland, pasture and cultivated land) and where natural regeneration areas require supplementary actions (as per TARPs in Table 5-12). • Seed and tubestock used in revegetation should include a variety of grasses, low shrubs, mid-sized shrubs and trees, characteristic of White Box – Yellow Box – Blakely's Red Gum Woodland EEC and CEEC (as per the NSW Final Determination and Commonwealth Listing Advice for the communities), to create structurally diverse habitat.	Section 5.4 Table 5-2

Management Component	Management Actions	Section of this BMP
Strategic Focus Area 2 – Provide ongoing management and enhancement of existing habitats at the offset sites for threatened species		
2.1 Salvage of habitat resources	• Salvage of habitat resources should be undertaken within approved disturbance areas for re-use in the areas surrounding the disturbance areas, rehabilitation areas and offset sites. This should include the salvage of one or more of the following habitat features where they are available and of suitable structural integrity: – fallen timber – arboreal hollows – hollow logs – bush rock.	Sections 3.1.6, 5.6
2.2 Habitat augmentation and nest box installation	• Habitat augmentation, using salvaged resources or nest boxes, should be undertaken in habitats identified as having low habitat resources. • Where nest boxes are to be installed: – they are to be made from high quality and durable materials that, ideally, provide for a long lifespan. – designs should be targeted to the hollow-dependent threatened species known to occur in the locality of the offset site such as woodland birds, arboreal mammals and micro-bats. • The total number of hollows (existing hollows and nest boxes combined) at the offset sites should be at least the same as the number of hollows with signs of use (nesting material, feathers, fur, scratches, etc) and of suitable dimensions for species occupancy (suitable entrance size and a hollow chamber extending into the branch/trunk) removed from the impact site. • It is expected that the installation of nest boxes would be staged over time to mirror the regeneration of the woodland and the species that are utilising each site.	Section 5.6
2.3 Access control	• Where offset sites share common boundaries fencing designs should not be restrictive to native fauna movement or connectivity between habitats. The need for fencing between contiguous offset sites that are managed in the same way should be investigated and wherever possible removed/avoided. • Alternatives to barbed-wire fencing should be used, where appropriate, to avoid obstructing the flight paths of birds, bats and gliders. Any new fencing, where fence lines do not currently exist, should be installed in a way to avoid, or minimise clearing of any native trees or shrubs, where appropriate (Note: clearing/maintenance may still be required in accordance with relevant legislation of the time such as the *Native Vegetation Act 2003* or *Rural Fires Act 1997*).	Section 5.13

Management Component	Management Actions	Section of this BMP
Strategic Focus Area 3 - Promote a consistent and coordinated approach to weed management and pest animal control		
3.1 Weed and pest prevention and communication	• Weed management and pest control conditions and trends are to be communicated across the BTM Complex and should include: – reviewing monitoring reports for up-to-date information on weeds and pests – discussing and prioritising weed and pest animal prevention, control methods and target species across the BTM Complex for the following year – liaising with local land managers and stakeholders on control measures and schedules. • Develop a feedback loop to alert the BTM Complex of any new or emerging weeds or pest animal species recorded to be occurring on any of the offset sites. • Public communication on pest animal records may be reported through FeralScan (www.feralscan.org.au).	Reported in the MCCM Annual Review
3.2 Weed control	• Weed control should be undertaken in consideration of the control recommendations outlined in: – Noxious and Environmental Weeds Control Handbook (6th Edition) (DPI 2014) – Narrabri Shire Council Weed Management Plans (http://www.narrabri.nsw.gov.au/weeds-management-plans-1115.html) – resources on the NSW WeedWise website (http://weeds.dpi.nsw.gov.au/). • Adopt best-practice active and adaptive management of the density of invasive native plants such as white cypress pine (*Callitris glaucophylla*) and black cypress pine (*Callitris endlicheri*) such as ecological thinning, targeted grazing and prescribed fire as per the recommendations set out in *Actively Managing for Better Ecological Outcomes for the Brigalow and Nandewar State Conservation Areas* (NRC 2014). • Undertake a coordinated approach to weed monitoring across the offset sites for consistent reporting and data analysis.	Section 5.8 Section 5.5, 5.12, 5.13 Section 5.8
3.3 Pest animal control	• Pest animal control should be undertaken in consideration of the control recommendations outlined in the Department of Primary Industries *Vertebrate Pest Control Manual* (DPI 2014). • Control strategies may include the destruction of burrows, shooting, trapping and baiting and should be undertaken following the NSW Codes of Practices (COPs) and Standard Operating Procedures (SOPs) (http://www.dpi.nsw.gov.au/agriculture/pests- weeds/vertebrate-pests/publications/model-codes-of-practice). • A coordinated approach to pest animal monitoring should be undertaken across the offset sites for consistent reporting and data analysis.	Section 5.9

Management Component	Management Actions	Section of this BMP
Strategic Focus Area 4 - Promote a consistent and coordinated approach to fire management for biodiversity		
4.1 Managing fuel loads	• The accessibility of fire trails and access tracks should be regularly maintained within the offset sites in accordance with relevant legislation of the time such as the *Native Vegetation Act 2003* or *Rural Fires Act 1997*. • A fuel load assessment and an assessment of the feasibility of completing fuel load reduction should be undertaken as identified on a risk basis or as recommended by the Rural Fire Service (RFS). • Fuel reduction in the form of strategic grazing could be trialled in appropriate management zones within the offset sites. The timing of any fuel reduction strategies should be determined based on fuel loads, vegetation maturity and weather/seasonal conditions; however it should generally be undertaken in autumn to encourage native species recruitment.	Section 5.14
4.2 Ecological control burns	• Control burns should consider the recommendations outlined in Section 9 of the *Guide to Managing Box Gum Grassy Woodlands* (Rawlings *et al*., 2010). • Control burns should avoid burning trees containing hollow resources, where possible, to minimise impacts on roosting and nesting availability in the landscape. • If controlled burning is undertaken, implement mosaic burning to reduce the extent of any negative outcomes, provide refuge for wildlife and promote structural and species diversity.	Section 5.14
Strategic Focus Area 5 – Enhance the connectivity of habitats through corridor establishment and management		
5.1 Connected landscapes and broader regional corridors	• Offset sites and conservation areas should be managed to improve habitat connectivity and corridor function using management actions techniques such as: – targeted revegetation including supplementary tubestock planting and seeding, – targeted weed and pest management, and – habitat augmentation with nest boxes and salvaged habitat resources. • Enhancement efforts should be focused to improve habitat connectivity within and between existing offset areas in the region. These broad areas of BTM complex managed land include: – land south of Mount Kaputar National Park linking offset areas east of Leard State Forest, – land south of Leard State Forest linking areas to Boonalla Aboriginal Area and Vickery State Forest, – land west and northwest of Leard State Forest linking to Pilliga East.	Section 5 including Sections 5.4, 5.6, 5.8, 5.9, 5.10

Management Component	Management Actions	Section of this BMP
Strategic Focus Area 6 – Consult and workshop biodiversity issues with local stakeholders and land managers		
6.1 Biodiversity management consultation	• Biodiversity issues should be communicated across sites through the appropriate forums, including environmental representatives from each site (and the inclusion of relevant agencies, as relevant, such as OEH and DPE), to meet to discuss biodiversity issues within offset sites. • This communication (across the BTM Complex, for example) should facilitate the preparation of an annual summary report detailing the overall biodiversity performance and outcomes of the offset sites using the information provided from annual biodiversity monitoring reports. • This should include liaison with adjoining land owners and managers, as appropriate, to discuss concerns including offset site indirect impacts on adjoining agricultural land, emerging weed and pests, and opportunities to improve biodiversity links across properties. • This should include liaison with local stakeholders such as the National Parks and Wildlife Service (NPWS), Landcare, Forestry Corporation of NSW, Narrabri Shire Council and Local Land Service (LLS), as appropriate, to discuss biodiversity management actions and issues.	Section 6.4, 6.6 and 6.7

Table B-2
Strategic Biodiversity Offset Monitoring Opportunities

Monitoring Component	Monitoring Actions	Section of this BMP
Strategic Focus Area 1 - Enhance the quality of habitats and landscapes at the offset sites for White Box – Yellow Box – Blakely's Red Gum Woodland EEC and CEEC		
1.1 Natural regeneration (undertaken in semi-cleared and remnant native woodland vegetation in good condition)	• Monitoring of regenerating White Box – Yellow Box – Blakely's Red Gum Woodland EEC and CEEC should be undertaken annually and across offset sites. It is recommended that the season for the monitoring sites is rotated every year to assess the community during different seasons. For example: – half of the monitoring sites surveyed in autumn (to maximise the detection of native perennials); and – half of the monitoring sites surveyed in spring (to identify the extent of exotic annuals in the community). • Monitoring should be undertaken in accordance with either the BioBanking Assessment Methodology (BBAM) (2014) or Biodiversity Assessment Method (BAM), whichever is determined to be the most appropriate through consultation with OEH, to analyse trends against benchmark data by: – undertaking plot and transect surveys, – undertaking at least the minimum number of plots and transects per vegetation zone, and – photographic monitoring at permanent monitoring points conducted using a consistent methodology across the offset sites. • During monitoring surveys, specific notes should be taken on any dense or emerging stands of exotic plant species, such as Coolatai grass (*Hyparrhenia hirta*) and invasive native species such as white cypress pine (*Callitris glaucophylla*) or black cypress pine (*Callitris endlicheri*), that may result in the suppression of native understorey species establishment. • Monitoring should be undertaken within the offset sites at least annually for the first five years and then every two years until preliminary completion criteria (refer to Tables 5-6 and 5-8) are met. • For the BTM Complex, monitoring results should be outlined in a consistent summary report template to allow for the comparison of results and a consistent understanding of the condition of naturally regenerating White Box – Yellow Box – Blakely's Red Gum Woodland EEC and CEEC broadly across the offset sites.	Sections 5.4, 5.17, 6.4 and 6.6
1.2 Collect and propagate seed	• The completion of an Annual Summary Report should be undertaken following each collection event. This should include records of species, qualities, dates and locations as per the Florabank Guideline 4 (www.florabank.org.au/).	Section 5.3

