

BIODIVERSITY MANAGEMENT PLAN

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1 INTRODUCTION

1.1 Background

Maxwell Ventures (Management) Pty Ltd (Maxwell), a wholly owned subsidiary of Malabar Resources Limited (Malabar) owns and operates the Maxwell Underground (UG) Project (the site). The site is located in the Upper Hunter Valley of New South Wales (NSW), east-southeast of Denman and south-southwest of Muswellbrook. The site is approved to extract a maximum of 8 million tonnes of run-of-mine coal per year over a period of 26 years. The site boundary is shown in **Figure 1**.

The site consists of the following areas:

- Underground area comprising the proposed area of underground mining operations and the mine entry area to support underground mining and coal handling activities and provide for personnel and materials access;
- Maxwell Infrastructure (formerly Drayton mine) comprising previous open cut mining areas, existing coal handling and preparation plant, train load-out facilities and rail loop, Antiene rail spur and other infrastructure and services; and
- Transport and services corridor between the underground area and Maxwell Infrastructure comprising the proposed site access road, covered overland conveyor, power supply and other ancillary infrastructure and services.

The area within and surrounding the site, which has previously been known as Mt Arthur South, Saddlers Creek and Drayton South, has long been identified as having a significant in-situ coal resource. Prospecting for coal commenced in the late 1940s, with exploration intensifying during the 1960s and 1970s. Open cut coal extraction and mining activities commenced at Maxwell Infrastructure in 1983 and ceased in October 2016. The previous open cut mining area is currently in the rehabilitation phase of the mine operations.

The development consent for State Significant Development 9526 (SSD 9526) was granted on 22 December 2020 under clause 8A of the *State Environmental Planning Policy (State and Regional Development) 2011* and section 4.5(a) of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The site also incorporates the development formerly authorised under the Maxwell Infrastructure Project Approval (PA) 06_0202. Development Consent DA 106-04-00 for the existing rail loop and Antiene Rail Spur was granted on 2 November 2000 under section 76(A)9 and 80 of the EP&A Act and is still current.

1.2 Purpose and Scope

The purpose of this Biodiversity Management Plan (BMP) is to detail statutory requirements and to outline the short, medium and long-term management measures for vegetation and fauna habitat within:

- the Drayton Wildlife Refuge, Northern Offset Area and Southern Offset Area (jointly referred to as the Maxwell Infrastructure Biodiversity Offset Areas) required under Schedule 2, Conditions B45 and B46 of Development Consent SSD 9526;
- the approved disturbance areas in accordance with Schedule 2, Condition A12 of Development Consent SSD 9526; and
- remnant vegetation and fauna habitat in areas not likely to be impacted by the project.

The Maxwell Infrastructure Biodiversity Offset Areas, approved disturbance areas and remnant vegetation and fauna habitat in areas not likely to be impacted by the project, are collectively referred to as the “biodiversity management areas” in this BMP. This BMP is one of a series of Environmental Management Plans that together form the Environmental Management System for the site.

In accordance with Schedule 2, Condition B51 of Development Consent SSD 9526, management plans prepared for the site will be consistent with EPL1323.

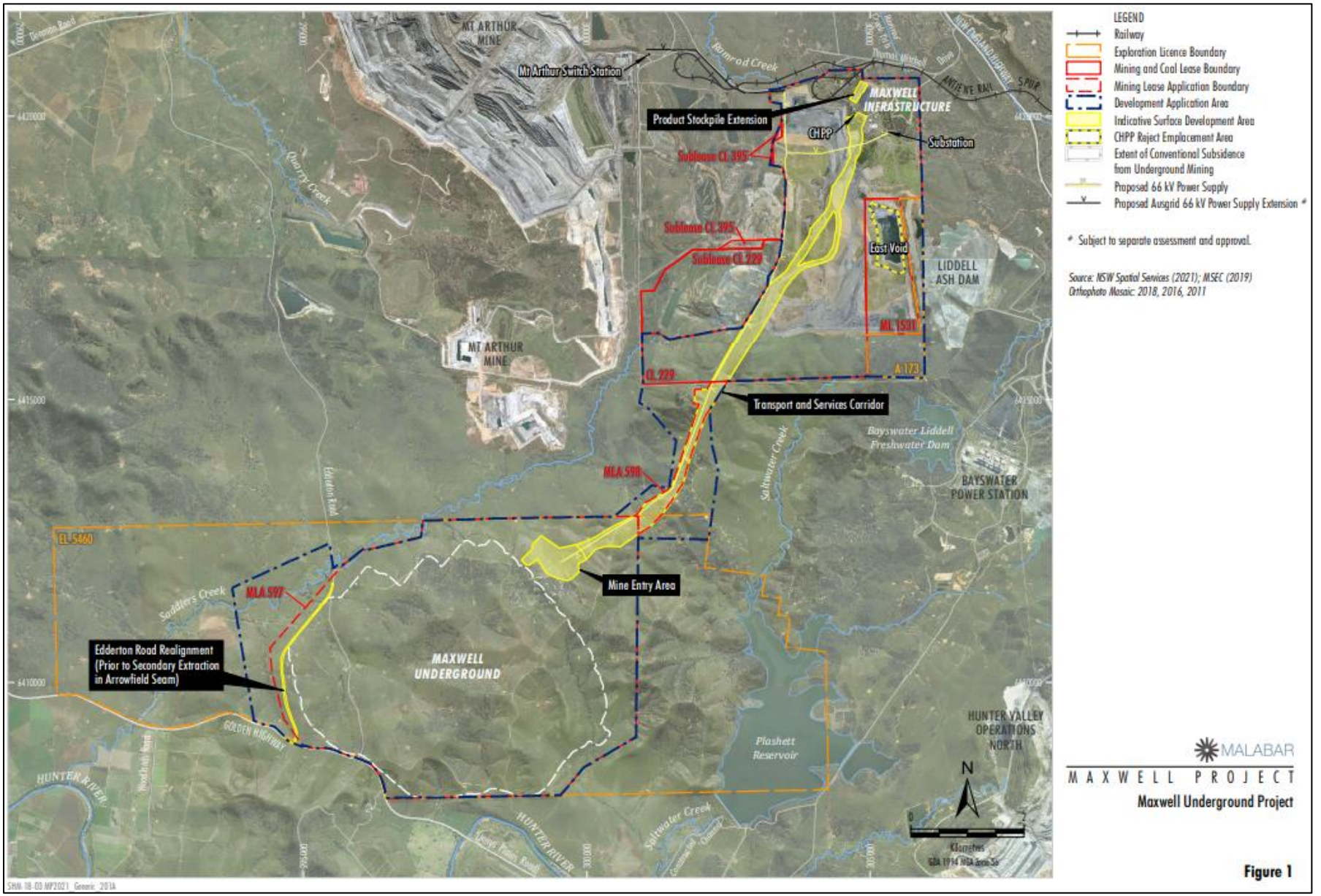


Figure 1. Maxwell Underground Project

The Maxwell Infrastructure Biodiversity Offsets Areas comprise the Drayton Wildlife Refuge, Northern Offset Area and Southern Offset Area, and their locations are shown on **Figure 2**. The Northern Offset Area and Southern Offset Area were established as offsets for the former Drayton Mine. The Wildlife Refuge was established on land owned by the former Drayton Mine in 1987. Baseline data for the Drayton Wildlife Refuge, Northern Offset Area and Southern Offset Area are discussed in **Sections 2.4.1, 2.4.2** and **2.4.3** respectively. Areas of threatened flora species and threatened fauna species have been identified on the site and are discussed further in **Section 2.4.4** and **Section 2.4.5** respectively.

The *Offset Strategy* (dated June 2016) (Drayton Offset Strategy) was developed in accordance with the relevant conditions of PA 06_0202 which required offsets to be provided. The Drayton Offset Strategy is a strategic document that explains the rationale for establishment of the Northern Offset Area and Southern Offset Area (their size and location), and their long-term management. A Conservation and Biodiversity Bond, based on the cost of implementing the Offset Strategy, was calculated and lodged in accordance with PA 06_0202. In accordance with Schedule 2, Condition B51(f) of Development Consent SSD 9526, this plan fulfils the commitments outlined in the Drayton Offset Strategy, and supersedes the Drayton Offset Strategy.

An approved *Rehabilitation and Offset Management Plan* was prepared in compliance with PA 06_0202 and sets out provisions for the conservation management of Maxwell Infrastructure offset areas. This BMP supersedes the approved *Rehabilitation and Offset Management Plan*. This BMP also supersedes the *Flora and Fauna Management Plan* required by PA 06_0202.

As discussed in Section 2.5, the biodiversity offset requirements for the Maxwell Underground and Edderton Road Realignment (Conditions B47 to 49 of Development Consent SSD 9526) will be addressed separately in accordance with the NSW Biodiversity Offset Scheme under the *Biodiversity Conservation Act 2016* (BC Act). Accordingly, the management of these offset areas does not form part of the scope of this BMP.

In accordance with Schedule 2, Condition B51 of Development Consent SSD 9526, management of areas that are, or will be, subject to subsidence is not included in this BMP. Such areas will be managed in accordance with the Extraction Plan Biodiversity Management Plan required by Schedule 2, Condition C8(g)(iv) of Development Consent SSD 9526. Management of biodiversity in rehabilitation domains is not included in this BMP. Management of rehabilitation domains is detailed in the Rehabilitation Management Plan (i.e. Mining Operations Plan) required by Schedule 2, Condition B82 of Development Consent SSD 9526.

Maxwell will not commence construction until this BMP is approved by the Planning Secretary. Maxwell will notify the Department of Planning, Industry and Environment (DPIE) in writing of the date of commencement of construction at least two weeks before the commencement date in accordance with Condition A13(b), Schedule 2 of Development Consent SSD 9526. Maxwell will implement this BMP, following approval by the Planning Secretary.

1.3 Objectives

The objectives of this BMP are to:

- detail all relevant statutory requirements;
- provide relevant baseline data;
- describe the short, medium and long-term measures to be implemented to manage remnant vegetation and fauna habitat;
- describe how biodiversity management would be integrated with other environmental management plans;
- describe a program to monitor and report on the effectiveness of the implemented measures;
- detail performance measures for evaluating Maxwell biodiversity offset areas and provide triggers for remedial action where these performance criteria are not met;
- detail the procedure for reporting biodiversity related exceedances and incidents to relevant stakeholders; and
- manage complaints related to biodiversity in a timely and effective manner.

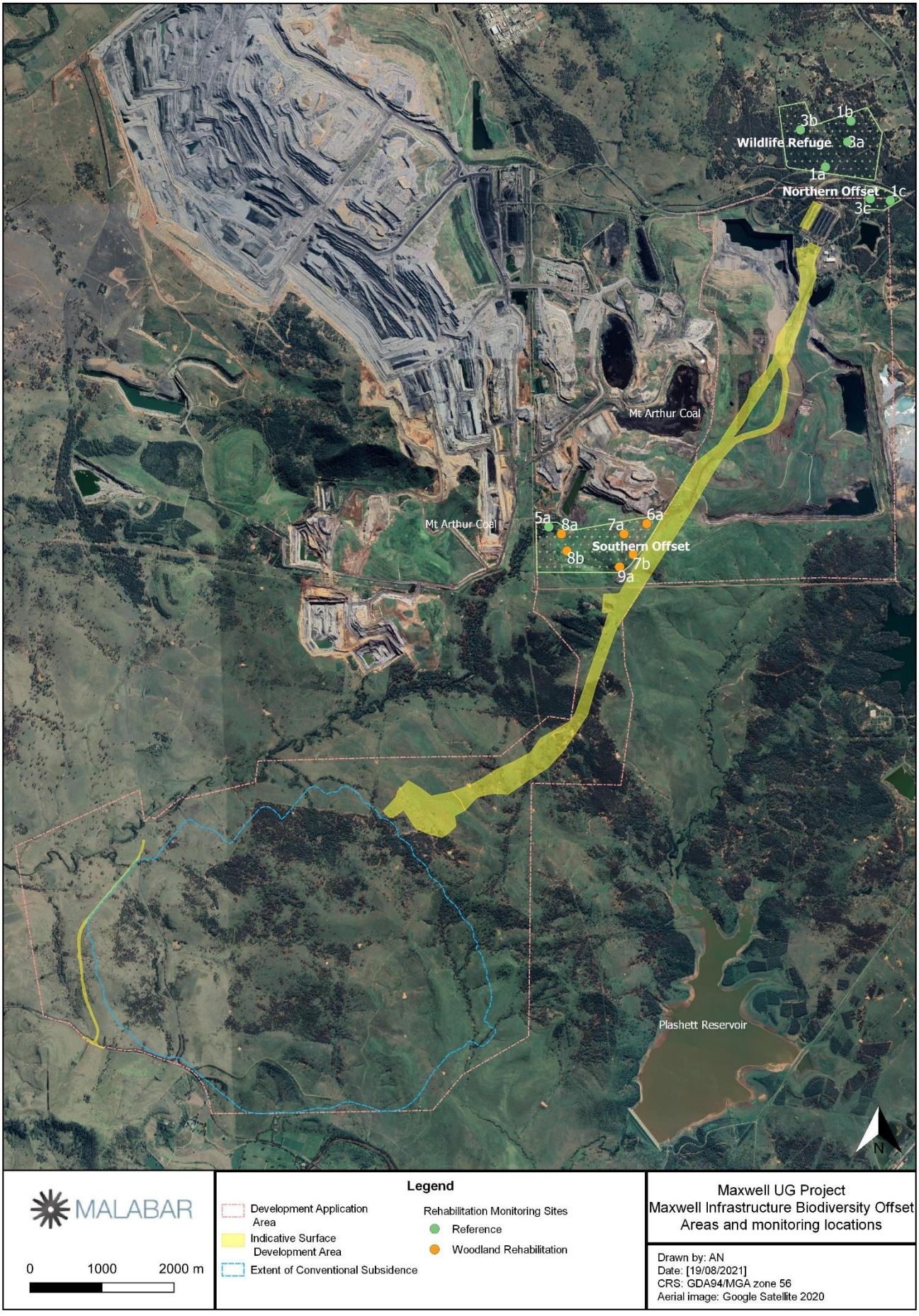


Figure 2. Maxwell Infrastructure biodiversity offset areas and monitoring sites

2 PLANNING

2.1 Regulatory Requirements

This BMP describes the management of the biodiversity management areas (defined in **Section 1.2**) to meet relevant statutory requirements within Development Consent SSD 9526. The various conditions that relate to biodiversity management and where they are addressed in this document are detailed in **Appendix 1**.