Monitoring Component	Monitoring Actions	Section of this BMP
1.3 Active revegetation (undertaken in semi-cleared woodland, derived native grasslands and cleared land)	• Monitoring of revegetated White Box – Yellow Box – Blakely's Red Gum Woodland EEC and CEEC should be undertaken annually and across the BTM Complex offset sites. It is recommended that the season for the monitoring sites is rotated every year to assess the community during different seasons. For example: – half of the monitoring sites surveyed in autumn (to maximise the detection of native perennials) – half of the monitoring sites surveyed in spring (to identify the extent of exotic annuals in the establishing community). • Monitoring should be undertaken in accordance with either the BioBanking Assessment Methodology (BBAM) (2014) or Biodiversity Assessment Method (BAM) (in prep.), whichever is determined to be the most appropriate through consultation with OEH, to analyse trends against benchmark data by: – undertaking plot and transect surveys – undertaking the minimum number of plots and transects per vegetation zone – photographic monitoring at permanent monitoring points conducted using a consistent methodology across the offset sites. • During monitoring surveys, specific notes should be taken on any dense or emerging stands of exotic plant species, such as Coolatai grass (*Hyparrhenia hirta*) and invasive native species such as white cypress pine (*Callitris glaucophylla*) or black cypress pine (*Callitris endlicheri*), that may result in the suppression of native understorey species establishment. • Monitoring should be undertaken within the offset sites at least annually for the first five years and then every two years until the preliminary completion criteria (refer to Tables 5-6 and 5-8) are met. • For the BTM Complex, monitoring results should be outlined in a consistent summary report template to allow for the comparison of results and a consistent understanding of the condition of naturally regenerating White Box – Yellow Box – Blakely's Red Gum Woodland EEC and CEEC broadly across the offset sites.	Sections 5.4 5.17, 6.4 and 6.6
Strategic Focus Area 2 – Provide ongoing management and enhancement of existing habitats at the offset sites for threatened species and communities		
2.1 Salvage of habitat resources	• Salvaged arboreal hollows located within areas surrounding the disturbance areas, rehabilitation areas and the offset sites should be monitored for their use and condition in conjunction with other annual fauna monitoring. • Monitoring may include the use of remote camera surveys targeting areas where salvaged hollows and fallen timber is installed into habitat. Detailed monitoring techniques are to be outlined in the relevant management plans.	Sections 5.6 and 5.17

Monitoring Component	Monitoring Actions	Section of this BMP
2.2 Habitat augmentation and nest box installation	• An assessment of the number of nest boxes required should be undertaken (the total number of hollows (existing hollows and nest boxes combined) at the offset sites should be at least the same as the number of hollows with signs of use (nesting material, feathers, fur, scratches, etc) and of suitable dimensions for species occupancy (suitable entrance size and a hollow chamber extending into the branch/trunk) removed from the impact site). • Nest boxes installed within the offset sites should be monitored for their signs of use[2] and condition at consistent times of the year (preferably spring) across the offset sites targeting species type based on nest box design. • Signs of use monitoring may be undertaken using a pole camera that allows viewing of the inhabitants of the boxes as well as a view of the condition of the top of the boxes from the ground with minimal disturbance to the fauna occupying the boxes. Detailed monitoring techniques are to be outlined in the relevant management plans. • Monitoring results of next box usage should be reported in the relevant Annual Summary Report.	Sections 5.6 5.17, 6.4 and 6.6
2.3 Access control	• Ongoing monitoring and site inspections should note any damage or disrepair of fences and must be communicated to the Environmental Representative of the relevant site. • If, during the course of monitoring, the use of barbed-wire fencing is found to be damaging to local wildlife (e.g. gliders/bats caught in fencing), this is to be communicated to the Environmental Representative of the relevant site and ecologically-friendly alternatives are to be investigated.	Sections 5.13 and 5.17
Strategic Focus Area 3 - Promote a consistent and coordinated approach to weed management and pest animal control		
3.1 Weed and pest prevention and communication	• Key messages on weed control and pest prevention should be available to employees via toolbox talks and inductions to raise awareness of biodiversity issues in the region (e.g. weed spread prevention through the washing of vehicles and equipment).	Sections 5.8 and 5.9

[2] Signs of use can be entrance chew marks, the presence of nesting material, signs of activity inside nest boxes, and the presence of animals.

Monitoring Component	Monitoring Actions	Section of this BMP
3.2 Weed control	• Weed occurrences in the offset sites should be identified as part of the annual flora monitoring, but also opportunistically recorded during any other offset site inspections to examine the effectiveness of control measures. • For major weed infestations or newly recorded species, the location, size, density and species should be recorded and communicated to the Environmental Representative of the relevant site. • During monitoring surveys, specific notes should be taken on any dense or emerging stands of exotic plant species, such as Coolatai grass (*Hyparrhenia hirta*) and invasive native species such as white cypress pine (*Callitris glaucophylla*) or black cypress pine (*Callitris endlicheri*), that may result in the suppression of native understorey species established in White Box – Yellow Box – Blakely's Red Gum Woodland EEC and CEEC. • For the BTM Complex, monitoring results should be outlined in a consistent summary report template to allow for the comparison of results and a consistent understanding of the key weed issues in a broad regional context.	Sections 5.8 and 5.17
3.3 Pest animal control	• Observations of pest animals should be undertaken as part of the annual fauna monitoring, but also opportunistically recorded during any other offset site inspections. • Monitoring of pest animals should be undertaken prior to and following the application of control measures to examine the effectiveness of these measures. • Monitoring for pest animals should consider the recommendations in the Department of Primary Industries *Monitoring Techniques for Vertebrate Pests* (http://www.dpi.nsw.gov.au/agriculture/pests-weeds/vertebrate-pests/publications/monitoring-techniques). • For significant pest animal occurrences or observed pest animal damage, the date, location, activity, density and pest animal species should be recorded and communicated to the Environmental Representative of the relevant site. • For the BTM Complex, monitoring results should be outlined in a consistent summary report template to allow for the comparison of results and a consistent understanding of the key pest animal issues in a broad regional context.	Section 5.9
Strategic Focus Area 4 - Promote a consistent and coordinated approach to fire management for biodiversity		
4.1 Managing fuel loads	• Monitoring of fuel levels will take place as part of the overall annual inspection of the offset sites but also as identified on a risk basis or as recommended by the RFS. • The accessibility and functionality of fire trails and access tracks should be regularly monitored within the offset sites.	Section 5.14

Monitoring Component	Monitoring Actions	Section of this BMP
4.2 Ecological control burns	• If fuel reduction is undertaken in the form of controlled burning, additional flora monitoring points will be required to assess the impacts of control measures on native vegetation communities (particularly within White Box – Yellow Box – Blakely's Red Gum Woodland EEC and CEEC). • In habitat restoration areas and regeneration/revegetation zones, monitoring will be required to record the response to a fire event and guide the need for potential active and adaptive management.	Sections 5.14 and 5.17
Strategic Focus Area 5 – Enhance the connectivity of habitats through corridor and buffer area establishment and management		
5.1 Connected landscapes and broader regional corridors	• Monitoring undertaken as part of other ecological monitoring at the offset sites should consider the connected landscapes and corridors in the locality and region by including survey techniques to demonstrate fauna movement across these areas such as: – remote camera surveys – radio tracking and/or woodland bird banding. • Detailed monitoring techniques are to be outlined in the relevant management plans	Section 5.17 and Figures 11a to 11h
Strategic Focus Area 6 – Consult and workshop biodiversity issues with local stakeholders and land managers		
6.1 Biodiversity management consultation	• Minutes, actions and key recommendations from biodiversity management consultation forums should be made available to attendees. • Any research or monitoring data in relation to biodiversity should be made available across the BTM Complex to facilitate the sharing of knowledge for the broader conservation of the offset sites. This may include reports, guidelines and/or expert input into management of cypress pine regrowth, species translocation success, pest animal and weed outcomes and control and techniques. • The Annual Summary Report will detail the overall biodiversity performance and outcomes of the offset sites using the information provided from the monitoring reports.	Section 6.4 and 6.6

Table B-3
Strategic Biodiversity Performance Measures and Preliminary Completion Criteria

Strategic Focus Areas / Management Component	Performance Measures and Preliminary Completion Criteria	Timeframe (following offset establishment)*		Section of this BMP
		Ongoing Performance Measures	Completion Timeframe	
Strategic Focus Area 1 - Enhance the quality of habitats and landscapes at the offset sites for White Box – Yellow Box – Blakely's Red Gum Woodland EEC and CEEC				
1.1 Natural regeneration (in semi-cleared and remnant native woodland vegetation in good condition)	• 100% of the White Box – Yellow Box – Blakely's Red Gum Woodland EEC and CEEC monitoring sites across the relevant vegetation zones in each offset site show all locally-occurring canopy species recruiting[3] (i.e. canopy tree species occurring in the moderate to good condition PCT at the offset site or surrounds are recruiting in the semi-cleared and remnant native woodland vegetation). Where monitoring is undertaken according to the BBAM sampling should occur across each entire vegetation zones. Where monitoring is undertaken according to the BAM sampling should be undertaken in the monitoring sites of each vegetation zone.	Annually	By year 10	Sections 5.16, 5.17, 5.18
	• Naturally regenerated areas of White Box – Yellow Box – Blakely's Red Gum Woodland EEC and CEEC monitoring sites conform to the condition assessment outlined on page 5 of the EPBC Policy Statement 3.5 White Box – Yellow Box – Blakely's Red Gum Grassy Woodlands and Derived Native Grasslands across the relevant vegetation zones in each offset site.	Annually	By year 10	Sections 5.16, 5.17, 5.18
	• 100% of the White Box – Yellow Box – Blakely's Red Gum Woodland EEC and CEEC across the relevant vegetation zones in each offset site show evidence of occupation or presence of at least 80% of the native fauna species comparative to approved benchmark or monitoring reference sites.	Annually	By year 10	Sections 5.16, 5.17, 5.18

[3] To meet the definition of "canopy species recruiting" there should be evidence of recruitment of at least 5 saplings per hectare.

Strategic Focus Areas / Management Component	Performance Measures and Preliminary Completion Criteria	Timeframe (following offset establishment)*		Section of this BMP
		Ongoing Performance Measures	Completion Timeframe	
	• 100% of the White Box – Yellow Box – Blakely's Red Gum Woodland EEC and CEEC monitoring sites across the relevant vegetation zones in each offset site is within the benchmark ranges for the cover scores (i.e. overstorey, midstorey and groundcover) and at 80% or above for species richness benchmarks.	Annually	By year 10	Sections 5.16, 5.17, 5.18
1.2 Collect and propagate seed	• Seed collection records, including location of plantings and success rates (where available), are reported on in the Annual Summary Report.	Annually	-	Section 5.3
	• Seed is collected over a range of sites across the locality to adequately capture local variations within the offset sites and disturbance areas.	Annually	-	Section 5.3
1.3 Active revegetation (in semi-cleared woodland, derived native grasslands and cleared land)	• 100% of the White Box – Yellow Box – Blakely's Red Gum Woodland EEC and CEEC monitoring sites across the relevant vegetation zones in each offset site show all locally-occurring canopy species recruiting[3] (i.e. canopy tree species occurring in the moderate to good condition PCT at the offset site or surrounds are recruiting in the semi-cleared woodland, derived native grasslands and cleared land). Where monitoring is undertaken according to the BBAM sampling should occur across each entire vegetation zones. Where monitoring is undertaken according to the BAM sampling should be undertaken in the monitoring sites of each vegetation zone.	Annually following active revegetation	By year 15 following active revegetation	Sections 5.16, 5.17, 5.18
	• Active regeneration areas of White Box – Yellow Box – Blakely's Red Gum Woodland EEC and CEEC monitoring sites conform to the condition assessment outlined on page 5 of the EPBC Policy Statement 3.5 White Box – Yellow Box – Blakely's Red Gum Grassy Woodlands and Derived Native Grasslands areas across the relevant vegetation zones in each offset site.	Annually following active revegetation	By year 15 following active revegetation	Sections 5.16, 5.17, 5.18

Strategic Focus Areas / Management Component	Performance Measures and Preliminary Completion Criteria	Timeframe (following offset establishment)*		Section of this BMP
		Ongoing Performance Measures	Completion Timeframe	
	• 100% of the White Box – Yellow Box – Blakely's Red Gum Woodland EEC and CEEC across the relevant vegetation zones in each offset site show evidence of occupation or presence of at least 80% of the native fauna species comparative to approved benchmark or monitoring reference sites.	Annually following active revegetation	By year 20 following active revegetation	Section 5.16.3
	• 100% of the White Box – Yellow Box – Blakely's Red Gum Woodland EEC and CEEC monitoring sites across the relevant vegetation zones in each offset site is within the benchmark ranges for the cover scores (i.e. overstorey, midstorey and groundcover) and at 80% or above for species richness benchmarks.	Annually following active revegetation	By year 20 following active revegetation	Sections 5.16, 5.17, 5.18
Strategic Focus Area 2 – Provide ongoing management and enhancement of existing habitats at the offset sites for threatened species and communities				
2.1 Salvage of habitat resources	• Salvaged resources that are reused or relocated in rehabilitated areas or offset sites are in structurally good condition.	Annually following placement	By year 5 following placement.	Section 5.6
2.2 Habitat augmentation and nest box installation	• 80% of the nest boxes installed are being utilised or show signs of use by native species across the offset sites. Utilisation of nest boxes by pest species such as European honey bee (*Apis mellifera*), common myna (*Acridotheres tristis*), common starling (*Sturnus vulgaris*) and feral rodent species (*Rattus* and *Mus* spp.) should be recorded.	Each nest box should be monitored at least once every 5 years	Ongoing	Section 5.6
	• Each nest box installed within the offset sites should be in good structural condition and functioning in the landscape.	Annually following installation	Ongoing	Section 5.6
2.3 Access control	• Livestock are excluded from restoration areas following planting and high quality woodland vegetation at the offset sites (it is acknowledged that strategic grazing may be required in some areas).	Annually	Ongoing	Section 5.12
	• Wildlife-friendly fencing is utilised, where appropriate, within the offset sites.	1 year	By year 10	Section 5.13

Strategic Focus Areas / Management Component	Performance Measures and Preliminary Completion Criteria	Timeframe (following offset establishment)*		Section of this BMP
		Ongoing Performance Measures	Completion Timeframe	
3.1 Weed and pest prevention and communication	• Weed trends and control schedules are communicated across the BTM Complex in the relevant forums.	Annually	Ongoing	Section 5.8
	• The most recent offset monitoring summary reports containing information on weed and pest records, trends and issues are provided across the BTM Complex and reported on in the Annual Summary Report.	Annually	Ongoing	Section 5.8, 5.9
	• Key messages on weeds are effectively communicated, where appropriate, with relevant local land holders, managers and stakeholders.	Annually	Ongoing	Section 5.8
3.2 Weed control	• Offset site flora monitoring shows an overall reduction in exotic plant cover following control measures implemented across the offset sites.	Annually	Ongoing	Sections 5.16, 5.17, 5.18
	• Weed species do not comprise more than 20% of any strata in the native vegetation communities within the offset sites.	Annually	Ongoing	Sections 5.8, 5.16, 5.17, 5.18
	• Weed control is undertaken across the offset sites using methods outlined in the Noxious and Environmental Weeds Control Handbook (6th Edition) (DPI 2014), Narrabri Shire Council Weed Management Plans, and/or the NSW WeedWise website.	Annually	Ongoing	Section 5.8
	• Significant weed infestations or newly identified weed species within the offset sites are reviewed and control measures implemented within 1 year of identification of the issue.	Annually	Ongoing	Section 5.8

Strategic Focus Areas / Management Component	Performance Measures and Preliminary Completion Criteria	Timeframe (following offset establishment)*		Section of this BMP
		Ongoing Performance Measures	Completion Timeframe	
3.3 Pest animal control	• Offset site fauna monitoring shows an overall reduction in pest animal species and population sizes targeted by control measures implemented across the offset sites (in consideration of potential drought conditions and seasonal trends).	Annually	By year 5	Section 5.9
	• Pest animal control is undertaken across the offset sites using methods approved under the NSW Codes of Practices (COPs) and Standard Operating Procedures (SOPs).	Annually	Ongoing	Section 5.9
	• Significant pest animal occurrences or newly identified pest species within the offset sites are reviewed and control measures implemented (if required) within 1 year of identification of the issue.	Annually	Ongoing	Section 5.9
Strategic Focus Area 4 - Promote a consistent and coordinated approach to fire management for biodiversity				
4.1 Managing fuel loads	• If determined to be suitable following recommendations from monitoring or the RFS, strategic grazing in appropriate management zones is undertaken to manage fuel loads.	Every 2 years	Ongoing	Sections 5.12 and 5.14
4.3 Ecological control burns	• Fuel reduction is undertaken in the form of controlled burning (as per recommendations in Rawlings *et al.* 2010) as deemed required and in consultation with the RFS.	Every 5 years	Ongoing	Section 5.14
	• The impacts of control and mosaic burning on native and weed species diversity is reported on and information made available to all BTM Complex sites.	Within 1 year of completed monitoring reports.	Ongoing	Section 6.6
Strategic Focus Area 5 – Enhance the connectivity of habitats through corridor and buffer area establishment and management				
5.1 Connected landscapes and broader regional corridors	• Corridors within the offset sites are in accordance with the performance indicators outlined in Strategic Focus Area 3 in relation to weeds and pests.	As per Strategic Focus Area 3.	As per Strategic Focus Area 3.	As per Strategic Focus Area 3.
	• Targeted fauna monitoring indicates that the offset site corridors provide habitat for native fauna species in the locality through monitoring as outlined in Table 2.2.	Annually	By Year 10	Section 5.17

Strategic Focus Areas / Management Component	Performance Measures and Preliminary Completion Criteria	Timeframe (following offset establishment)*		Section of this BMP
		Ongoing Performance Measures	Completion Timeframe	
Strategic Focus Area 6 – Consult and workshop biodiversity issues with local stakeholders and land managers				
6.1 Biodiversity management consultation	• Targeted consultation with key stakeholders, land managers and agencies regarding biodiversity issues is demonstrated through the development of resources and workshops involving stakeholders.	Annually	Ongoing	Section 6.6
	• An annual summary report is to be prepared detailing the overall biodiversity performance and outcomes of the offset sites across the region.	Annually	Ongoing	Section 6.6

* Where a specific completion timeframe is specified (such as by Year 15), for the BTM mines this means:

- for offsets identified in the relevant project approval, the timeframe from commencement of the project;
- for offsets approved in subsequent project modifications, the timeframe from approval of the modification, and
- for offsets identified in any revised Biodiversity Offset Strategy required under the relevant project approval, the timeframe from approval of the revised offset strategy.

REFERENCES

Department of Primary Industries (DPI) (2014) *Noxious and Environmental Weeds Control Handbook – A Guide to Weed Control in Non-crop Aquatic and Bushland Situations*. NSW DPI Management Guide, 6th Edition.