The Maxwell Underground Project was approved under the *Environment Protection and Biodiversity Conservation* (EPBC) *Act 1999* on 10 March 2021 (EPBC 2018/8287). Condition 11 of the EPBC Approval requires Malabar to demonstrate compliance with Conditions B47, B48, B50, B51, B52, B53, B76, B77, B78, B79, B80, B81 and B82 of Part B and C1, C2, C3, C3 and C8 of Part C of Development Consent SSD 9526. This BMP addresses Conditions B50, B51, B52, B53 of Development Consent SSD 9526. The following conditions are addressed separately to this BMP (i.e. do not form part of the scope of the BMP as noted in **Section 1.2**):

- Schedule 2, Conditions B47 to B48 of Development Consent SSD 9526 relate to Maxwell Underground biodiversity offset requirements and will be addressed separately under the NSW Biodiversity Offset Scheme.
- Schedule 2, Conditions B76 to B82 of Development Consent SSD 9526 relate to rehabilitation requirements and are addressed as part of the Rehabilitation Management Plan (i.e. Mining Operations Plan).
- Schedule 2, Conditions C1 to C3 and C8 of Development Consent SSD 9526 relate to management of subsidence impacts from the Maxwell Underground and will be addressed as part of the Extraction Plan, which will be developed prior to secondary extraction.

A conservation and biodiversity bond has been provided to DPIE for the continued management of the Drayton Wildlife Refuge (declared in 1987), the Northern Offset Area and the Southern Offset Area (established following approval of Modification 1 of PA 06_0202 in 2009). No further bond or covenants for these offset areas are required under Development Consent SSD 9526.

Both Project Approval 06_0202 and Development Consent SSD 9526 provide for the management and protection of 117 ha of native vegetation in the Drayton Wildlife Refuge, revegetation of 88 ha of the Southern Offset Area with native vegetation and protection and management of existing 12 ha of native vegetation in the Northern Offset Area. At the end of the development (i.e. when mining operations cease), Maxwell will consider any additional covenants required to secure the offsets in the long term.

2.2 Maxwell Project EIS and Supporting Document Commitments

A Biodiversity Development Assessment Report (BDAR) containing a terrestrial ecology assessment was undertaken for the Maxwell Project Environmental Impact Statement (Project EIS) (published in August 2019) and included an assessment of the potential impacts on terrestrial ecology, measures to mitigate impacts, and adaptive management.

Commitments in the Project EIS and supporting documents that relate to the biodiversity management areas, and where they are addressed in this document, are detailed in **Appendix 2**.

2.3 Preparation and Consultation

Schedule 2, Condition B51(a) of Development Consent SSD 9526, requires that this plan be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary. Maxwell has engaged Dr Colin Driscoll (Principal consultant at Hunter Eco) to assist with the preparation of this plan. A copy of the endorsement by the Planning Secretary is included in **Appendix 3**.

In accordance with Schedule 2, Condition B51(b) of SSD 9526, this plan has been prepared in consultation with the Biodiversity and Conservation Division (BCD) within DPIE and Muswellbrook Shire

Council (MSC). The Biodiversity Conservation Trust (BCT) also requested a review of the BMP. A copy was provided to BCT for their feedback Outcomes of the consultation with the BCD,MSC and BCT are presented in **Appendix 4**.

2.4 Baseline Data

2.4.1 Drayton Wildlife Refuge

An application was lodged in 1982 for the establishment of a Wildlife Refuge under section 68 of the *National Parks and Wildlife Act 1974* (NPW Act). A Plan of Management for the Wildlife Refuge was prepared with the National Parks and Wildlife Services.

The entire property owned by Drayton in 1987 was declared the Drayton Wildlife Refuge in March 1987 under the NPW Act (the 1987 Drayton Wildlife Refuge). The 1987 Drayton Wildlife Refuge encompassed much of the area of PA 06_0202 and the area sub-leased to Mt Arthur Coal (MAC). The declaration divided the 1987 Drayton Wildlife Refuge into the “Mining Area”, “Grazing Area” and “Natural Area” according to the major land use objectives.

Only part of the “Natural Area” now comprises the current Drayton Wildlife Refuge that was included in the Drayton Offset Strategy and is now part of the Maxwell Infrastructure Biodiversity Offset Areas. The Drayton Wildlife Refuge is located north of the infrastructure area, outside the current Malabar coal lease and mining lease boundaries (refer to **Figure 2**), on land owned by Maxwell. The Drayton Wildlife Refuge comprises approximately 114 hectares (ha) of native woodland which is fully fenced.

2.4.2 Northern Offset Area

The Northern Offset Area was established in 2009 following approval of Modification 1 of PA 06_0202. The Northern Offset was located in the “Natural Area” of the 1987 Drayton Wildlife Refuge. The Northern Offset Area is located south-east of the Drayton Wildlife Refuge in the north-eastern corner of Coal Lease (CL) 229, with part of the area outside CL 229 (refer to **Figure 2**). This offset is on land owned by Maxwell and is approximately 12 ha in area. The Northern Offset Area includes approximately 6.3 ha of Hunter Lowland Redgum Forest.

2.4.3 Southern Offset Area

The Southern Offset Area was established following approval of Modification 1 of PA 06_0202 in 2009. The Southern Offset Area is located in the Saddlers Creek catchment, south-west of the former Drayton mining areas, within CL 229 and on land owned by Malabar (refer to **Figure 2**). The Southern Offset Area is an 88 ha parcel of land that has been mined and revegetated to contain approximately 84 ha of native forest/woodland and 4 ha of rehabilitated woodland/pasture. The landform comprises north and south facing hillsides and a gully that drains towards part of the upper reaches of Saddlers Creek. The value of this land as an offset area can be attributed to the inclusion of the upper reaches of Saddlers Creek and its proximity to the dedicated Mt Arthur Coal conservation area along Saddlers Creek.

2.4.4 Threatened Flora Species

Eleven vegetation communities were mapped across the site during surveys undertaken for the Project EIS. Several of these communities were present in both remnant vegetation form and derived native grassland form. One threatened flora species, Pine Donkey Orchid (*Diuris tricolor*), listed under the BC Act had been previously recorded on site however was not found within the approved disturbance areas during the ecological surveys for the Project EIS. Two other flora species, representatives of Endangered Populations under the BC Act were recorded, these included *Cymbidium canaliculatum* and *Acacia pendula* (refer to **Figure 3**).

2.4.5 Threatened Fauna Species

The following four threatened fauna species were present in habitat located either within or adjoining the BDAR footprint during the ecological surveys for the Project EIS:

- Pink-tailed Legless Lizard (*Aprasia parapulchella*) (listed as vulnerable under the BC Act and Environment Protection and Biodiversity Conservation Act, 1999 (EPBC Act)) (refer to **Figure 4** for locations);
- Striped Legless Lizard (Delmar impar) (listed as vulnerable under the BC Act and EPBC Act) (refer to **Figure 4** for locations);
- Squirrel Glider (*Petaurus norfolcensis*) (listed as vulnerable under the BC Act) (refer to **Figure 5** for locations); and
- Southern Myotis (*Myotis macropus*) (listed as vulnerable under the BC Act) (refer to **Figure 6**
- for locations).

2.5 Biodiversity Offset Credits

Schedule 2, Condition B47 of Development Consent SSD 9526 requires that prior to commencing construction, or other timeframe agreed by the Planning Secretary, Maxwell will retire the biodiversity credits specified in **Table 1**. The retirement of credits will be carried out in consultation with BCD and in accordance with the Biodiversity Offsets Scheme of the BC Act, to the satisfaction of the BCT.

Schedule 2, Condition B48 of Development Consent SSD 9526 requires that prior to any works associated with the realignment of Edderton Road, or other timeframe agreed by the Planning Secretary, Maxwell will retire the biodiversity credits specified in **Table 2**. The retirement of credits will be carried out in consultation with BCD and in accordance with the Biodiversity Offsets Scheme of the BC Act, to the satisfaction of the BCT.

The credits in **Table 1** and **Table 2** are separate to the existing Maxwell Infrastructure Offset Areas (i.e. Northern Offset Area, Southern Offset Area and Drayton Wildlife Refuge) that are discussed in this plan and were established under Wildlife Refuge Proclamation and Project Approval 06_0202.

Maxwell has prepared a draft Biodiversity Stewardship Application that, once approved, will enable Maxwell to retire the biodiversity credits specified in **Table 1** and **Table 2**. Maxwell held a meeting with the BCT on 27 July 2021 to discuss the application. At the meeting, BCT advised that initial review of the draft application would take two weeks and the full assessment of the application would take approximately six months**.** On 13 August 2021, Maxwell requested an extension to the timeframe for retiring the biodiversity credits to 30 June 2022 to align with the timing proposed by BCT. This extension was approved by the Planning Secretary on 2 September 2021 and a copy of the approval letter is provided in **Appendix 5**.

On 22 June 2021, in accordance with Condition B49 of Development Consent SSD 9526, Maxwell requested in a letter addressed to the Planning Secretary that the biodiversity credit requirements for *Diuris tricolor*, *Ozothamnus tesselatus*, *Prasophyllum petilum*, *Pterostylis chaetophora* and *Thesium australe* be reduced to zero following the preparation of an expert report and associated survey reports outlining the findings by suitably qualified and experienced persons from Eastcoast Flora Survey (Dr Stephen Bell) and Hunter Eco (Dr Colin Driscoll). These reports were prepared in accordance with the NSW Biodiversity Assessment Method (BAM) also provided to BCD and MSC for consultation in accordance with Condition B49(b).

On the 20 September 2021, DPIE advised that they had reviewed the expert report and associated survey reports and the Planning Secretary approved the following changes to the biodiversity credit requirements for the Maxwell UG Project:

- The biodiversity credit requirements in Conditions B47 and B48 of Schedule 2 for *Pterostylis chaetophora*, *Ozothamnus tesselatus* and *Thesium australe* can be reduced to zero.
- The 0.3 hectares of habitat considered suitable for *Diuris tricolor* and *Prasophyllum petilum* within the Stage One development footprint has not been surveyed in full compliance with *Surveying threatened plants and their habitats: NSW survey guide for the Biodiversity Assessment Method* (BCD, 2020). Therefore the biodiversity credit requirements (for Stage One) required for *Diuris tricolor* are changed from 1,474 credits to 5 credits, and for *Prasophyllum petilum* are changed from 1,114 credits to 6 credits.

- The biodiversity credit requirements (for Stage Two) required for *Diuris tricolor* and *Prasophyllum petilum* can be changed to zero.

A copy of the approval letter is provided in **Appendix 5.** The above changes have been incorporated in **Table 1** and **Table 2** below.

Table 1. Biodiversity credit requirements for Stage One

Credit Type	Credits Required
Ecosystem Credits	
PCT1607 Blakely's Red Gum – Narrow-leaved Ironbark – Rough-barked Apple Shrubby Woodland of the Upper Hunter (Woodland)	9
PCT1607 Blakely's Red Gum – Narrow-leaved Ironbark – Rough-barked Apple Shrubby Woodland of the Upper Hunter (Derived Native Grassland)	59
PCT1606 White Box- Narrow-leaved Ironbark – Blakely's Red Gum Shrubby Open Forest of the Central and Upper Hunter (Woodland)[a,c]	216
PCT1606 White Box- Narrow-leaved Ironbark – Blakely's Red Gum Shrubby Open Forest of the Central and Upper Hunter (Derived Native Grassland)[a,c]	971
PCT1655 Grey Box – Slaty Box Shrub – Grass Woodland on Sandstone Slopes of the Upper Hunter Valley and Sydney Basin (Woodland)[b,c]	21
PCT1692 Bull Oak Grassy Woodland of the Central Hunter Valley (Woodland)[c]	45
PCT201 Fuzzy Box Woodland on Alluvial Brown Loam Soils mainly in the NSW South Western Slopes Bioregion (Woodland)[c]	15
PCT201 Fuzzy Box Woodland on Alluvial Brown Loam Soils mainly in the NSW South Western Slopes Bioregion (Derived Native Grassland)	14
PCT1691 Narrow-leaved Ironbark – Grey Box Grassy Woodland of the Central and Upper Hunter (Woodland)[b,c]	184
PCT1691 Narrow-leaved Ironbark – Grey Box Grassy Woodland of the Central and Upper Hunter (Woodland)	6
PCT1604 Narrow-leaved Ironbark – Grey Box – Spotted Gum Shrub – Grass Woodland of the Central and Upper Hunter[c]	44
PCT1604 Woodland Rehabilitation	214
Species Credits	
Pine Donkey Orchid *(Diuris tricolor)*[d]	5
Tarengo Leek Orchid *(Prasophyllum petilum)*[c,d]	6
Rusty Greenhood *(Pterostylis chaetophora)*[d]	0
Tesselate Everlasting *(Ozothamnus tesselatus)*[c,d]	0
Austral Toadflax *(Thesium australe)* [c,d]	0
Pink-tailed Legless Lizard[c]	382
Striped Legless Lizard[c]	1,126
Squirrel Glider	524
Southern Myotis	9

Notes:
[a] Commensurate with White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland under the EPBC Act.