Natural Resources Commission (NRC) (2014) *Actively Managing for Better Ecological Outcomes for the Brigalow and Nandewar State Conservation Areas*. Final Report September 2014.

Rawlings, K., Freudenberger, D. and Carr, D. (2010) *A Guide to Managing Box Gum Grassy Woodlands. Caring for our Country Environmental Stewardship*. Department of the Environment, Water, Heritage and the Arts, Canberra.

APPENDIX E

BASELINE SURVEY SITES AND PHOTO REFERENCE POINTS

Table E-1
Indicative Location of Fauna Monitoring Sites (AMBS, 2017)

Equipment	Site	Easting	Northing
Anabat	FS01	231370	6616143
Anabat	FS01	231326	6615866
Anabat	FS02	229417	6617678
Anabat	FS02	229425	6617749
Anabat	FS03	223277	6618402
Anabat	FS03	223248	6618409
Anabat	FS04	220952	6612341
Anabat	FS04	220912	6612392
Anabat	FS05	219359	6610936
Anabat	FS05	219379	6610991
Anabat	FS06	213555	6607512
Anabat	FS06	213540	6607485
Anabat	FS07	244978	6599684
Anabat	FS07	244932	6599793
Anabat	FS08	245794	6598066
Anabat	FS08	245865	6598051
Anabat	FS09	240042	6638864
Anabat	FS09	240040	6638964
Anabat	FS10	238371	6642604
Anabat	FS10	238234	6642576
Anabat	FS11	236410	6640650
Anabat	FS11	236461	6640676
Anabat	FS12	237693	6638812
Anabat	FS12	237585	6638800
Anabat	FS13	236712	6636153
Anabat	FS13	236614	6636291
Anabat	FS14	237819	6635456
Anabat	FS14	237796	6635436
Anabat	FS15	237392	6632890
Anabat	FS15	237455	6632943
Anabat	FS16	238053	6631806
Anabat	FS16	238069	6631749
Anabat	NRV01	236808	6633583
Anabat	NRV01	236862	6633672
Anabat	RV01	229510	6619179
Anabat	RV01	229518	6619060
Anabat	RV02	222865	6615253
Anabat	RV02	222858	6615180
Anabat	RV03	216836	6610026
Anabat	RV03	216728	6610027

Equipment	Site	Easting	Northing
Camera	FS01	231395	6616065
Camera	FS01	231377	6615966
Camera	FS02	229441	6617677
Camera	FS02	229362	6617805
Camera	FS03	223288	6618357
Camera	FS03	223257	6618430
Camera	FS04	220977	6612361
Camera	FS04	221084	6612346
Camera	FS05	219366	6610988
Camera	FS05	219323	6610944
Camera	FS06	213509	6607472
Camera	FS06	213415	6607440
Camera	FS07	244913	6599801
Camera	FS07	244990	6599669
Camera	FS08	245832	6598049
Camera	FS08	245790	6598073
Camera	FS09	240047	6638925
Camera	FS09	240055	6638864
Camera	FS10	238322	6642586
Camera	FS10	238393	6642593
Camera	FS11	236478	6640665
Camera	FS11	236452	6640707
Camera	FS12	237623	6638807
Camera	FS12	237657	6638801
Camera	FS13	236629	6636186
Camera	FS13	236617	6636254
Camera	FS14	237763	6635449
Camera	FS14	237723	6635409
Camera	FS15	237458	6632959
Camera	FS15	237417	6632915
Camera	FS16	238097	6631760
Camera	FS16	238089	6631733
Camera	NRV01	236789	6633607
Camera	NRV01	236853	6633665
Camera	RV01	229506	6619215
Camera	RV01	229492	6619144
Camera	RV02	222879	6615261
Camera	RV02	222812	6615146
Camera	RV03	216834	6610022
Camera	RV03	216733	6610022
Frog survey	FS17	216580	6610821
Frog survey	FS18	239981	6638812
Frog survey	FS19	237897	6642362

Equipment	Site	Easting	Northing
Frog survey	FS20	236719	6636158
Frog survey	FS21	237951	6635520
Full survey methods	FS01	231347	6615831
Full survey methods	FS02	229164	6617770
Full survey methods	FS03	223143	6618451
Full survey methods	FS04	223138	6618468
Full survey methods	FS05	219238	6610794
Full survey methods	FS06	213283	6607420
Full survey methods	FS07	244995	6599667
Full survey methods	FS08	245787	6598171
Full survey methods	FS09	240034	6638738
Full survey methods	FS10	238461	6642647
Full survey methods	FS11	236531	6640785
Full survey methods	FS12	237571	6638717
Full survey methods	FS13	236602	6636342
Full survey methods	FS14	237681	6635382
Full survey methods	FS15	237388	6632763
Full survey methods	FS16	238188	6631840
Full survey methods	NRV01	236714	6633548
Full survey methods	RV01	229511	6619007
Full survey methods	RV02	222805	6615101
Full survey methods	RV03	216844	6610009
Harp	FS01	231359	6615900
Harp	FS01	231415	6616048
Harp	FS02	229443	6617695
Harp	FS02	229322	6617768
Harp	FS03	223279	6618408
Harp	FS03	223256	6618400
Harp	FS04	220946	6612337
Harp	FS04	220945	6612445
Harp	FS05	219334	6610993
Harp	FS05	219385	6610899
Harp	FS06	213515	6607437
Harp	FS06	213561	6607512
Harp	FS07	244892	6599827
Harp	FS07	244975	6599698
Harp	FS08	245814	6598034
Harp	FS08	245763	6598058
Harp	FS09	239979	6638868
Harp	FS09	240059	6638921
Harp	FS10	238374	6642602
Harp	FS10	238239	6642601
Harp	FS11	236428	6640700

Equipment	Site	Easting	Northing
Harp	FS11	236465	6640652
Harp	FS12	237657	6638204
Harp	FS12	237682	6638829
Harp	FS13	236622	6636306
Harp	FS13	236696	6636185
Harp	FS14	237819	6635466
Harp	FS14	237787	6635435
Harp	FS15	237395	6632899
Harp	FS15	237472	6632941
Harp	FS16	238172	6631734
Harp	FS16	238068	6631716
Tadpole survey	FS22	239979	6638868
Tadpole survey	FS23	237971	6642299
Tadpole survey	FS24	236718	6636146
Tadpole survey	FS25	237824	6635469
Tadpole survey	FS26	237951	6635520
Bird surveys	WB22-CN-001-20	-30.3091	150.8481
Bird surveys	WB22-CN-002-20	-30.3190	150.8560
Bird surveys	WB22-CN-003-20	-30.3186	150.8562
Bird surveys	WB22-CN-004-20	-30.3148	150.8563
Bird surveys	WB22-CN-005-20	-30.3161	150.8592
Bird surveys	WB22-CN-006-20	-30.3380	150.8483
Bird surveys	WB22-LG-001-20	-30.0004	151.2160
Bird surveys	WB22-NR-001-20	-30.2868	150.8582
Bird surveys	WB22-NR-002-20	-30.2777	150.8358
Bird surveys	WB22-NR-003-20	-30.2807	150.8431
Bird surveys	WB22-NR-004-20	-30.2829	150.8573
Bird surveys	WB22-NR-005-20	-30.2807	150.8502
Bird surveys	WB22-NR-006-20	-30.2683	150.8430
Bird surveys	WB22-NR-007-20	-30.2792	150.8469
Bird surveys	WB22-NR-008-20	-30.2829	150.8402
Bird surveys	WB22-NR-009-20	-30.2787	150.8418
Bird surveys	WB22-NR-010-20	-30.2696	150.8440
Bird surveys	WB22-NR-011-20	-30.2823	150.8538
Bird surveys	WB22-NR-012-20	-30.2665	150.8427
Bird surveys	WB22-NR-013-15	-30.2817	150.8459
Bird surveys	WB22-NR-014-15	-30.2834	150.8460
Bird surveys	WB22-TR-001-20	-30.4204	150.4514
Harp Trap	COO-HAR-02	293596	6642554
Harp Trap	COO-HAR-01	292154	6643242
Harp Trap	NER-HAR-02	294603	6646591
Harp Trap	NER-HAR-01	292002	6648694
Harp Trap	LON-HAR-01	326966	6679086

Equipment	Site	Easting	Northing
Harp Trap	LON-HAR-04	327796	6679022
Harp Trap	LON-HAR-04	328030	6677938
Harp Trap	LON-HAR-02	327625	6677483
Harp Trap	THO-HAR-01	231326	6617200
Bird Survey	COO-BM-01	293682	6642540
Bird Survey	COO-BM-02	293357	6642150
Bird Survey	COO-BM-03	292708	6641927
Bird Survey	COO-BM-04	292184	6641935
Bird Survey	COO-BM-05	293862	6641469
Bird Survey	COO-BM-06	293229	6641451
Bird Survey	COO-BM-07	292540	6641557
Bird Survey	COO-BM-08	292004	6641504
Bird Survey	COO-BM-09	293429	6640986
Bird Survey	COO-BM-10	292645	6640902
Bird Survey	COO-BM-11	292016	6640918
Bird Survey	COO-BM-12	292518	6640516
Bird Survey	LON-BM-01	328058	6679732
Bird Survey	LON-BM-02	328700	6679772
Bird Survey	LON-BM-03	329351	6679748
Bird Survey	LON-BM-04	329002	6679042
Bird Survey	LON-BM-05	328597	6678562
Bird Survey	LON-BM-06	328312	6678022
Bird Survey	LON-BM-07	328474	6677438
Bird Survey	LON-BM-08	327625	6677522
Bird Survey	LON-BM-09	327895	6678379
Bird Survey	LON-BM-10	327192	6678415
Bird Survey	LON-BM-11	326577	6678482
Bird Survey	LON-BM-12	327204	6678812
Bird Survey	LON-BM-13	327224	6679379
Bird Survey	LON-BM-14	326649	6679486
Bird Survey	NER-BM-01	291308	6648647
Bird Survey	NER-BM-02	291987	6648362
Bird Survey	NER-BM-03	292722	6647805
Bird Survey	NER-BM-04	293473	6648125
Bird Survey	NER-BM-05	294042	6648123
Bird Survey	NER-BM-07	293712	6649388
Bird Survey	NER-BM-08	293166	6649447
Bird Survey	NER-BM-09	292732	6649912
Bird Survey	NER-BM-10	292213	6650071
Bird Survey	NER-BM-11	291457	6650174
Bird Survey	NER-BM-12	291440	6649515
Bird Survey	NER-BM-13	290876	6649044
Bird Survey	TRI-BM-01	257251	6633510

Equipment	Site	Easting	Northing
Bird Survey	TRI-BM-02	257775	6633481
Bird Survey	TRI-BM-03	258256	6633495
Bird Survey	TRI-BM-04	258624	6633460
Bird Survey	TRI-BM-06	257230	6632979
Bird Survey	TRI-BM-07	257824	6633035
Bird Survey	TRI-BM-09	257287	6632523
Bird Survey	TRI-BM-10	257821	6632516
Bird Survey	TRI-BM-11	258272	6632522
Bird Survey	TRI-BM-12	258290	6632040
Bird Survey	TRI-BM-13	258773	6632158
Bird Survey	TRI-BM-14	258921	6633167
Bird Survey	TRI-BM-15	258812	6632661
Bird Survey	TRI-BM-16	258111	6631718
Bird Survey	TRI-BM-17	258502	6631254
Echolocation	COO-ANA-02	292175	6643167
Echolocation	COO-ANA-03	293687	6642694
Echolocation	COO-ANA-03	293824	6643945
Echolocation	COO-ANA-04	291974	6641571
Echolocation	COO-ANA-05	293485	6641084
Echolocation	COO-ANA-06	291818	6640967
Echolocation	COO-ANA-07	292963	6640675
Echolocation	LON-ANA-01	329776	6679889
Echolocation	LON-ANA-02	328406	6679468
Echolocation	LON-ANA-03	329767	6679346
Echolocation	LON-ANA-04	327088	6679043
Echolocation	LON-ANA-05	327843	6679118
Echolocation	LON-ANA-06	329110	6679113
Echolocation	LON-ANA-07	326957	6678446
Echolocation	LON-ANA-08	327986	6678296
Echolocation	LON-ANA-09	328875	6678445
Echolocation	LON-ANA-10	328034	6677296
Echolocation	LON-ANA-11	328788	6677151
Echolocation	NER-ANA-01	291472	6649947
Echolocation	NER-ANA-02	292934	6649658
Echolocation	NER-ANA-03	292070	6648414
Echolocation	NER-ANA-04	293084	6648208
Echolocation	NER-ANA-05	293967	6647610
Echolocation	NER-ANA-06	294640	6646590
Echolocation	TRI-ANA-01	260142	6633629
Echolocation	TRI-ANA-02	259931	6633116
Echolocation	TRI-ANA-03	259507	6632447
Echolocation	TRI-ANA-04	259477	6631817
Echolocation	TRI-ANA-05	259456	6631304

Equipment	Site	Easting	Northing
Echolocation	TRI-ANA-06	258064	6631680
Echolocation	TRI-ANA-07	258579	6632306
Echolocation	TRI-ANA-08	258036	6633051
Echolocation	TRI-ANA-09	258209	6633496
Echolocation	TRI-ANA-10	257197	6633457
Echolocation	TRI-ANA-11	256702	6632972
Echolocation	TRI-ANA-12	257412	6632793
Echolocation	TRI-ANA-13	256784	6632314
Echolocation	TRI-ANA-14	256005	6633000
Motion Detection Camera	CAM-LG-01	329529	6679480
Motion Detection Camera	CAM-LG-02	327733	6677748
Motion Detection Camera	CAM-NER-01	291459	6649920
Motion Detection Camera	CAM-NER-02	292091	6648309
Motion Detection Camera	CAM-NER-03	294215	6647556
Motion Detection Camera	CAM-NER-04	294596	6646854
Motion Detection Camera	CAM-COO-01	292084	6642777
Motion Detection Camera	CAM-COO-02	293596	6641892
Motion Detection Camera	CAM-COO-03	293934	6642948
Motion Detection Camera	CAM-TRI-01	259570	6632480
Motion Detection Camera	CAM-TRI-02	259344	6631298
Motion Detection Camera	CAM-TRI-03	257903	6633314
Motion Detection Camera	CAM-TRI-04	256136	6632415
Motion Detection Camera	CAM-TRI-05	254975	6633299

Sources: AMBS (2017) *Maules Creek Coal Mine: Fauna Monitoring of the Offset Areas, Summer 2017*. Report Prepared for Whitehaven Coal Limited.

EcoPlanning (2023) *Winter Bird Survey Report 2022*. Report Prepared for Whitehaven Coal Limited.

Table E-2
Floristic Plot Locations

Site ID	Latitude	Longitude
EWFF0010	-30.5375	150.2120
EWFF0022	-30.5527	150.2065
EWFF0033	-30.5470	150.2144
EWFF0077	-30.5333	150.2253
EWFF0102	-30.5558	150.2060
EWFF0003	-30.5441	150.1766
EWFF0005	-30.5445	150.1899
EWFF0006	-30.5468	150.1834
EWFF0025	-30.5232	150.1750
EWFF0053	-30.5363	150.1700
EWFF0079	-30.5380	150.1757
EWFF0104	-30.5414	150.1770
EWFF3004	-30.5369	150.1839
NOFF0000	-30.3626	150.2965
NOFF0001	-30.3533	150.2997
NOFF0007	-30.3332	150.2894
NOFF0011	-30.3041	150.2928
NOFF0021	-30.3273	150.2862
NOFF0025	-30.2908	150.2876
NOFF0040	-30.3348	150.2577
NOFF0045	-30.3417	150.2797
NOFF0046	-30.3597	150.2994
NOFF0053	-30.3527	150.2936
NOFF0057	-30.3092	150.2900
NOFF0058	-30.3277	150.2938
NOFF0073	-30.3353	150.2633
NOFF0074	-30.2862	150.2903
NOFF0075	-30.3235	150.2916
NOFF0083	-30.3635	150.3135
NOFF0095	-30.2954	150.2841
NOFF0097	-30.3715	150.3200
NOFF1000	-30.3089	150.2823
NOFF1001	-30.3589	150.2838
NOFF0010	-30.3877	150.2469
NOFF0034	-30.4134	150.2601
NOFF0002	-30.3721	150.2685
NOFF0003	-30.3415	150.2468
NOFF0004	-30.3404	150.2394
NOFF0006	-30.3553	150.2560
NOFF0009	-30.3514	150.2758

Site ID	Latitude	Longitude
NOFF0012	-30.3523	150.2295
NOFF0013	-30.3518	150.2370
NOFF0016	-30.3860	150.2752
NOFF0018	-30.3545	150.2580
NOFF0019	-30.3581	150.2773
NOFF0020	-30.3609	150.2804
NOFF0022	-30.4017	150.2945
NOFF0024	-30.3828	150.2696
NOFF0027	-30.3586	150.2665
NOFF0032	-30.3984	150.2815
NOFF0035	-30.4167	150.2678
NOFF0039	-30.3415	150.2436
NOFF0052	-30.3814	150.2868
NOFF0082	-30.4247	150.2869
NOFF0084	-30.3540	150.2675
NOFF0085	-30.4090	150.2533
NOFF0096	-30.3535	150.2246
NOFF0098	-30.3667	150.2295
NOFF0099	-30.3813	150.2534
NOFF1002	-30.3633	150.2252
NOFF1007	-30.3928	150.2742
BIMB3001	-30.7172	150.3461
BIMB3002	-30.7187	150.3504
BIMB3003	-30.7264	150.3608
BIMB3004	-30.7040	150.3409
BIMB3005	-30.7009	150.3530
BIMB3006	-30.7053	150.3597
BIMB3007	-30.7043	150.3611
BIMB3008	-30.7159	150.3555
BIMB3009	-30.7146	150.3623
BIMB3010	-30.7257	150.3619
BIMB3011	-30.7079	150.3441
BIMB3012	-30.7088	150.3515
BIMB3013	-30.7065	150.3576
SOFF0002	-30.7069	150.3544
SOFF0018	-30.7062	150.3483
SOFF0029	-30.7093	150.3606
SOFF0058	-30.7120	150.3612
SOFF0059	-30.7169	150.3510
SOFF0011	-30.7066	150.3257
SOFF0014	-30.7192	150.3218
SOFF0031	-30.7218	150.3262
SOFF0034	-30.7250	150.3490

Site ID	Latitude	Longitude
SOFF0036	-30.7246	150.3080
SOFF0040	-30.7072	150.3368
SOFF0043	-30.7092	150.3174
SOFF0048	-30.7320	150.3496
SOFF0052	-30.7069	150.3270
SOFF0054	-30.7028	150.3269
SOFF0055	-30.7285	150.3036
SOFF0063	-30.7111	150.3263
SOFF0066	-30.7076	150.3350
SOFF0067	-30.7152	150.3316
SOFF0068	-30.7175	150.3083
SOFF0069	-30.7062	150.3292
SOFF0070	-30.7353	150.3462
SOFF1009	-30.7279	150.3002
SOFF1010	-30.7303	150.3026
SOFF1011	-30.7240	150.3015
EWFF0024	-30.6115	150.0665
EWFF0048	-30.6030	150.0752
EWFF0071	-30.6018	150.0406
EWFF0082	-30.6097	150.0657
EWFF0073	-30.5897	150.0977
EWFF0081	-30.5780	150.0895
EWFF0093	-30.5823	150.1010
EWFF0100	-30.5596	150.1072
EWFF3002	-30.5735	150.1053
EWFF3003	-30.5680	150.1103
EWFF0000	-30.5895	150.0719
EWFF0027	-30.6096	150.0931
EWFF3000	-30.5958	150.0938
WRPC0006	-30.0088	151.2029
WRPC0003	-30.0061	151.2099
WRPC0012	-30.0059	151.2039
WRPC0001	-30.0236	151.2219
WRPC0009	-30.0023	151.2352
WRPC0010	-30.007	151.2315
WRPC0007	-30.0196	151.2173
WRPC0002	-30.0189	151.224
WRPC0011	-30.0166	151.2259
WRPC0005	-30.0021	151.2265
WRPC0000	-30.0116	151.2186
WRPC0008	-30.0111	151.2223
WRPC0004	-29.9958	151.229
WRFF0003	-30.0101	151.2085