[b] Commensurate with Central Hunter Valley Eucalypt Forest and Woodland under the EPBC Act.
[c] Under clause 6.6A of the Biodiversity Conservation Regulation 2017, variation rules do not apply to the identified species or community and the required credits must be retired on a like-for-like basis.
[d] Total credit requirements have been calculated based on assumed presence of this species and may be reduced under condition B49.

Table 2. Biodiversity credit requirements for Stage Two

Credit Type	Credits Required
Ecosystem Credits	
PCT1606 White Box- Narrow-leaved Ironbark – Blakely's Red Gum Shrubby Open Forest of the Central and Upper Hunter (Woodland)[a,c]	2
PCT1606 White Box- Narrow-leaved Ironbark – Blakely's Red Gum Shrubby Open Forest of the Central and Upper Hunter (Derived Native Grassland)[a,c]	45
PCT1655 Grey Box – Slaty Box Shrub – Grass Woodland on Sandstone Slopes of the Upper Hunter Valley and Sydney Basin (Woodland)[b,c]	2
PCT1655 Grey Box – Slaty Box Shrub – Grass Woodland on Sandstone Slopes of the Upper Hunter Valley and Sydney Basin (Derived Native Grassland)	24
PCT1731 Swamp Oak – Weeping Grass Grassy Riparian Forest of the Hunter Valley	4
PCT201 Fuzzy Box Woodland on Alluvial Brown Loam Soils mainly in the NSW South Western Slopes Bioregion (Derived Native Grassland)	26
PCT1691 Narrow-leaved Ironbark – Grey Box Grassy Woodland of the Central and Upper Hunter (Woodland)[b,c]	51
Species Credits	
Pine Donkey Orchid (*Diuris tricolor*)[d]	0
Tarengo Leek Orchid (*Prasophyllum petilum*)[c,d]	0
Rusty Greenhood (*Pterostylis chaetophora*)[d]	0
Tesselate Everlasting (*Ozothamnus tesselatus*)[c,d]	0
Pink-tailed Legless Lizard[c]	41
Striped Legless Lizard[c]	99
Squirrel Glider	33
Southern Myotis	36

Notes:
[a] Commensurate with White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC under the EPBC Act.
[b] Commensurate with Central Hunter Valley Eucalypt Forest and Woodland CEEC under the EPBC Act.
[c] Under clause 6.6A of the Biodiversity Conservation Regulation 2017, variation rules do not apply to the identified species or community and the required credits must be retired on a like-for-like basis.
[d] Total credit requirements have been calculated based on assumed presence of this species and may be reduced under condition B49.