Site ID	Latitude	Longitude
WRFF0019	-30.0235	151.2191
WRFF0009	-30.024	151.2254
WRFF0023	-30.0111	151.2024
WRFF0021	-30.021	151.226
WRFF0010	-30.0004	151.2307
WRFF0013	-30.0138	151.2254
WRFF0022	-30.0169	151.2226
WRFF0000	-30.0046	151.2351
WRFF0020	-29.9987	151.2367
WRFF0015	-29.9988	151.2329
WRFF0001	-30.0106	151.2287
WRFF0014	-30.0072	151.2108
EWFF1015	-30.544	150.1998
TRFF0009s	-30.4063	150.5014
TRFF0008n	-30.4032	150.5018
TRFF0005n	-30.4003	150.5004
TRFF0006N	-30.3944	150.5019
TRFF0001n	-30.4	150.4966
TRFF0053w	-30.4037	150.4883
TRFF00011N	-30.4126	150.5096
TRFF0051W	-30.4118	150.5
TRFF0014s	-30.4174	150.4972
TRFF0012s	-30.4131	150.4956
TRFF0002	-30.4026	150.4893
TRFF0007s	-30.4069	150.4945
TRFF0010N	-30.4128	150.5039
TRFF0056E	-30.4057	150.5059
TRFF0065S	-30.4227	150.4846
TRFF0023s	-30.4191	150.4839
TRFF0015n	-30.4164	150.4891
TRFF0052s	-30.4188	150.4912
TRFF0038	-30.4117	150.4843
TRFF0035	-30.4149	150.485
TRFF0055	-30.4159	150.4767
TRFF0030	-30.4054	150.4847
TRFF0028	-30.4003	150.4874
TRFF0034	-30.4089	150.4868
TRFF0036	-30.4147	150.4808
TRFF0037	-30.411	150.4775
TRFF0033	-30.4082	150.4726
TRFF0029	-30.4019	150.4803
TRFF0031	-30.4064	150.4789
TRFF0022	-30.4249	150.4913

Site ID	Latitude	Longitude
TRFF0061	-30.4306	150.4909
TRFF0021	-30.4262	150.4971
TRFF0020	-30.4302	150.4952
TRFF0024	-30.422	150.4792
TRFF1000	-30.4113	150.4621
TRFF0045	-30.4185	150.4634
TRFF0016	-30.4217	150.499
TRFF0017	-30.4221	150.4935
TRFF0018	-30.4214	150.4881
TRFF0013	-30.4117	150.4911
TRFF0000	-30.413	150.4717
TRFF0003	-30.418	150.4741
TRFF0032	-30.4063	150.4692
TRFF0025	-30.4264	150.4759
TRFF0027	-30.4232	150.4729
TRFF2000	-30.4052	150.4506
COFF4009	-30.3356	150.8301
COFF4011	-30.3174	150.8624
COFF4012	-30.3231	150.8584
COFF4008	-30.3358	150.8378
COFF4004	-30.3138	150.8613
COFF4001	-30.3442	150.8324
COFF4006	-30.349	150.8358
COFF4000	-30.3511	150.848
COFF4010	-30.3444	150.8436
COFF4014	-30.3407	150.8314
COFF4003	-30.3211	150.8411
COFF4002	-30.3345	150.8403
COFF3009	-30.3493	150.8476
COFF3005	-30.35	150.8414
COFF3004	-30.3445	150.8398
COFF3006	-30.3392	150.8409
COFF3013	-30.3477	150.8368
COFF3002	-30.3482	150.8309
COFF3014	-30.3386	150.8331
COFF3011	-30.3269	150.8385
COFF3012	-30.3237	150.8352
COFF0006	-30.3257	150.8478
COFF0020	-30.3247	150.8561
COFF0001	-30.3118	150.8486
COFF0000	-30.3184	150.8589
COFF0025	-30.3083	150.8499
COFF1000	-30.3204	150.8645

Site ID	Latitude	Longitude
COFF0021	-30.329	150.8509
COFF0002	-30.3112	150.8551
COFF0029	-30.3173	150.8536
COFF0010	-30.3305	150.8568
COFF0008	-30.3324	150.8469
COFF0019	-30.3175	150.8467
NEFF1000	-30.2793	150.8389
NEFF0001	-30.2613	150.8354
NEFF0002	-30.2626	150.8374
NEFF0014	-30.2794	150.8458
NEFF0013	-30.2765	150.8529
NEFF0012	-30.2689	150.848
NEFF0010	-30.2681	150.851
NEFF0005	-30.2671	150.8431
NEFF0003	-30.2652	150.8393
NEFF0000	-30.2605	150.8325
NEFF0006	-30.2647	150.8448
NEFF2008	-30.2882	150.821
NEFF0008	-30.2732	150.8439
NEFF0025	-30.2842	150.8271
NEFF0027	-30.2881	150.8347
NEFF2000	-30.275	150.8463
NEFF0004	-30.265	150.8422
NEFF2002a	-30.2667	150.8368
NEFF2002b	-30.2937	150.8469
NEFF0023	-30.2854	150.8401
NEFF2009	-30.2923	150.8433
NEFF0020	-30.307	150.8558
NEFF0018	-30.2987	150.864
NEFF0016	-30.2929	150.8627
NEFF2004	-30.2966	150.8647
NEFF0017	-30.2976	150.862
NEFF5000	-30.2992	150.8584
NEFF0019	-30.2947	150.861
NEFF2007	-30.2749	150.8383
TRFF0040	-30.4032	150.4556
TRFF0041	-30.404	150.4544
TRFF0043	-30.4078	150.452
TRFF0044	-30.4159	150.4507
TRFF0047	-30.4203	150.4556
TRFF0049	-30.4255	150.4528
TRFF0050	-30.42	150.4456
TRFF0057	-30.4222	150.4494

Site ID	Latitude	Longitude
TRFF0058	-30.4164	150.4479

Sources: AMBS Ecology and Heritage (2021a) *Maules Creek Coal Mine Offset Area Vegetation Mapping*. Prepared for Whitehaven Coal Limited.
AMBS Ecology and Heritage (2021b) *Maules Creek Coal Mine Additional Offset Areas Vegetation Mapping*. Prepared for Whitehaven Coal Limited.

APPENDIX I

COMPLETION CRITERIA FOR KEY BIOMETRICS OF VEGETATION CLASSES AND CORRESPONDING BVTS/PCTS MAPPED WITHIN THE OFFSET AREA

Table H-1
Completion Criteria for Key Biometrics of Vegetation Classes and Corresponding BVTs/PCTs Mapped Within the Offset Area

Vegetation Class (Keith 2004)	BVT/PCT Number	Community Common Name	TEC	Completion criteria			
				NPS	NOS	NMS	NGCG
Floodplain Transition Woodlands	NA185 (PCT 101)	Poplar Box - Yellow Box - Western Grey Box grassy woodland on cracking clay soils mainly in the Liverpool Plains, Brigalow Belt South Bioregion	Yes	12-16	6-25	0-5	20-30
New England Dry Sclerophyll Forests	NA351 (PCT 572)	Silvertop Stringybark - Bendemeer White Gum - Ribbon Gum open forest in the Kaputar area of the Nandewar Bioregion	No	26-33	25-40	6-25	18-20
	BR122 (PCT 736)	Broad-leaved Stringybark - Mountain Gum - Apple Box open forest of the New England Tableland Bioregion	No				
New England Grassy Woodlands	NA258 (PCT 510)	Blakely's Red Gum - Yellow Box grassy woodland of the New England Tableland Bioregion	Yes*	20-25	6-25	0-5	30-40
	NA358 (PCT 492)	Silvertop Stringybark - Yellow Box - Apple Box - Rough-barked Apple shrub grass open forest mainly on southern slopes of the Liverpool Range, Brigalow Belt South Bioregion	Yes*				
	NA332 (PCT 571)	Ribbon Gum - Rough-barked Apple - Yellow Box grassy woodland of the New England Tableland Bioregion and NSW North Coast Bioregion	Yes*				
North-west Slopes Dry Sclerophyll Woodlands	NA348 (PCT 413)	Silver-leaved Ironbark - White Cypress Pine - box dry shrub grass woodland of the Pilliga Scrub - Warialda region, Brigalow Belt South Bioregion	No	20-26	6-25	6-25	20-30
	NA407 (PCT 429)	White Cypress Pine - Poplar Box - Silver-leaved Ironbark viney shrub woodland of the Brigalow Belt South Bioregion	No				
	NA397 (PCT 435)	White Box - White Cypress Pine shrub grass hills woodland in the Brigalow Belt South Bioregion and Nandewar Bioregion	Yes*				