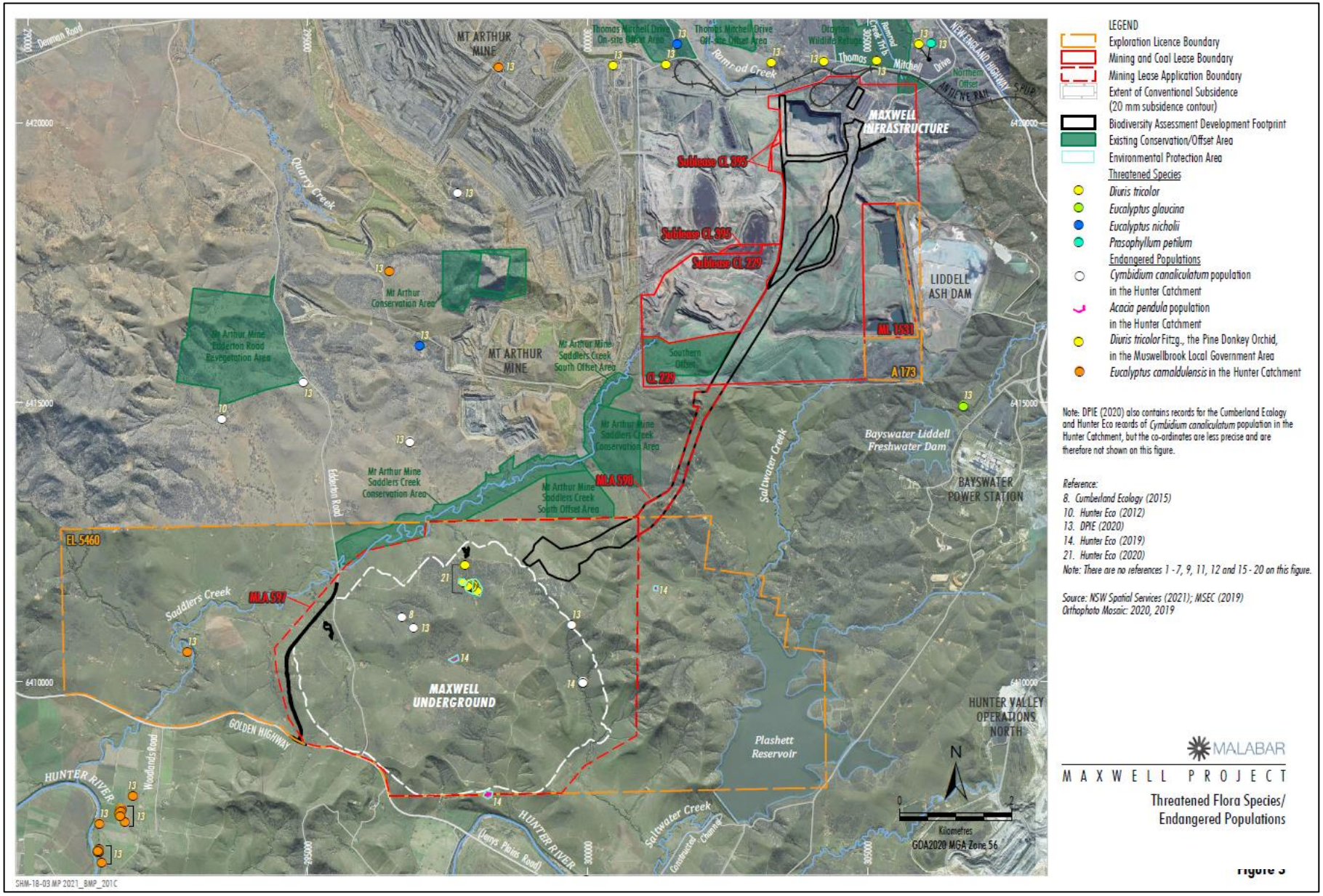


Figure 3. Threatened Flora Species/Endangered Population

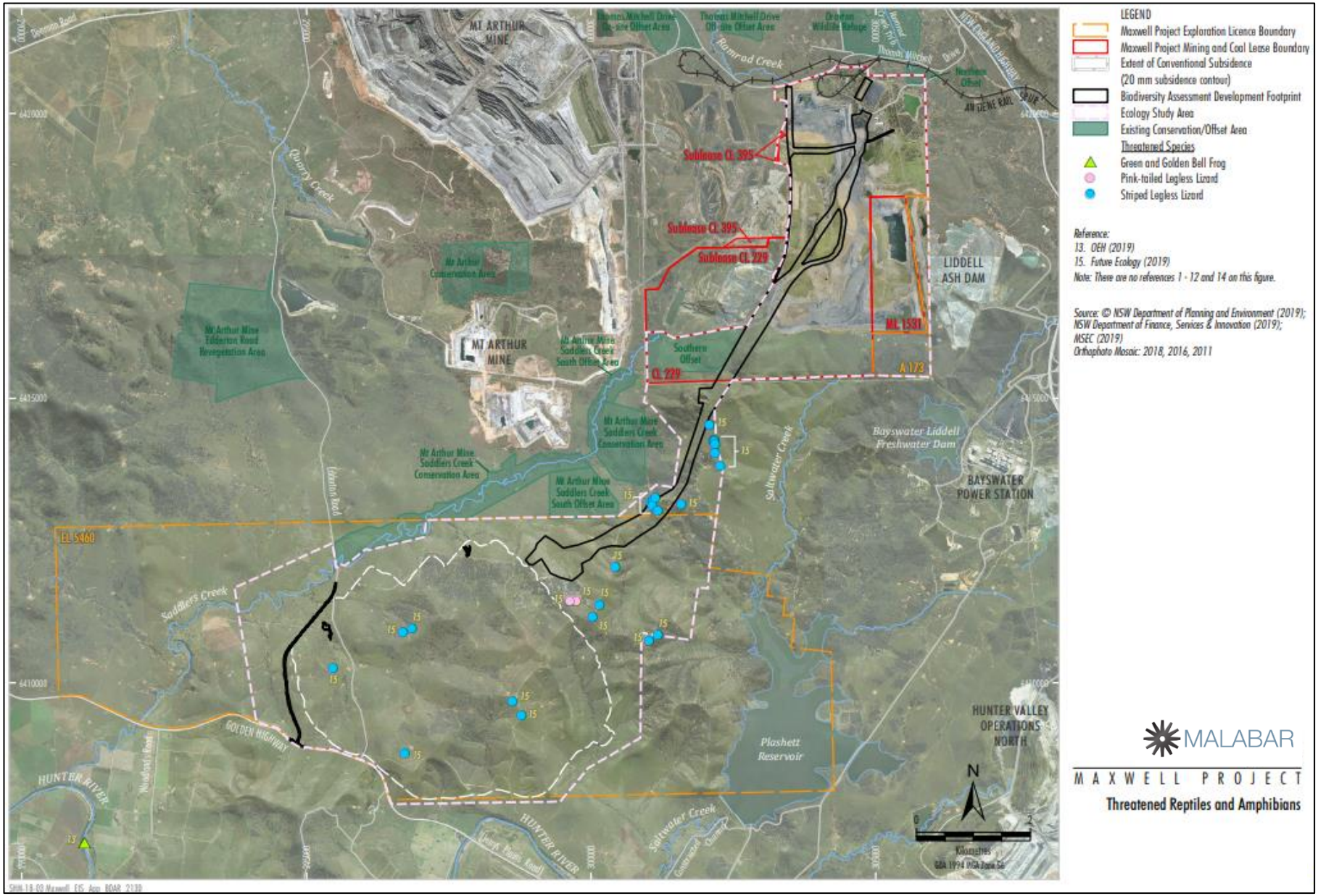


Figure 4. Threatened Reptiles and Amphibians

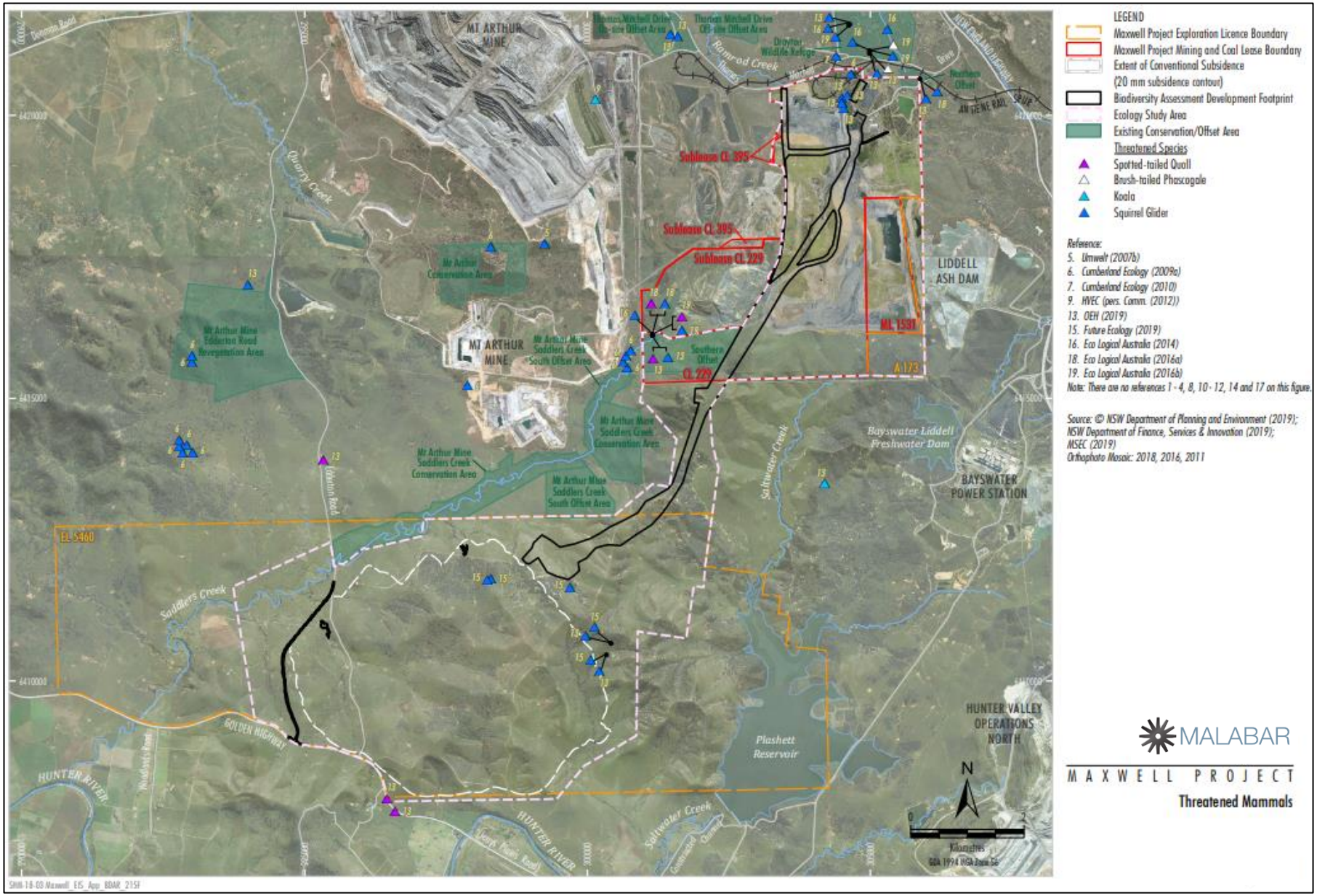


Figure 5. Threatened Mammals

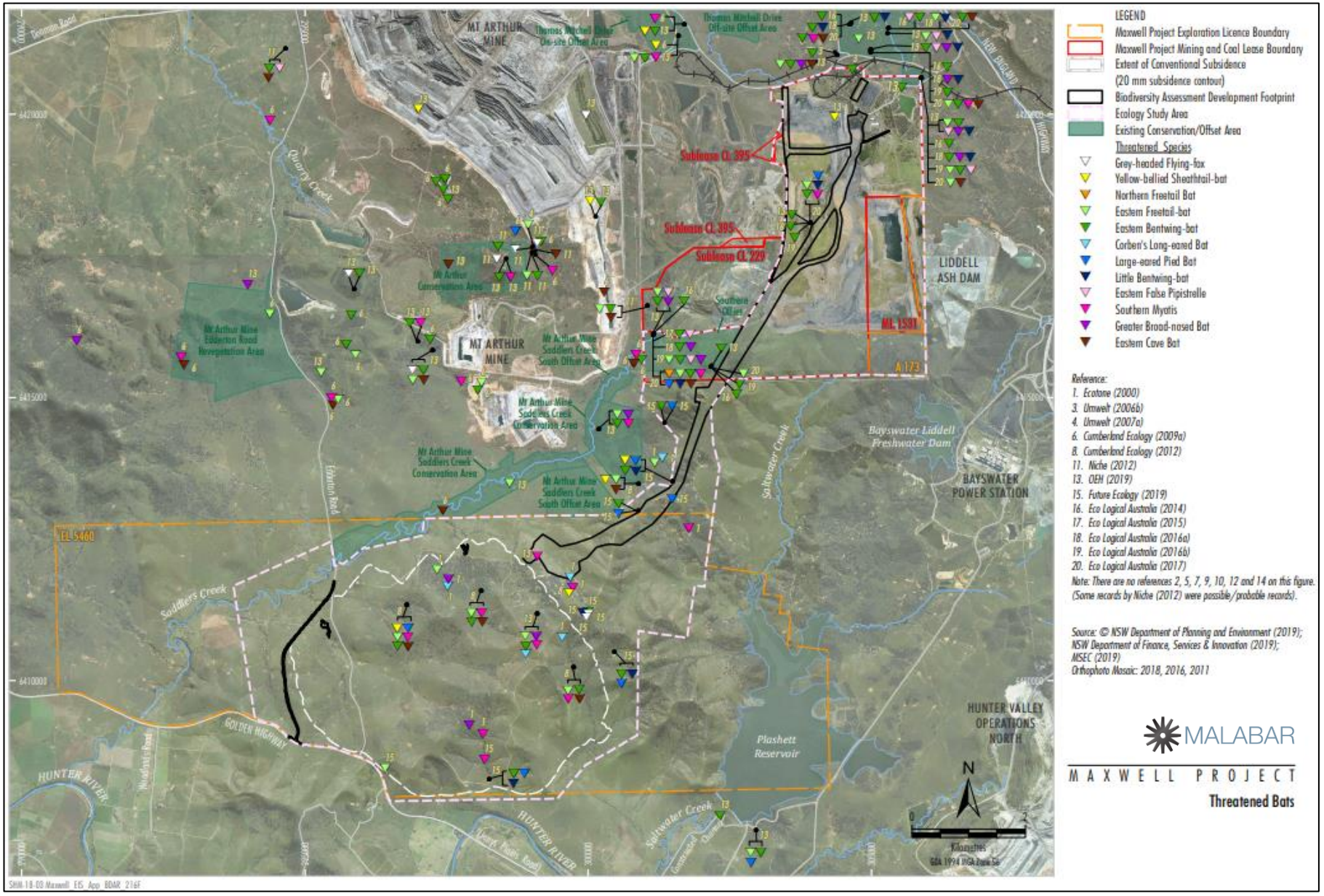


Figure 6. Threatened Bats

3 IMPLEMENTATION

3.1 Objectives

The overall management objective for the biodiversity management areas (shown in **Figure 2**) is to enhance regional biodiversity value while providing local habitat and connectivity with remnant native vegetation.

3.1.1 Drayton Wildlife Refuge

In accordance with Schedule 2, Condition B45 of Development Consent SSD 9526, Maxwell will protect and maintain the Drayton Wildlife Refuge. The following actions are currently undertaken in the Drayton Wildlife Refuge (114 ha) and will be continued:

- Excluding grazing by stock whilst allowing access by native fauna.
- Weed control to to remove these pressures from regenerating native species.
- Maintenance of native vegetation in the north and north-east to provide corridors for fauna movement and improve the effectiveness of the refuge as a conservation area.
- Encouraging the re-establishment of natural vegetation succession.
- Making selected areas of the refuge available, by arrangement with Maxwell, for use by groups for ecological research.

3.1.2 Northern Offset Area

In accordance with Schedule 2, Condition B45 of Development Consent SSD 9526, Maxwell will protect, maintain and enhance the Northern Offset AreaThe approach for management of the Northern Offset Area is not to recreate ecological communities, but rather to enhance and improve the condition of the vegetation that already exists by utilising assisted natural regeneration. This involves the protection of existing native vegetation and encouraging natural regeneration, rather than revegetating large areas.

Natural regeneration of seedlings from existing vegetation is encouraged by removing threats to their survival such as weeds and animals, both domestic and feral. This technique is appropriate in this area as the site contains significant native vegetation that can act as a seed source. Weed and feral animal control will be undertaken within the offset area, to remove these pressures from regenerating native species. In more degraded areas that are devoid of canopy cover where natural recruitment of canopy species is unlikely to occur, selective replanting of native species may be conducted to help the native canopy species establish.

3.1.3 Southern Offset Area

In accordance with Schedule 2, Condition B46 of Development Consent SSD 9526, Maxwell will establish, maintain and protect the Southern Offset Area in the long-term so that the targeted vegetation endangered ecological communities will be recognisable as those vegetation communities detailed below and in Development Consent SSD 9526.

Revegetating the Southern Offset Area will add to existing habitat along Saddlers Creek and improve its value as a wildlife corridor. Whilst the majority of the land currently consists of large areas of grassland that are dominated by exotic plant species, the Southern Offset Area is currently being replanted. The landscape has sufficient soil and grass cover to permit successful replanting, and with an appropriate maintenance regime, it will be possible to regenerate high quality examples of wooded ecological communities in this area.

In accordance with Schedule 2, Condition B46 of Development Consent SSD 9526 the following vegetation communities (as shown in **Figure 7**) will be established and maintained in the Southern Offset Area:

- 26 ha of Narrow-leaved Ironbark Woodland;
- 19 ha of Spotted Gum-Grey Box Open Forest Woodland;

- 15 ha of Forest Red Gum Open Forest and Woodland (Hunter Lowland Redgum Forest Endangered Ecological Community (EEC));
- 24 ha of Yellow Box and Grey Gum Woodland (*White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions Critically Endangered Ecological Community (CEEC)*); and
- 4 ha of rehabilitated woodland/pasture.

The Hunter Lowland Redgum Forest EEC and Yellow Box and Grey Gum Woodland CEEC must be established to a level that meets the listing criteria for the relevant EEC or CEEC as defined under the BC Act.

In accordance with Schedule 2, Condition B76 of Development Consent SSD 9526 the rehabilitation objectives of the Southern Offset Area are to:

- Establish local plant community types, with a particular focus on the CEECs listed in Schedule 2, Condition B50 of Development Consent SSD 9526 and copied below:
    - White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions CEEC.
    - Central Hunter Grey Box-Iron Bark Woodland in the NSW North Coast and Sydney Basin Bioregions EEC.
- Establish habitat and/or foraging resources for other significant and/or threatened flora and fauna species, including:
    - Pink-tailed Legless Lizard;
    - Striped Legless Lizard;
    - Swift Parrot; and
    - Regent Honeyeater.
- Facilitate local vegetation connectivity and wildlife corridors, particularly with respect to the adjacent MAC.

Given that one of the objectives of the Southern Offset Area is to establish woodland ecosystems, the biodiversity management objectives for the Southern Offset Area are aligned with the biodiversity management objectives of woodland rehabilitation areas, in accordance with Schedule 2, Condition B76 of Development Consent SSD 9526. Rehabilitation of areas disturbed by mining activities will be undertaken in accordance with the *Rehabilitation Management Plan* (i.e. Mining Operations Plan) referred to in Schedule 2, Condition B82 of Development Consent SSD 9526. The performance criteria for the Southern Offset Area and woodland rehabilitation areas, as detailed in the *Rehabilitation Management Plan* (i.e. Mining Operations Plan), will also be aligned and management activities will occur concurrently in accordance with Schedule 2, Condition B51(d) of Development Consent SSD 9526.

The establishment of the Southern Offset Area is further described in **Section 2.4.3.** Actions to protect the Southern Offset Area from threats, including unauthorised ground disturbance, spontaneous combustion, bushfires, weeds, feral animals and unauthorised access are discussed in **Section 3.3**. Maintenance is discussed in **Section 3.4**.



Figure 7. Southern Offset Area vegetation communities

3.2 Key Risks

The key risks to achieving the management objectives outlined in **Section 3.1** include:

- unauthorised ground disturbance;
- potential indirect impacts to threatened flora (i.e. cattle grazing);
- spontaneous combustion;
- bushfires;
- weeds;
- feral animals;
- unauthorised access; and
- vehicle strike.

Potential risks to achieving targeted vegetation communities (for offset areas where active regeneration is required) and fauna habitat in biodiversity management areas are insufficient establishment of target species, limited species diversity, limited vegetation structural development and limited habitat for targeted fauna species.

Management measures to meet biodiversity management objectives in **Section 3.1,** manage risks identified in **Section 3.2** and meet the performance criteria identified in **Section 3.6** are discussed in the following sections:

- Ground disturbance (**Section 3.3.1**)
- Direct and Indirect impacts (**Section 3.3.2**)
- Spontaneous combustion (**Section 3.3.3**)
- Bushfire Management (**Section 3.3.4**)
- Weed control (**Section 3.3.5**)
- Pest and feral animal management (**Section 3.3.6**)
- Access (**Section 3.3.7**)
- Vehicle strike (**Section 3.3.8**)
- Regeneration activities (**Section 3.3.9**)
- Habitat enhancement (**Section 3.3.10**)
- Erosion control (**Section 3.3.11**)

3.3 Management Measures for Biodiversity Management Areas

3.3.1 Ground Disturbance

Ground disturbance is defined as any activity that will result in disturbance to land, including but not limited to vegetation removal, topsoil stripping, fencing relocation, change to drainage, impact to cultural heritage sites and disturbance to previously rehabilitated areas.

Maxwell has developed and implemented a *Ground Disturbance Permit (GDP) Procedure*. The purpose of this procedure is to outline the GDP process used at the site to ensure all disturbance activities are undertaken in accordance with statutory requirements, site environmental management plans and internal standards. This procedure applies to all activities that will result in:

- Disturbance to natural surface;
- Disturbance to mine rehabilitation;
- Vegetation removal;
- Changes to existing landforms and drainage patterns; and
- Any other activity where surface disturbance is to occur.

The GDP applicant will complete **Section 1** of the GDP, providing applicant details and a description of the proposed disturbance including area of the disturbance, estimated start and end dates and the location of the disturbance. One application per disturbance location is required and must include all aspects of the works, including disturbance required for site access tracks, mobile crib huts, any required drainage structures, topsoil stockpile areas and equipment laydown areas. The GDP applicant must provide all relevant plans showing the proposed disturbance area, site access, drainage and any environmental controls.

The Environmental Coordinator will identify the risks associated with the proposed disturbance using the prompting questions described in **Section 2** of the GDP. The proposed disturbance area is initially checked to ensure it:

- is on Malabar-owned land;
- is within the approved disturbance area;
- is within the Mining operations Plan disturbance limit; and
- is not likely to impact threatened species or offset areas.

The location of the proposed disturbance with respect to the following features is also assessed so management measures can be implemented:

- An area requiring topsoil recovery or topsoil stockpile management.
- An area that requires erosion and sediment controls.
- An area of noxious weeds or large scale weed infestations.
- Aboriginal cultural heritage or heritage sites.
- Known contaminated land.

Controls to manage the identified risks shall be detailed by the Environmental Coordinator in **Section 5** of the GDP or in an attached memo addressed to the GDP applicant. Once the controls have been implemented and validated, approval can be given by the Health, Safety, Environment and Community Manager or their delegate for the proposed disturbance to commence.

Measures to mitigate impacts of ground disturbance on biodiversity are summarised in **Table 3**. These mitigation measures will be implemented through the GDP application and approval process. **Table 3** includes a description of any threat abatement plans relevant to the mitigation measures.

Table 33. Measures to mitigate and manage potential biodiversity impacts of ground disturbance

Potential Impact	Mitigation Measure	Techniques	Timing/Frequency
Displacement of fauna	Presence of a Trained Ecological or Licensed Wildlife Handler – Managed via GDP procedure.	Capture and release.	During native vegetation clearance and clearance of rocky areas.
Clearance impacts on native vegetation and habitat	Implement GDP procedure.	Areas to be cleared are delineated to prevent accidental damage during vegetation clearance activities or other works. Generally consistent with the guide: *Central Hunter Valley eucalypt forest and woodland: a nationally protected ecological community* (Department of the Environment and Energy 2016).	During native vegetation clearance and clearance of rocky areas.
		Pre-clearance flora and fauna surveys by suitably qualified personnel.	During native vegetation clearance and clearance of rocky areas.
		Impacts on fauna are managed during clearing activities by suitably qualified personnel.	During native vegetation clearance and clearance of rocky areas.
		Restricting vegetation clearance to the slashing of vegetation where possible along power line easements (i.e. leaving the lower stem and roots *in-situ* to maximise the potential for natural regrowth).	During vegetation clearance.
		Lopping of branches, rather than the removal of trees where possible along power line easements.	During vegetation clearance.
	Salvage and re-use of material for habitat enhancement - Managed via GDP procedure.	Identification of habitat features (e.g. cleared trees, surface rocks and tree hollows) that will be beneficial for habitat enhancement.	During and after vegetation clearance.

Potential Impact	Mitigation Measure	Techniques	Timing/Frequency
	Site Induction	Where possible, encourage Malabar personnel to use existing tracks for site access to Project areas to minimise potential disturbance of soils and revegetated areas.	During construction and operational stages.
	Access	Use of defined tracks to access sites to minimise the disturbance of soils.	During construction and operational stages.

3.3.2 Management of Potential Direct and Indirect Impacts to Threatened Flora

If threatened flora is found during pre-clearance surveys within the approved disturbance areas, the feasibility of salvaging, transplanting and or propagating will be assessed by a suitably qualified person. If determined to be feasible, a translocation methodology would be prepared and submitted to BCD for approval and works would be undertaken in accordance with the *Guidelines for the Translocation of Threatened Plants in Australia* (Vallee et al., 2004).

In accordance with the Biodiversity Development Assessment Report prepared for the Project EIS, the following measures have been implemented to protect threatened flora not likely to be directly impacted by the Project (refer to **Figure 3**):

- Malabar have erected a livestock-proof fence around a 20 metre (m) buffer from the Hunter Valley Weeping Myall (*Acacia pendula*) Woodland/Acacia pendula population in the Hunter Catchment. The area has been signed 'Environmental Protection Area'.
- Malabar have erected a livestock-proof fence around at least a 20 m buffer from the *Diuris tricolor* records. The area has been signed 'Environmental Protection Area'.

These fenced areas will be regularly inspected to ensure that the fence remains in good condition and cattle continue to be excluded from these areas.

Potential impacts to threatened ecological communities listed under the BC Act and EPBC Act will also be managed via the implementation of the GDP procedure as discussed in Section 3.3.1. Any additional control measures such as fencing, signage, relocation and inspections will be specified as part of the GDP.

The GDP procedure, requirements of this plan and requirements related to threatened flora will be included in the site induction and toolbox talks for any employees and contractors who may undertake work in the vicinity of the fenced areas.

3.3.3 Spontaneous Combustion

Spontaneous combustion, including within the Southern Offset Area, will be managed in accordance with the *Spontaneous Combustion Management Plan* (SCMP) required under Development Consent SSD 9526, which details prevention, detection and remediation. The SCMP has been developed to consider management of biodiversity. The SCMP describes annual ecological monitoring which includes inspections for visible spontaneous combustion or spontaneous combustion impacts on vegetation (e.g. phyto-toxicity). Completion criteria for the final void, offset areas and mine rehabilitation areas includes criteria that there be no visible spontaneous combustion or vegetation impacts and no spontaneous combustion detected with thermal imaging.

Maxwell will continue to prevent spontaneous combustion outbreaks by reducing oxygen access to carbonaceous material, in accordance with the SCMP. This is generally achieved through:

- Compaction and shaping of the surface.
- Application of inert material to a specified depth.
  Appropriate surface treatment including water management and vegetation establishment.

Monitoring of rehabilitation includes inspections for visible spontaneous combustion and/or spontaneous combustion impacts on vegetation. Remediation is required when outbreaks occur on existing rehabilitated land. The remediation measure that will be implemented for isolated outbreaks includes the loading out and/or pushing out of carbonaceous material to remove the ignition source. Remediation measures that will be implemented for larger outbreaks include reshaping and capping with inert material and or track rolling to reduce potential airflow through material. Inert capping will be compacted where access allows. Malabar will continue to record areas affected by spontaneous combustion.

For areas within the Southern Offset Area where vegetation is impacted by spontaneous combustion, replanting will be undertaken as required. Compensatory offsets would be provided, if needed.

3.3.4 Bushfire Management

The site is located in the jurisdiction of the Muswellbrook Bush Fire Management Committee (BFMC), which includes the Muswellbrook Local Government Area. The bushfire season in the Muswellbrook BFMC area is generally from September to March and coincides with the north-west to westerly winds accompanied by high daytime temperatures and low relative humidity. The major sources of fire ignition in the BFMC area include lightning strikes from summer storms, fire escape from private properties and accidental ignitions in the rural areas and along rail and road corridors (Muswellbrook BFMC 2011).

Bushfire management on site will continue to be undertaken in accordance with the *Bushfire Management Plan* required under Development Consent SSD 9526. The *Bushfire Management Plan* has been developed to consider management of biodiversity. Offset areas are identified as key assets requiring protection from uncontrolled fires. The following bushfire risk mitigation measures will continue to be implemented:

- Where possible a minimum 10 m asset protection zone (APZ) is maintained around all key infrastructure associated with mining production. The vegetation in APZs is limited and is mowed and monitored annually (prior to the start of the fire season) to ensure the grass is mown and leaves and vegetation debris are removed.
- Non-operational grassed areas are mowed or grazed to reduce fuel loads.
- Infrastructure and property boundaries are slashed prior to the start of the fire season.
- Access tracks that can be used as fire trails are also be monitored annually.
- Regular inspection and maintenance of vegetation within power line easements to ensure vegetation does not interfere with power lines.
- Limiting vehicular movements to existing access tracks where possible to reduce the potential for spark emissions.
- Prohibiting smoking in any restricted area, such as near fuel storage areas, inside vehicles or buildings, or within any area designated as a non-smoking area.
- Prohibiting the lighting of fires or fireworks.
- All activities classed as “hot work” are undertaken in accordance with the established *Hot Work Permit Procedure* (as detailed in the *Bushfire Management Plan*). Hot work includes electric welding and cutting, oxy/fuel/gas heating and cutting, gas soldering and brazing, disc grinding, angle grinding and friction cutting using a fixed saw. The Hot Work Permit requires consideration of appropriate controls prior to the hot works being approved including working in designated hot work bays where possible, keeping fire protection equipment within 10 m of the hot work area, and appointing a Fire Watch to monitor the area after hot work is completed.
- On site fire-fighting equipment is serviced and maintained in accordance with the relevant Australian Standards.

3.3.5 Weed Control

Current weed control measures will continue and will be ongoing in order to promote the establishment of native vegetation communities. Weed control is an important factor in the success or failure of revegetation plantings and is a large component of long-term management in offset areas, including the Drayton Wildlife Refuge and Northern Offset Area.

Weed control measures may include a combination of herbicide application, biological controls and manual weeding. Broad scale herbicide application is not suitable in the Northern Offset Area or any part of the Southern Offset Area. Where possible, weeding will be carried out as appropriate, considering seasonal variations in rainfall and weed growth, botanical flowering times and treatment affectivity. All weeds will be removed prior to flowering, or at flowering prior to seed set where practicable. Flowering or fruiting plants are high priority, particularly due to the connected nature of ecosystem components downstream. Preventing greater weed invasion offsite will be mitigated by the strategic efforts employed onsite.

High Threat Weed species that have been recorded on the site are provided in **Table 4**. Occurrences of these species will be controlled and where possible eradicated from the ecological rehabilitation and as a maximum kept to < 10% cover in the grassland rehabilitation. In addition to the weeds recorded here, other species are likely to occur spontaneously from nearby areas and may also need to be controlled.

Weed control efforts are currently focused on listed High Threat Weeds (i.e. highly invasive species), identified through ecological monitoring, because they have potential to affect revegetation efforts through competition for resources. Weed control using herbicides is undertaken only as needed in recently established revegetation areas to minimise the risk of off target impacts from herbicide usage. When the canopy is established, some exotic pasture weed species are expected to be easier to control and may be reduced without the need for further removal efforts, due to a natural species dominance shift from areas receiving full sun to less intense sunlight under regenerated canopy.

Table 4. High threat weed species recorded

Species	Common Name
Bidens pilosa,	Cobbler's pegs
Carthamus lanatus	Saffron Thistle
Chloris gayana	Rhodes Grass
Galenia pubescens	Galenia
Hyparrhenia hirta	Coolatai grass
Hypericum perforatum	St John’s Wort
Juncus acutus	-
Lycium ferocissimum	African Boxthorn
Opuntia humifusa	Spreading Prickly Pear
Opuntia stricta	Prickly Pear
Paspalum dilatatum	Paspalum
Senecio madagascariensis	Fireweed
Xanthium occidentale	Noogoora burr

Over the next three years, a targeted weed management program will be implemented in woodland rehabilitation areas that are dominated by introduced species such as Rhodes Grass, Guinea Grass, Kikuyu and Galenia. Management measures may involve either spraying and/or grazing (only once the tree canopy is mature enough). The Golden Wreath Wattle will also be targeted using a cut-and-paint method. Effective weed control in biodiversity management areas is consistent with the guide: *Central Hunter Valley eucalypt forest and woodland: a nationally protected ecological community* (Department of the Environment and Energy 2016).

Where possible, vehicles and mechanical equipment that have driven in areas off roads or tracks will be washed down to minimise seed transport off the site.

3.3.6 Pest and Feral Animal Management

Pest and feral management (e.g. baiting and culling) will continue to be undertaken on site and within biodiversity offset areas where required based on recommendations from ecological monitoring. Where appropriate, kangaroo culls will be undertaken to reduce grazing of vegetation. Fencing to prevent damage to rehabilitation will be undertaken where required. Dog baiting and trapping may also be undertaken. Site pest and feral animal management will be undertaken in association with regional baiting programs conducted by Local Land Services (LLS). All work will be implemented in close liaison with the staff of the LLS and in close communication with adjoining land users to ensure a coordinated

approach to pest management. Offset areas will continue to be regularly monitored to ensure the effectiveness of controls through the ecological monitoring program.

Work areas will continue to be maintained clean and rubbish-free to discourage scavenging and reduce the potential for colonisation of these areas by non-endemic fauna. This mitigation measure is consistent with the *Threat abatement plan for predation by feral cats* (Department of the Environment 2015).

3.3.7 Access

Unauthorised access to rehabilitation and offset areas (for firewood collection or shooting) will be prevented through fencing, gates and signage. All fencing and signage will be monitored annually and opportunistically.

The Southern Offset Area has been delineated as a restricted work area. Access is granted only to authorised personnel for environmental and water management works. Signage has been installed around the boundary at access points. Fencing of the Southern Offset Area is not considered necessary as the area is protected from unauthorised entry.

3.3.8 Vehicle Strike

To reduce the risks of vehicle strike, the permanent (sealed) site access road will be fenced to exclude kangaroos (and cattle) during construction. A maximum 60 kilometres (km) per hour speed limit on internal roads and maximum 80 km per hour speed limit on the sealed site access road will be imposed during construction and operational stages, in accordance with the approved *Traffic Management Plan*.