Vegetation Class (Keith 2004)	BVT/PCT Number	Community Common Name	TEC	Completion criteria			
				NPS	NOS	NMS	NGCG
North-west Slopes Dry Sclerophyll Woodlands (cont.)	NA393 (PCT 563)	White Box - Silvertop Stringybark +/- White Cypress Pine grass shrub open forest of the southern Nandewar Bioregion and New England Tableland Bioregion	No	24-30	25-40	6-25	20-30
	NA398 (PCT 588)	White Box - White Cypress Pine shrubby hills open forest mainly in the Nandewar Bioregion	No				
	NA206 (PCT1165)	Silvertop Stringybark - Orange Gum shrubby open forest of the central parts of the Nandewar Bioregion	No				
	NA222 (PCT 1306)	White Box - Red Stringybark shrubby woodlands on basalt slopes of the Nandewar Bioregion and Brigalow Belt South Bioregion	No				
Western Slopes Dry Sclerophyll Forests	NA373 (PCT 581)	Tumbledown Red Gum - Dwyers Red Gum - Wallaby Bush shrubby woodland of the Nandewar Bioregion	No				
	NA316 (PCT 592)	Narrow-leaved Ironbark - cypress pine - White Box shrubby open forest in the Brigalow Belt South Bioregion and Nandewar Bioregion	No				
Western Slopes Grassy Woodland	NA258/BR272 (PCT 510)	Blakely's Red Gum - Yellow Box grassy woodland of the New England Tableland Bioregion	Yes	18-23	6-25	0-5	30-40
	NA395 (PCT 589)	White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion	Yes				
	BR391 (PCT 590)	White Box grassy woodland on the Inverell basalts mainly in the Nandewar Bioregion	Yes				
	NA257 (PCT 599)	Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	Yes				

NPS – native plant species diversity
NOS – Native overstorey cover
NMS – Native midstorey cover
NGCG - Native groundcover grasses

APPENDIX J

ANNUAL PERFORMANCE CRITERIA FOR KEY BIOMETRICS OF VEGETATION CLASSES MAPPED WITHIN THE OFFSET AREA

Table I-1
Annual Performance Criteria Values for Management Zones of Floodplain Transition Woodlands (PCT 101)

Biometric	Threshold - BVT benchmark	Annual performance criteria (Year since offset established/revegetated)																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NPS	Lower-80% BVT	0.6	1.3	1.9	2.6	3.2	3.8	4.5	5.1	5.8	6.4	7.0	7.7	8.3	9.0	9.6	10.2	10.9	11.5	12.2	12.8
	Upper-100% BVT	0.8	1.6	2.4	3.2	4.0	4.8	5.6	6.4	7.2	8.0	8.8	9.6	10.4	11.2	12.0	12.8	13.6	14.4	15.2	16
NOS	Lower – Min. BVT	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	3.9	4.2	4.5	4.8	5.1	5.4	5.7	6.0
	Upper – Max. BVT	1.3	2.5	3.8	5.0	6.3	7.5	8.8	10.0	11.3	12.5	13.8	15.0	16.3	17.5	18.8	20.0	21.3	22.5	23.8	25
NMS	Lower – Min. BVT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upper – Max. BVT	0.3	0.5	0.8	1.0	1.3	1.5	1.8	2.0	2.3	2.5	2.8	3.0	3.3	3.5	3.8	4.0	4.3	4.5	4.8	5
NGCG	Lower – Min. BVT	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20
	Upper – Max. BVT	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0	16.5	18.0	19.5	21.0	22.5	24.0	25.5	27.0	28.5	30

Table I-2
Annual Performance Criteria Values for Management Zones of New England Dry Sclerophyll Forests (PCTs 572 and 736)

Biometric	Threshold - BVT benchmark	Annual performance criteria (Year since offset established/revegetated)																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NPS	Lower-80% BVT	1.3	2.6	4.0	5.3	6.6	7.9	9.2	10.6	11.9	13.2	14.5	15.8	17.2	18.5	19.8	21.1	22.4	23.8	25.1	26.4
	Upper-100% BVT	1.7	3.3	5.0	6.6	8.3	9.9	11.6	13.2	14.9	16.5	18.2	19.8	21.5	23.1	24.8	26.4	28.1	29.7	31.4	33
NOS	Lower – Min. BVT	1.3	2.5	3.8	5.0	6.3	7.5	8.8	10.0	11.3	12.5	13.8	15.0	16.3	17.5	18.8	20.0	21.3	22.5	23.8	25
	Upper – Max. BVT	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0	36.0	38.0	40
NMS	Lower – Min. BVT	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	3.9	4.2	4.5	4.8	5.1	5.4	5.7	6
	Upper – Max. BVT	1.3	2.5	3.8	5.0	6.3	7.5	8.8	10.0	11.3	12.5	13.8	15.0	16.3	17.5	18.8	20.0	21.3	22.5	23.8	25
NGCG	Lower – Min. BVT	0.9	1.8	2.7	3.6	4.5	5.4	6.3	7.2	8.1	9.0	9.9	10.8	11.7	12.6	13.5	14.4	15.3	16.2	17.1	18
	Upper – Max. BVT	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20

Table I-3
Annual Performance Criteria Values for Management Zones of New England Grassy Woodlands (PCTs 492, 510, 571)

Biometric	Threshold - BVT benchmark	Annual performance criteria (Year since offset established/revegetated)																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NPS	Lower-80% BVT	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20
	Upper-100% BVT	1.3	2.5	3.8	5.0	6.3	7.5	8.8	10.0	11.3	12.5	13.8	15.0	16.3	17.5	18.8	20.0	21.3	22.5	23.8	25
NOS	Lower – Min. BVT	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	3.9	4.2	4.5	4.8	5.1	5.4	5.7	6
	Upper – Max. BVT	1.3	2.5	3.8	5.0	6.3	7.5	8.8	10.0	11.3	12.5	13.8	15.0	16.3	17.5	18.8	20.0	21.3	22.5	23.8	25
NMS	Lower – Min. BVT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upper – Max. BVT	0.3	0.5	0.8	1.0	1.3	1.5	1.8	2.0	2.3	2.5	2.8	3.0	3.3	3.5	3.8	4.0	4.3	4.5	4.8	5
NGCG	Lower – Min. BVT	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0	16.5	18.0	19.5	21.0	22.5	24.0	25.5	27.0	28.5	30
	Upper – Max. BVT	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0	36.0	38.0	40

Table I-4
Annual Performance Criteria Values for Management Zones of North-west Slopes Dry Sclerophyll Woodlands (PCT 413, 429, 435, 563, 588, 1165, 1306)

Biometric	Threshold - BVT benchmark	Annual performance criteria (Year since offset established/revegetated)																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NPS	Lower-80% BVT	1.0	2.1	3.1	4.2	5.2	6.2	7.3	8.3	9.4	10.4	11.4	12.5	13.5	14.6	15.6	16.6	17.7	18.7	19.8	20.8
	Upper-100% BVT	1.3	2.6	3.9	5.2	6.5	7.8	9.1	10.4	11.7	13.0	14.3	15.6	16.9	18.2	19.5	20.8	22.1	23.4	24.7	26
NOS	Lower – Min. BVT	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	3.9	4.2	4.5	4.8	5.1	5.4	5.7	6
	Upper – Max. BVT	1.3	2.5	3.8	5.0	6.3	7.5	8.8	10.0	11.3	12.5	13.8	15.0	16.3	17.5	18.8	20.0	21.3	22.5	23.8	25
NMS	Lower – Min. BVT	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	3.9	4.2	4.5	4.8	5.1	5.4	5.7	6
	Upper – Max. BVT	1.3	2.5	3.8	5.0	6.3	7.5	8.8	10.0	11.3	12.5	13.8	15.0	16.3	17.5	18.8	20.0	21.3	22.5	23.8	25
NGCG	Lower – Min. BVT	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20
	Upper – Max. BVT	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0	16.5	18.0	19.5	21.0	22.5	24.0	25.5	27.0	28.5	30

Table I-5
Annual Performance Criteria Values for Management Zones of Western Slopes Dry Sclerophyll Forests (PCTs 581, 592)

Biometric	Threshold - BVT benchmark	Annual performance criteria (Year since offset established/revegetated)																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NPS	Lower-80% BVT	1.2	2.4	3.6	4.8	6.0	7.2	8.4	9.6	10.8	12.0	13.2	14.4	15.6	16.8	18.0	19.2	20.4	21.6	22.8	24
	Upper-100% BVT	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0	16.5	18.0	19.5	21.0	22.5	24.0	25.5	27.0	28.5	30
NOS	Lower – Min. BVT	1.3	2.5	3.8	5.0	6.3	7.5	8.8	10.0	11.3	12.5	13.8	15.0	16.3	17.5	18.8	20.0	21.3	22.5	23.8	25
	Upper – Max. BVT	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0	36.0	38.0	40
NMS	Lower – Min. BVT	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	3.9	4.2	4.5	4.8	5.1	5.4	5.7	6
	Upper – Max. BVT	1.3	2.5	3.8	5.0	6.3	7.5	8.8	10.0	11.3	12.5	13.8	15.0	16.3	17.5	18.8	20.0	21.3	22.5	23.8	25
NGCG	Lower – Min. BVT	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20
	Upper – Max. BVT	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0	16.5	18.0	19.5	21.0	22.5	24.0	25.5	27.0	28.5	30

Table I-6
Annual Performance Criteria Values for Management Zones of Western Slopes Grassy Woodland (PCTs 510, 589, 590, 599)

Biometric	Threshold - BVT benchmark	Annual performance criteria (Year since offset established/revegetated)																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NPS	Lower-80% BVT	0.9	1.8	2.8	3.7	4.6	5.5	6.4	7.4	8.3	9.2	10.1	11.0	12.0	12.9	13.8	14.7	15.6	16.6	17.5	18.4
	Upper-100% BVT	1.2	2.3	3.5	4.6	5.8	6.9	8.1	9.2	10.4	11.5	12.7	13.8	15.0	16.1	17.3	18.4	19.6	20.7	21.9	23
NOS	Lower – Min. BVT	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	3.9	4.2	4.5	4.8	5.1	5.4	5.7	6
	Upper – Max. BVT	1.3	2.5	3.8	5.0	6.3	7.5	8.8	10.0	11.3	12.5	13.8	15.0	16.3	17.5	18.8	20.0	21.3	22.5	23.8	25
NMS	Lower – Min. BVT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upper – Max. BVT	0.3	0.5	0.8	1.0	1.3	1.5	1.8	2.0	2.3	2.5	2.8	3.0	3.3	3.5	3.8	4.0	4.3	4.5	4.8	5
NGCG	Lower – Min. BVT	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0	16.5	18.0	19.5	21.0	22.5	24.0	25.5	27.0	28.5	30
	Upper – Max. BVT	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0	36.0	38.0	40

Table I-7
Annual Performance Criteria Values for Management Zones of Northern Tableland Dry Sclerophyll Forests (PCT 538)

Biometric	Threshold - BVT benchmark	Annual performance criteria (Year since offset established/revegetated)																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NPS	Lower-80% BVT	1.0	2.1	3.1	4.2	5.2	6.2	7.3	8.3	9.4	10.4	11.4	12.5	13.5	14.6	15.6	16.6	17.7	18.7	19.8	20.8
	Upper-100% BVT	1.3	2.6	3.9	5.2	6.5	7.8	9.1	10.4	11.7	13.0	14.3	15.6	16.9	18.2	19.5	20.8	22.1	23.4	24.7	26
NOS	Lower – Min. BVT	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	3.9	4.2	4.5	4.8	5.1	5.4	5.7	6
	Upper – Max. BVT	1.3	2.5	3.8	5.0	6.3	7.5	8.8	10.0	11.3	12.5	13.8	15.0	16.3	17.5	18.8	20.0	21.3	22.5	23.8	25
NMS	Lower – Min. BVT	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	3.9	4.2	4.5	4.8	5.1	5.4	5.7	6
	Upper – Max. BVT	1.3	2.5	3.8	5.0	6.3	7.5	8.8	10.0	11.3	12.5	13.8	15.0	16.3	17.5	18.8	20.0	21.3	22.5	23.8	25
NGCG	Lower – Min. BVT	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20
	Upper – Max. BVT	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0	16.5	18.0	19.5	21.0	22.5	24.0	25.5	27.0	28.5	30

APPENDIX K

OFFSET AREA RISK ASSESSMENT

Table J-1
Risk Assessment

Risk Factor (Hazard)	Impact (Risk)	Before Management			Action/Control/Risk Mitigation Measure	After Management		
		Likelihood	Consequence	Risk		Likelihood	Consequence	Risk Level
Substrate	Ground disturbance	C	4	L	• Ground preparation and soil disturbance for revegetation will only be undertaken where required in revegetation (Section 5.4); • Vehicle access will be restricted to designated tracks, except in the case of biodiversity management actions and inspections (Section 5.13); and • Establishment and maintenance of fire breaks around the perimeter of and within the offset areas only where practicable (Section 5.14);	D	4	L
Clearing	Incidental clearing and fragmentation	C	4	L	• Low level management interventions in existing woodland and forest to minimise clearing (Sections 5.2 and 5.4); • Active revegetation will be undertaken to increase the area and connectivity of native vegetation (Section 5.4); and • Ecological thinning will be limited to areas of dense regrowth of *Callitris* spp. (Section 5.5).	D	4	L
Livestock	Grazing by cattle – ground disturbance, remove or destroy seeds, seedlings or plantings	C	2	H	• Agriculture/grazing has been excluded from the offset area (Section 5.12); • Inadvertent grazing from neighbouring stock will be removed as soon as practicable (Section 5.12).	D	3	L

Risk Factor (Hazard)	Impact (Risk)	Before Management			Action/Control/Risk Mitigation Measure	After Management		
		Likelihood	Consequence	Risk		Likelihood	Consequence	Risk Level
Introduced flora species (weeds)	Weed invasion – perennial and annual grasses, perennial herbs, annual and biennial herbs and woody weeds	C	2	H	• Whitehaven will instruct contractor vehicles and equipment entering the offset area to be clean and free from weeds and/or seeds reduce introduction and spread of weeds (Section 5.8); • Seasonal weed assessment programs will be used to identify weeds and implement timely and prioritised weed control; • Weed control will target priority weed species; • The cover and extent of exotic species will be monitored (Sections 5.16 and 5.17); and • An increase in perennial exotic plant cover will trigger management actions and a review of factors leading to increasing/high weed cover (Section 5.18).	D	3	L
Impacts from Animals (exotics and grazing native animals)	Grazing by feral pigs and goats	B	3	H	• Pest animal abundance is monitored across the offset area (Section 5.9); • Control measures are informed by monitoring results/presence of pest animals (Section 5.9).	B	5	L
	Rabbits and hares	B	3	H	• Pest animal abundance is monitored across the offset area (Section 5.9); • Control measures are informed by monitoring results/presence of pest animals (Section 5.9).	B	5	L
	Grazing native fauna species (e.g. kangaroos)	B	4	M	• Pest animal abundance is monitored across the offset area (Section 5.9); • Control measures are informed by monitoring results/presence of pest animals (Section 5.9).	B	5	L
	Feral foxes	B	3	H	• Pest animal abundance is monitored across the offset area (Section 5.9); • Control measures are informed by monitoring results/presence of pest animals (Section 5.9).	B	5	L
	Deer	C	4	L	• Pest animal abundance is monitored across the offset area (Section 5.9); • Control measures are informed by monitoring results/presence of pest animals (Section 5.9).	B	5	L
	Feral Cat	B	4	M	• Pest animal abundance is monitored across the offset area (Section 5.9);	B	5	L

Risk Factor (Hazard)	Impact (Risk)	Before Management			Action/Control/Risk Mitigation Measure	After Management		
		Likelihood	Consequence	Risk		Likelihood	Consequence	Risk Level
					• Control measures are informed by monitoring results/presence of pest animals (Section 5.9).			
Fire	Uncontrolled bushfire	B	2	H	• Establishing and maintaining fire breaks around the perimeter of and within the offset areas (Section 5.14); • Fuel loads, bushfire risk and appropriate hazard reduction methods will be assessed annually; • Whitehaven will undertake an annual ecological burn program according to the annual assessment; • Controlled burns may be utilised as a contingency measure within the Trigger Action Response Plan according to annual flora performance criteria (Sections 5.16, 5.17 and 5.18).	D	3	L
Floristics	Poor understorey diversity	C	3	M	• Annual revegetation assessments will determine key species to be planted in order to create a structurally diverse habitat (Section 5.4); • Ecological monitoring (Section 5.17) will assess the diversity of understory species in defined control/treatment plots to determine required contingency measures (Section 5.18); • Supplementary planting of appropriate tubestock or seeding will be undertaken if the contingency measure is triggered (Section 5.18).	D	3	L
Native plant growth	Poor native plant growth/germination	C	3	M	• Annual revegetation assessments will determine key species to be planted in areas requiring active revegetation (Section 5.4); • Vegetation and habitat monitoring will be undertaken to track changes in vegetation and habitat in the offset areas in response to management measures (Section 5.17); • Supplementary planting of appropriate tubestock or seeding will be undertaken if the contingency measure is triggered (Section 5.18).	C	4	L
	Dense overstorey and midstorey revegetation	C	3	M	• Ecological monitoring (Section 5.17) will assess the density of overstorey and midstory vegetation in defined control/treatment plots to determine required contingency measures (Section 5.18);	C	4	L

Risk Factor (Hazard)	Impact (Risk)	Before Management			Action/Control/Risk Mitigation Measure	After Management		
		Likelihood	Consequence	Risk		Likelihood	Consequence	Risk Level
					• Ecological thinning will be conducted in areas of dense regrowth of *Callitris* spp. where it has adverse impacts on habitat condition or restoration (Section 5.5).			
	Dense grass cover	C	3	M	• Ecological monitoring (Section 5.17) will assess the density of grasses in defined control/treatment plots to determine required contingency measures (Section 5.18).	C	4	L
Fauna habitat	Lack of bush rocks	C	4	L	• Habitat needs assessment will be undertaken to determine the requirements for habitat augmentation (Section 5.6); • Habitat augmentation will use available salvaged resources such as rocky debris.	C	4	L
	Lack of fallen timber/hollow logs	C	4	L	• Habitat needs assessment will be undertaken to determine the requirements for habitat augmentation (Section 5.6); • Habitat augmentation will use available salvaged resources such as coarse woody debris and artificial hollows.	C	4	L
	Lack of structural diversity (including lack of tree hollows)	C	4	L	• Habitat needs assessment will be undertaken to determine the requirements for habitat augmentation (Section 5.6); • Nest box installation (where required) will use high quality, durable materials suited to hollow-dependent threatened species.	C	4	L
	Lack of suitable vegetation for foraging and/or roosting	C	4	L	• Habitat needs assessment will be undertaken to determine the requirements for habitat augmentation (Section 5.6); • Nest box installation (where required) will use high quality, durable materials suited to hollow-dependent threatened species.	C	4	L

Table J-2
Likelihood and Consequence

Qualitative measure of likelihood (how likely is it that this event/issue will occur after control strategies have been put in place)	
Highly likely	Is expected to occur in most circumstances
Likely	Will probably occur during the life of the project
Possible	Might occur during the life of the project
Unlikely	Could occur but considered unlikely or doubtful
Rare	May occur in exceptional circumstances

Qualitative measure of consequences (what will be the consequence/result if this issue does occur rating)	
Minor	Minor incident of environmental damage that can be reversed
Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts
High	Substantial instances of environmental damage that could be reversed with intensive efforts
Major	Major loss of environmental amenity and real danger of continuing
Critical	Severe widespread loss of environmental amenity and irrecoverable environmental damage

Source: Department of the Environment (2014)

Table J-3
Risk Rating

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

Source: Department of the Environment (2014)