3.3.9 Regeneration Activities

3.3.9.1 Seed Collection

Seed collection may be undertaken during vegetation clearing activities or in the biodiversity management areas. Revegetation will use seed that has been locally sourced, where practicable. Seed provenance will be recorded for future reference.

3.3.9.2 Seed Propagation

Native woodland species that require heat treatment to break dormancy mechanisms will be treated with either boiling or smoke water. Woodland seed mix will be chemically treated with an appropriate insecticide to limit ant predation and inoculated with mycorrhiza to promote faster establishment. Plant propagation will be undertaken by a professional horticulturalist, following recognised horticultural practices. All plants will be suitably disease and pest-free, hardened off and well-watered at the time of planting.

3.3.9.3 Supplementary and Replacement Planting

Supplementary planting will be used to supplement assisted natural regeneration methods and to achieve the desired density of plants as needed. Tube stock plantings will be used largely to help establish a diverse canopy and mid-storey however, selected understory species may also be introduced via planting where direct seeding is ineffective for establishment of certain target species.

Replacement planting will be required where plant losses are experienced, or plants are struggling to establish. The successive plantings will take this into account and since a number of tube stock are known to not be likely to survive, slightly larger numbers will be planted than are expected to live. The replacement planting is aimed at ensuring an appropriate density of midstorey and canopy species, and that ground covers effectively cover the surface to maintain soil stability.

For offset areas where active regeneration is required, supplementary planting and replacement planting will occur during the optimal seasonal conditions to ensure maximum plant retention. This is likely to be autumn (March to April) and spring (September to October), as temperatures are cooler and rainfall is

higher but may be year-round, depending on local weather conditions in the months prior to planting. Newly planted tube stock may be accompanied with tree guards to protect the fresh foliage from predation, and from possible spray drift resulting from maintenance weeding operations. Follow up watering may be undertaken depending on the climatic conditions.

Native plant species to be planted would be selected on a site-by-site basis, depending on nearby remnant vegetation associations, soil types, aspect and site conditions. The species selected would aim to establish vegetation that reflects the composition and structure of vegetation communities present in the area. Plant species will be selected that are representative and characteristic of target plant communities. Target plant communities are generally consistent with existing local plant communities or plant communities being disturbed by mining. Plant species will be selected to expand existing flora populations and to provide appropriate foraging and nesting habitat for fauna species present and expected to occur on the site.

Floristic and structural diversity will be maximised by:

- Incorporating a range of plant species from all strata of each community that is being recreated;
- Including species characteristic of each community that provide forage value for native fauna;
- Including a range of nectar producing plants to ensure a supply of nectar for native fauna; and
- Ensuring a diversity of ground cover vegetation and habitat components such as leaf litter and logs to provide habitat for animals including invertebrates which provide food for other animals.

Planting lists of recommended woodland species are provided in **Table 5** which summarises the main species present in each stratum of the target vegetation communities. Other native species may be used during early establishment of woodland rehabilitation. This approach will promote expansion and connection of existing flora populations within the surrounding areas. It is also designed to avoid establishment of unviable populations due to unsuitable climatic conditions and genetic isolation.

Table 5. Species characteristic for different vegetation communities

Species (DPIE, 2021)	Narrow-leaved Ironbark Woodland	Spotted Gum-Grey Box Open Forest and Woodland	Forest Red Gum Open Forest and Woodland (Hunter Lowland Redgum Woodland)	Yellow Box and Grey Gum Woodland (Box-Gum Woodland) *
Overstorey				
Angophora floribunda	x		x	x
Brachychiton populneus	x	x		
Eucalyptus albens	x			
Eucalyptus blakelyi	x			
Eucalyptus crebra	x	x		
Corymbia maculata		x		
Eucalyptus melliodora				x
Eucalyptus moluccana	x	x		
Eucalyptus punctata			x	
Eucalyptus tereticornis			x	

Species (DPIE, 2021)	Narrow-leaved Ironbark Woodland	Spotted Gum-Grey Box Open Forest and Woodland	Forest Red Gum Open Forest and Woodland (Hunter Lowland Redgum Woodland)	Yellow Box and Grey Gum Woodland (Box-Gum Woodland) *
Midstorey				
Breynia oblongifolia			x	
Bursaria spinosa	x	x		
Clematis glycinoides	x			
Daviesia ulicifolia			x	
Jacksonia scoparia			x	
Leucopogon juniperinus			x	
Notelaea microcarpa	x	x		
Olearia elliptica	x	x		
Pandorea pandorana	x			
Persoonia linearis			x	
Understorey				
Aristida ramosa	x	x		x
Aristida vagans	x	x		
Austrodanthonia fulva	x	x		
Austrodanthonia racemosa	x			
Austrostipa scabra	x			
Austrostipa verticillata	x	x		
Brunoniella australis	x	x		
Calotis lappulacea	x	x		
Cheilanthes sieberi	x	x	x	
Chloris ventricosa	x	x		
Cymbopogon refractus	x	x	x	
Cynoglossum australe	x			
Cyperus gracilis	x			
Desmodium varians	x			
Dichondra repens	x	x		
Digitaria ramularis	x			
Echinopogon ovatus	x			
Einadia nutans				x
Eragrostis leptostachya	x	x		

Species (DPIE, 2021)	Narrow-leaved Ironbark Woodland	Spotted Gum-Grey Box Open Forest and Woodland	Forest Red Gum Open Forest and Woodland (Hunter Lowland Redgum Woodland)	Yellow Box and Grey Gum Woodland (Box-Gum Woodland) *
Eremophila debilis	x	x		
Galium propinquum	x			
Imperata cylindrica			x	
Lomandra confertifolia				x
Lomandra multiflora	x	x	x	
Microlaena stipoides	x	x	x	
Plectranthus parviflorus	x			
Pomax umbellata			x	
Pratia purpurascens	x		x	
Swainsona galegifolia	x			

Notes:
** Vegetation community originated as early rehabilitation planting. Grey Gum (Eucalyptus punctata) is not a proposed to be planted within the Yellow Box and Grey Gum Woodland (box-Gum Woodland).*

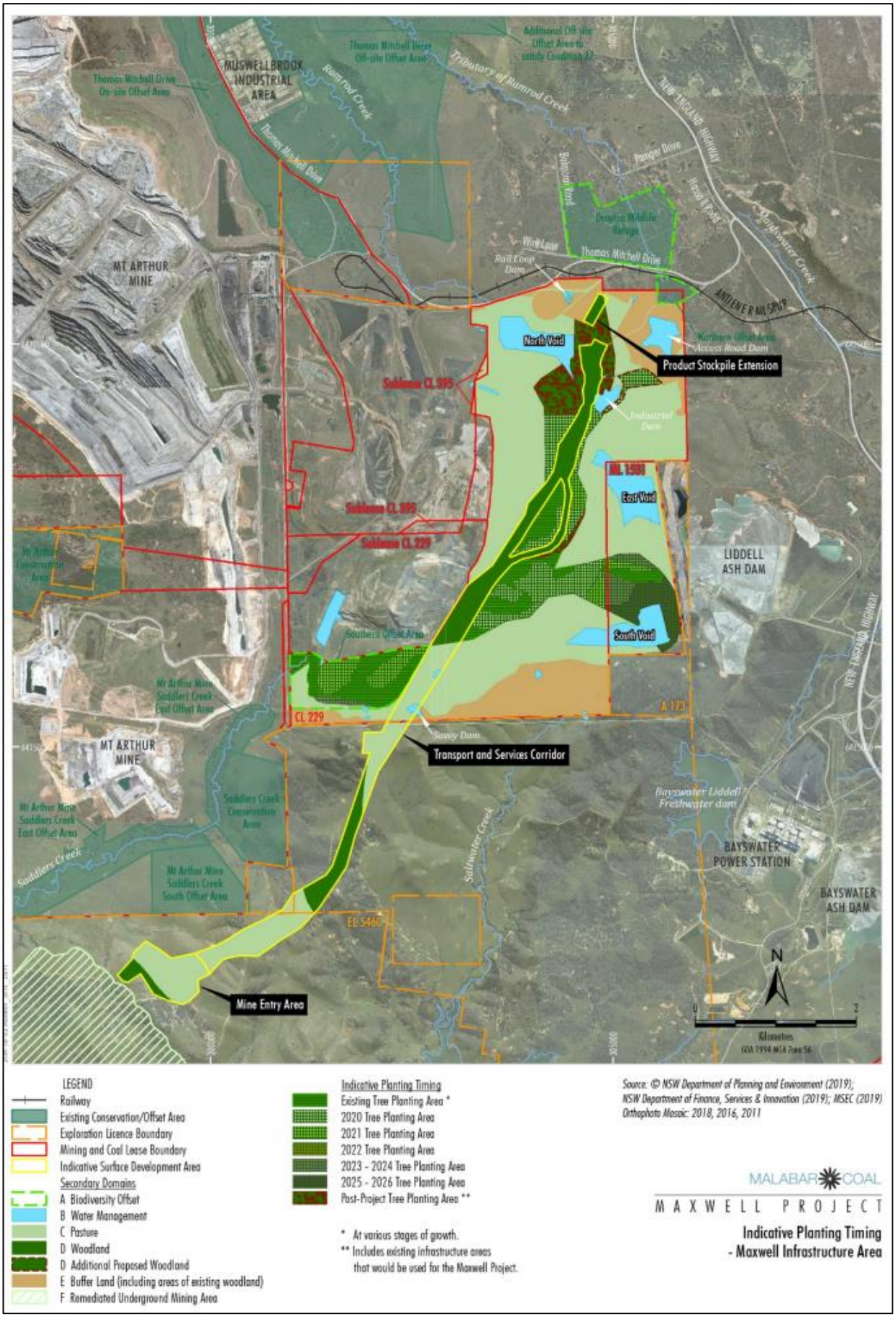


Figure 8. Indicative Planting Timing (Source: Development Consent SSD 9526)

3.3.10 Habitat Enhancement

The establishment of appropriate native fauna species in rehabilitated areas is essential to achieving mine closure objectives. The establishment of appropriate vegetation communities is critical to encourage and sustain native fauna on rehabilitation areas. Additional measures will be undertaken to establish appropriate native fauna, including (but not limited to) the following:

- Relocation and installation of habitat structures such as logs, root balls and stumps.
- Installation of nest boxes in mature woodland areas. Nest boxes will be installed in appropriately sized canopy trees within the conceptual woodland corridor. The nest boxes will be purposely built for birds, gliders and micro-bats and will assist with fauna movement across the site.

3.3.11 Erosion Control

Erosion and migration of sediment from disturbance areas into adjacent vegetation has the potential to facilitate weed invasion through the introduction of weed seed and nutrients that favour weed species. In addition, migrated sediment has the potential to adversely affect surrounding natural watercourses. An *Erosion and Sediment Control Plan* has been developed as part of the *Water Management Plan* and has been developed to consider management of biodiversity. The following measures will be adhered to in all disturbance areas:

- Relevant internal approvals and permits will be obtained before commencement of surface disturbance.
- The extent of disturbance (including trafficable areas) will be minimised and identified using appropriate pegging, barriers or signage.
- Appropriate erosion and sediment controls will be approved and established prior to land disturbance and will remain in place until exposed areas are stabilised.
- Clean water runoff from undisturbed catchments will be diverted around the disturbance areas via diversion drains and banks to discharge into natural watercourses, where practical. Diversions will be designed in accordance with the *Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book* (Landcom, 2004) (Blue Book).
- Runoff from disturbed areas will be diverted into sediment dams. Sediment dams will be designed, installed and maintained in accordance with the Blue Book requirements.
- Drains, diversion banks and channels will be stabilised and scour protection will be provided as necessary.
- Temporary erosion and sediment control measures will be used on site in accordance with the Blue Book requirements and may include silt fences, hay bales, jute mesh, check dams, cross banks, contour banks, armouring and straw mulching.

The *Surface Water Management Plan* within the *Water Management Plan* has also been developed in consideration of biodiversity management objectives. The *Surface Water Management Plan* includes geomorphology and riparian vegetation health baseline monitoring which will be used to assess any erosion and sedimentation impacts related to subsidence, once second workings commence.

3.3.12 Aboriginal Heritage

Any active regeneration activities (for offset areas where active regeneration is required) requiring ground disturbance will be managed through the GDP process (refer to **Section 3.3**). Aboriginal heritage will be managed in accordance with the *Aboriginal Cultural Heritage Management Plan* (ACHMP) required under Development Consent SSD 9526.

A comprehensive Aboriginal archaeological site database has been developed for the site. The database includes as a minimum the name, type, size (where applicable), status and coordinates of all known sites within and directly adjacent to the mine. The database will be reviewed on a regular basis and updated as required. The ACHMP has been developed in consideration of biodiversity management activities. An Aboriginal archaeological due diligence assessment may be required to identify any Aboriginal heritage constraints prior to a proposed activity occurring within the biodiversity management areas.

All Aboriginal archaeological due diligence assessments will be prepared in accordance with the *NSW Minerals Industry Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW 2010* (New South Wales Minerals Council Ltd, 2010). Recommendations from the Aboriginal archaeological due diligence assessment will be included as conditions under the relevant GDP. Archaeological salvage programs and the management of previously unrecorded Aboriginal Archaeological sites will be managed in accordance with the *Aboriginal Cultural Heritage Management Plan*.

3.4 Maintenance of the Biodiversity Management Areas

Maintenance will focus on achieving the performance criteria in **Section 3.6**. Maintenance will be undertaken in response to issues identified through regular monitoring and will include:

- Management of erosion and maintenance of sediment control structures;
- Maintaining fencing as needed;
- Ongoing weed control measures;
- Ongoing feral animal control measures; and
- Replacement of dead or damaged native vegetation (seedlings).

3.5 Triggers for Remedial Action and Contingency Plan

Triggers for responses (remedial actions) to address risks to achieving biodiversity are summarised in **Table 6**. The Condition Red triggers in **Table 6** represent the scenario where performance criteria are not met and the responses for Condition Red represent contingency plan.

Table 6. Triggers and remedial actions for potential risks

Performance Indicator		Condition Green (Performance Criteria)	Condition Amber	Condition Red – Performance Criteria Not Met
Spontaneous combustion.	Trigger	No visible spontaneous combustion or vegetation impacts.	Isolated incidence of heating in rehabilitation areas.	Widespread or repeated incidences of ignition in rehabilitation areas.
	Response	No response required.	Monitor outbreaks. Review aerial thermal imagery for signs of heating. If the outbreak is at risk of increasing in size or having a detrimental impact to the biodiversity area, load out and or push out carbonaceous material to remove the ignition source.	Reshape and cap the area with inert material. Requirements for capping will be guided by the Spontaneous Combustion Management Plan. Track roll the area after capping to reduce potential air flow. Monitor the area post capping.

Performance Indicator		Condition Green (Performance Criteria)	Condition Amber	Condition Red – Performance Criteria Not Met
Condition of firebreaks and access tracks	Trigger	Asset protection zones and access trails maintained	Some Asset Protection Zones do not meet criteria in *Bushfire Management Plan* and some access tracks in poor condition.	Asset Protection Zones do not meet criteria in *Bushfire Management Plan* and access tracks are in poor condition.
	Response	No response required.	Undertake slashing, mowing or clearing in Asset Protection Zones and repair access roads.	Undertake slashing, mowing or clearing in Asset Protection Zones and repair access roads.
Species diversity and groundcover.	Trigger	Weeds of concern represent < 20% of species diversity and < 20% groundcover.	Weeds of concern represent > 20% of species diversity and > 20% groundcover. Weeds do not present a risk to the establishment of rehabilitation areas.	Weeds of concern represent > 20% of species diversity and > 20% groundcover and present a risk to the establishment of rehabilitation areas.
	Response	No response required.	Undertake targeted weed management activities.	Undertake additional monitoring. Increase weed management activities for the site. Undertake follow up targeted weed spraying. Prepare an annual weed management plan identifying key priority areas.
Feral animal impact observations during ecological monitoring.	Trigger	No pest animal sighting or related impacts. Vegetation establishment and habitat restoration activities are not being impeded by feral animals.	Increase in sightings of pest animals which may impact vegetation establishment. Evidence of vegetation establishment and habitat restoration activities being impeded by feral animals in isolated areas.	Pest animals pose significant risk to vegetation establishment and habitat restoration activities and achieving completion criteria.

Performance Indicator		Condition Green (Performance Criteria)	Condition Amber	Condition Red – Performance Criteria Not Met
	Response	No response required.	Implementing regular pest animal management.	Increase the frequency or extent of pest animal management based on advice from a suitably qualified person.
Unauthorised access and fence condition.	Trigger	No unauthorised access (firewood collection and shooting). Access prevented through adequate fencing, signage and inspections.	Evidence of occasional unauthorised access.	Evidence of frequent unauthorised access.
	Response	No response required.	Review fencing and signage and undertake minor repairs as required.	Undertake additional inspections and install trail cameras. Increase fencing and signage.
Canopy and understorey (tree and shrub) establishment in biodiversity offset areas where active regeneration is required.	Trigger	Seed and/or planting establishment results in > 200 stems/ha of understorey and > 400 stems/ha of canopy species at the end of 12 months.	Understorey and canopy species density less than completion criteria or not on a trajectory to meet completion criteria after 12 months.	Understorey and canopy species density less than completion criteria or not on a trajectory to meet completion criteria after 24 months.
	Response	No response required.	Undertake inspection of regeneration areas and identify possible threats (including topsoil quantity/quality, weed and pest, drought conditions). Undertake soil testing. Review the seed/tubestock species mix for its suitability.	Engage a suitably qualified person to review monitoring data and recommend management measures to achieve required species and community composition. Undertake soil amelioration. Reseed/replant as required at an appropriate time. Monitor the area post seeding/planting.

Performance Indicator		Condition Green (Performance Criteria)	Condition Amber	Condition Red – Performance Criteria Not Met
Vegetation species diversity	Trigger	Species diversity has increased or remained within 20% of reference sites over the past 5 years.	Species diversity has decreased over the past three years.	Species diversity has decreased over the past 5 years.
	Response	No response required.	Undertake supplementary planting and weed control.	Undertake further supplementary planting and weed control.
Ecosystem function	Trigger	Evidence of reproductive capacity such as buds, flowers or fruit on mature plants. Evidence of nutrient cycling – decomposition of litter layer and cryptogam presence. Vegetation condition and mortality rates consistent with analogue vegetation communities. Presence of regenerating species for each structural layer.	Ecosystems not on a trajectory towards closure criteria for at least 3 monitoring events.	Ecosystems not on a trajectory towards closure criteria for at least 5 monitoring events.
	Response	No response required.	Investigate potential causes of poor ecosystem function (fire, weeds) and undertake controls as required.	Investigate potential causes of poor ecosystem function (fire, weeds) and undertake controls as required.

Species composition for active vegetation regeneration in biodiversity offset areas where active regeneration is required	Trigger	Tree, shrub and ground cover species selected from published species composition lists for targeted vegetation communities: • Hunter Lowland Redgum Forest is part of the vegetation community within the Wildlife Refuge. • Spotted Gum - Grey Box woodland is part of the vegetation community within the Northern Offset area. • Native woodland communities established within the Southern Offset area include: ○ Narrow-leaved Ironbark Woodland; ○ Spotted Gum - Grey Box Open Forest Woodland; ○ Forest Red Gum Open Forest Woodland; and ○ Yellow Box and Grey Gum Woodland. Targeted vegetation endangered ecological communities will be recognisable as those	Only some target species and communities are establishing in areas of active regeneration.	No target species and communities are establishing in areas of active regeneration.

Performance Indicator		Condition Green (Performance Criteria)	Condition Amber	Condition Red – Performance Criteria Not Met
		vegetation communities detailed in Development Consent SSD 9526.		
	Response	No response required.	Undertake inspection of regeneration areas and identify possible threats (including topsoil quantity/quality, weed and pest, drought conditions). Undertake soil testing. Review the seed mix/tubestock species for its suitability. Review the timing of seeding and planting activities.	Engage a suitably qualified person to review monitoring data and recommend management measures to achieve required species and community composition. Undertake soil amelioration (if required). Reseed/replant area. Seed/plant at the optimal time of the year. Monitor the area post seeding/planting.
Native animal species diversity and abundance.	Trigger	Native animal species diversity and abundance within 30% of analogue sites.	Native animal species diversity and abundance not on a trajectory towards analogue sites for at least 3 monitoring events.	Native animal species diversity and abundance not on a trajectory towards analogue sites for at least 5 monitoring events.
	Response	No response required.	Investigate cause of poor species diversity and abundance (consider availability of habitat features and feral animal presence) and undertake controls as required.	Investigate cause of poor species diversity and abundance (consider availability of habitat features and feral animal presence) and undertake controls as required.

Performance Indicator		Condition Green (Performance Criteria)	Condition Amber	Condition Red – Performance Criteria Not Met
Erosion	Trigger	No bare patches in groundcover vegetation > 100 square metres or active erosion rills > 30cm depth	Isolated bare patches in groundcover vegetation > 100 square metres or active erosion rills > 30cm depth.	Site wide active bare patches in groundcover vegetation > 100 square metres or active erosion rills > 30cm depth.
	Response	No response required.	Monitor existing water controls and undertake minor repairs and reseed as required.	Monitoring existing water controls and undertake a review of the landform design. Undertake major repairs and implement additional controls as required.

3.6 Performance Criteria

Short, medium, and long-term measures and completion criteria for Maxwell Infrastructure Biodiversity Offset Areas and remnant vegetation and fauna habitat are summarised in **Table 1**. The completion criteria in **Table 1** are consistent with the completion criteria for biodiversity areas in the currently approved *Rehabilitation Management Plan* (i.e. Mining Operations Plan).

Table 7. Management measures and completion criteria

Activity	Short Term Management Measures (Years 1 to 4)	Medium term Management Measures (Years 5 to 10)	Long Term Management Measures (Years 11+)	Indicators	Completion Criteria
Unauthorised ground disturbance	Continue implementation of established ground disturbance permit procedure.	Continue implementation of established ground disturbance permit procedure.	Continue implementation of established ground disturbance permit procedure.	Unauthorised ground disturbance.	Unauthorised ground disturbance prevented through implementation of the ground disturbance permit procedure.
Management of potential direct and indirect impacts on threatened flora species	Installation of fencing to prevent access by grazing animals.	Commence annual fence maintenance program.	Continue annual fence maintenance program.	Fence condition determined during annual assessment.	Fences constructed and maintained.
Spontaneous combustion management	Continue implementation of approved *Spontaneous Combustion Management Plan* this includes monitoring, compaction, application of inert material and surface treatment.	Implementation of approved *Spontaneous Combustion Management Plan* this includes monitoring, compaction, application of inert material and surface treatment.	Implementation of approved *Spontaneous Combustion Management Plan* this includes monitoring, compaction, application of inert material and surface treatment.	Spontaneous combustion.	No visible spontaneous combustion or vegetation impacts.
Bushfire management	Continue implementation of *Bushfire Management Plan* this includes maintaining fire breaks and access tracks and regular inspections of powerline easements.	Implementation of *Bushfire Management Plan* this includes monitoring, compaction, application of inert material and surface treatment.	Implementation of *Bushfire Management Plan* this includes monitoring, compaction, application of inert material and surface treatment.	Condition of firebreaks and access tracks, assessed annually.	Asset protection zones and access trails maintained.
Weed control	Continue weed control focused on listed High Threat Weeds identified through ecological monitoring with timing, frequency and	Continue targeted weed control program based on outcomes of ecological monitoring with timing, frequency and methodology as	Continue targeted weed control program based on outcomes of ecological monitoring with timing, frequency and methodology as	Species diversity and groundcover determined during annual ecological monitoring.	Weeds species < 10% of species diversity and < 10% groundcover.

Activity	Short Term Management Measures (Years 1 to 4)	Medium term Management Measures (Years 5 to 10)	Long Term Management Measures (Years 11+)	Indicators	Completion Criteria
	methodology as recommended by ecologist based on outcomes of annual ecological monitoring.	recommended by ecologist based on outcomes of annual ecological monitoring.	recommended by ecologist based on outcomes of annual ecological monitoring.		
Pest management	Continue baiting and culling with timing, frequency and methodology based on recommendations from specialist following ecological monitoring.	Continue baiting and culling with timing, frequency and methodology based on recommendations from specialist following ecological monitoring.	Continue baiting and culling with timing, frequency and methodology based on recommendations from specialist following ecological monitoring.	Feral animal impact observations during annual ecological monitoring.	Regular feral animal management implemented to protect rehabilitation. Vegetation establishment and habitat restoration activities are not being impeded by feral animals.
Management of unauthorised access	Installation of fencing, gates and signage where required, to limit access by unauthorised personnel. Establish and commence annual fence maintenance program.	Continue annual fence maintenance program.	Continue annual fence maintenance program.	Fence condition, assessed annually.	Fences constructed and maintained.
				Unauthorised access.	Unauthorised access (firewood collection, shooting) prevented through adequate fencing, signage and inspections.
Active regeneration (for offset areas where active regeneration is required)	Continue supplementary planting and weed control with timing, frequency and methodology as recommended by ecologist based on outcomes of annual ecological monitoring.	Supplementary planting and weed control with timing, frequency and methodology as recommended by ecologist based on outcomes of annual ecological monitoring.	Supplementary planting and weed control with timing, frequency and methodology as recommended by ecologist based on outcomes of annual ecological monitoring.	Canopy and understorey (tree and shrub) establishment determined during annual ecological monitoring.	Seed and or planting establishment results in > 200 stems/ha of understorey and > 400 stems/ha of canopy species at the end of 12 months.

Activity	Short Term Management Measures (Years 1 to 4)	Medium term Management Measures (Years 5 to 10)	Long Term Management Measures (Years 11+)	Indicators	Completion Criteria
Active regeneration (for offset areas where active regeneration is required)	Continue supplementary planting and weed control with timing, frequency and methodology as recommended by ecologist based on outcomes of annual ecological monitoring.	Supplementary planting and weed control with timing, frequency and methodology as recommended by ecologist based on outcomes of annual ecological monitoring.	Supplementary planting and weed control with timing, frequency and methodology as recommended by ecologist based on outcomes of annual ecological monitoring.	Vegetation species diversity determined during annual ecological monitoring.	Species diversity has increased or remained within 20% of reference sites over the past 5 years.
Active regeneration (for offset areas where active regeneration is required)	Continue supplementary planting and weed control with timing, frequency and methodology as recommended by ecologist based on outcomes of annual ecological monitoring.	Supplementary planting and weed control with timing, frequency and methodology as recommended by ecologist based on outcomes of annual ecological monitoring.	Supplementary planting and weed control with timing, frequency and methodology as recommended by ecologist based on outcomes of annual ecological monitoring.	Ecosystem function determined during annual ecological monitoring..	Evidence of reproductive capacity such as buds, flowers or fruit on mature plants.
					Evidence of nutrient cycling – decomposition of litter layer and cryptogam presence.
					Vegetation condition and mortality rates consistent with analogue vegetation communities.
					Presence of regenerating species for each structural layer
Active regeneration (for offset areas where active regeneration is required)	Continue supplementary planting and weed control with timing, frequency and methodology as recommended by	Supplementary planting and weed control with timing, frequency and methodology as recommended by	Independent ecological report identifies that completion criteria are being met for site biodiversity areas, as well	Species composition for active vegetation regeneration determined during	Tree, shrub and ground cover species selected from published species composition lists for targeted vegetation communities.

Activity	Short Term Management Measures (Years 1 to 4)	Medium term Management Measures (Years 5 to 10)	Long Term Management Measures (Years 11+)	Indicators	Completion Criteria
	ecologist based on outcomes of annual ecological monitoring.	ecologist based on outcomes of annual ecological monitoring	as conditional requirements of legal protection mechanisms. Monitoring and management programs are established and continuing for biodiversity areas. Legal mechanism in place to ensure long term protection of biodiversity areas	annual ecological monitoring.	Hunter Lowland Redgum Forest is part of the vegetation community within the Wildlife Refuge. Spotted Gum - Grey Box woodland is part of the vegetation community within the Northern Offset area. Native woodland communities established within the Southern Offset area included: • Narrow-leaved Ironbark Woodland; • Spotted Gum - Grey Box Woodland; and • Red Gum Forest Targeted vegetation endangered ecological communities will be recognisable as those vegetation communities detailed in Development Consent SSD 9526.
Fauna habitat creation	Installation of nest boxes (or hollows), purposely built for birds, gliders and micro-bats, in mature woodland areas.	Annual monitoring and maintenance of nest boxes. Installation of additional nest boxes if recommended following outcomes of ecological monitoring.	Annual monitoring and maintenance of nest boxes. Installation of additional nest boxes if recommended following outcomes of ecological monitoring.	Native animal species diversity and abundance determined during annual ecological monitoring.	Native animal species diversity and abundance within 30% of analogue sites.

Activity	Short Term Management Measures (Years 1 to 4)	Medium term Management Measures (Years 5 to 10)	Long Term Management Measures (Years 11+)	Indicators	Completion Criteria
Erosion	Continue ecological monitoring program which periodically assesses topsoil condition, with timing, frequency and methodology of maintenance actions as recommended by ecologist based on outcomes of annual ecological monitoring..	Ecological monitoring program periodically assesses topsoil condition, with timing, frequency and methodology of maintenance actions as recommended by ecologist based on outcomes of annual ecological monitoring.	Ecological monitoring program periodically assesses topsoil condition, with timing, frequency and methodology of maintenance actions as recommended by ecologist based on outcomes of annual ecological monitoring..	Erosion determined during annual ecological monitoring.	No bare patches in groundcover vegetation > 100 square metres or active erosion rills > 30cm depth

4 MEASUREMENT AND EVALUATION

The Environmental Coordinator is responsible for the implementation of the ecological monitoring program described in this section, including review of results and implementation of any remedial actions. The monitoring and inspections described in this section will be undertaken by suitably qualified and experienced person(s).

4.1 Fencing and Access Track Inspections

Fencing and access tracks will be inspected at least annually. Where possible, access tracks that can be used as fire trails will be monitored annually in August (or as amended) to assess if there are sufficient tracks for fire-fighting access and if tracks require maintenance. Gates that can be used to enter the site from external roads will also be checked regularly.

4.2 Ecological Monitoring

Routine ecological monitoring is conducted across Maxwell Infrastructure Biodiversity Offset Areas to:

- identify specific problems to enable research on causes and appropriate solutions (e.g. failed plantings, loss of seedlings, low emergent numbers, loss of particular species);
- enable the assessment of, and management of impacts on, biodiversity and rare species (e.g. weed invasion);
- track the progress of rehabilitation against the relevant completion criteria;
- determine that the actions detailed in this plan are leading to positive biodiversity outcomes; and
- provide feedback for continuous improvement of the rehabilitation program.

Maxwell Infrastructure Biodiversity Offset Areas will be adaptively managed using the TARP in **Table 5**. If potential threats to regeneration activities are triggered, action will be undertaken in accordance with requirements in the TARP.

Thirteen monitoring sites have been established within the Northern Offset, Southern Offset and Wildlife Refuge areas. These sites are provided in **Table 8** and show in **Figure 2**. Routine ecological monitoring includes walkover inspections, vegetation monitoring, recording of closure criteria features and weed and pest surveys. These are discussed in further detail in the following sections.

Table 8. Monitoring sites

Site Name	Monitoring Type	Vegetation Community/Target	PCT	General Location	Monitoring Group *
1a	Reference	Narrow-leaved Ironbark Woodland	1603	Wildlife Refuge	1
1b	Reference	Ironbark-Spotted Gum-Box Woodland	1604	Wildlife Refuge	2
1c	Reference	Ironbark-Spotted Gum-Box Woodland	1604	Northern Offset Area	1
3a	Reference	Forest Red Gum Woodland	1696	Wildlife Refuge	1
3b	Reference	Forest Red Gum Woodland	1696	Wildlife Refuge	2
3c	Reference	Forest Red Gum Woodland	1696	Northern Offset Area	2
5a	Reference	Yellow Box-Grey Gum Woodland	-	Southern Offset Area	1

Site Name	Monitoring Type	Vegetation Community/Target	PCT	General Location	Monitoring Group *
6a	Rehabilitation	Narrow-leaved Ironbark Woodland	1603	Southern Offset Area	1
7a	Rehabilitation	Ironbark-Spotted Gum-Box Woodland	1604	Southern Offset Area	1
7b	Rehabilitation	Ironbark-Spotted Gum-Box Woodland	1604	Southern Offset Area	2
8a	Rehabilitation	Forest Red Gum Woodland	1696	Southern Offset Area	1
8b	Rehabilitation	Forest Red Gum Woodland	1696	Southern Offset Area	2
9a	Rehabilitation	Yellow Box-Grey Gum Woodland	-	Southern Offset Area	1

Notes:
** Represents alternating years for monitoring.*
- Indicates no PCT available.

4.2.1 Walkover Inspections

During the first winter following seeding or planting, seeded or planted areas will be subject to a first rapid assessment via a walkover inspection. The rapid assessment identifies failed drainage structures or erosion, poor vegetation establishment/survival, and weed or pest competition. Corrective actions will be initiated following rapid assessments including remedial earthworks, supplementary tubestock planting, slashing, weed spraying, or pest control.

Annual walkover inspections of rehabilitation and offset areas will also be undertaken on a site-wide basis. A walkover assessment and review of aerial photography will be undertaken to assess general health of the vegetation, establishment of target species, weed cover and erosion and sediment control.

4.2.2 Vegetation Monitoring

The vegetation monitoring program was streamlined in 2018 as some sites were replicates located in discrete locations and non-target vegetation types. The streamlined monitoring program maintains the spatial distribution required to provide representative data. Monitoring is undertaken annually, with each site monitored every second year.

The NSW Biodiversity Assessment Method (BAM) is part of the Biodiversity Offsets Scheme. The BAM provides a consistent method to assess impacts on biodiversity values and improvements from management actions undertaken. The BAM will be used to collect vegetation data from existing monitoring sites. Each monitoring site consists of a 20m by 50m plot with a nested 20m by 20m plot, and includes a 50m transect running through the plot, as shown in **Figure 8**.

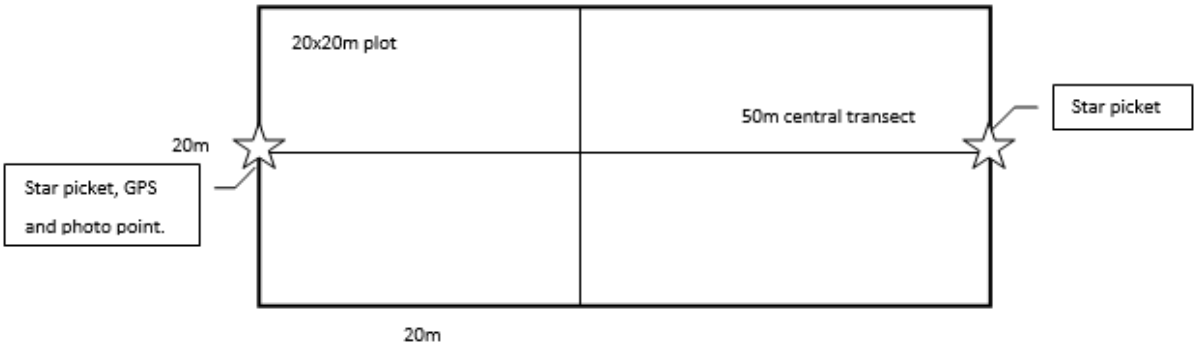


Figure 9. Vegetation monitoring plot layout

Vegetation monitoring sites are shown in **Figure 2**. These sites have been chosen to indicate the proposed final floristic structure of the native rehabilitation areas. Sites have been subjected to some form of prior disturbance, in particular clearing for agriculture and livestock grazing. All woodland sites are regrowth, with some introduced species. These sites, despite their disturbance history are typical of the local area and will help set realistic rehabilitation targets.

Vegetation monitoring will include assessing the composition, function and structure in accordance with the BAM (https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/biodiversity-assessment-method-2020-200438.pdf). Additional features such as bare ground, planting loss and target species are also recorded to allow direct comparison to the completion criteria.

4.2.3 Fauna Monitoring

Fauna monitoring is targeted at determining the occurrence of terrestrial vertebrate animals, including bird, mammal, reptile and amphibian species. Fauna monitoring is undertaken every second year at reference sites 1b, 1c, 3a, 3c and 5a. Fauna monitoring includes:

- Diurnal bird surveys – Bird surveys undertaken at each fauna monitoring site for 20 minutes, between 6pm and 8pm. Following the initial 20-minute listening period, each new species identified triggers a further five minutes of survey effort.
- Herpetological surveys – Targeted surveys for reptile and amphibian species are undertaken at each fauna monitoring site over a 20-minute period. Surveys involve searching through likely habitat within 2 hectares of the flora monitoring site. Searches include watching for individuals basking, under rocks and logs, in the bark of trees, around water bodies and in man-made features.
- Nocturnal surveys – Spotlighting surveys targeted nocturnal mammals, birds and herpetofauna within 2 hectares of the flora monitoring site. Searches are undertaken over a one-hour period on foot using a handheld spotlight. Species are identified based on visual observations or vocal calls.
- Remote camera surveys – Remote camera surveys target mammal species. One remote camera is installed at each fauna monitoring site for 14 days.
- Micro-bat echolocation recording – Recording of micro-bat echolocation calls are conducted over two nights at each of the fauna monitoring sites using an Anabat II detector.

4.2.4 Weed and Pest Monitoring

Control of weeds and management of pest and feral animal will be undertaken as described in **Sections 3.8** and **3.9**. Monitoring of weeds and pests will be undertaken across all disturbance areas and would include:

- Routine visual inspections (at least bi-annually) across all disturbance areas to identify areas which require weed control measures.
- Visual follow-up inspections for areas where weed control measures have been undertaken. These inspections will assess the effectiveness of the weed management measures implemented and the requirement for any additional management measures.

- Identification of weed infestations adjacent to, or within the proposed disturbance area during the GDP process (**Section 3.3.1**).
- Routine monitoring of the activity of pests in all disturbance areas at least bi-annually, using various measures as suitable, including:
    - opportunistic sightings;
    - track counts on sand-pads; and
    - motion sensor cameras.
- Follow-up inspections on areas subject to vertebrate pest control to assess the effectiveness of control measures implemented and the requirement for any additional control measures.
- Identification of vertebrate pest infestations adjacent to or within the proposed disturbance area during the GDP process (**Section 3.3.1**).

The results of weed and pest monitoring will be reported annually in the Annual Review.

4.3 Incident and Non-Compliance Notification

An incident is defined in Development Consent SSD 9526 as an occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance.

In accordance with Schedule 2, Condition E9 of Development Consent SSD 9526, Maxwell shall immediately notify DPIE and any other relevant agencies, immediately after it becomes aware of an incident. The notification shall be in writing to compliance@planning.nsw.gov.au and identify the development (including the development application number and name) and set out the location and nature of the incident.

A *Pollution and Incident Response Management Plan* (PIRMP) is maintained in accordance with the requirements of the Part 5.7A of the *Protection of the Environment Operations Act 1997* and Chapter 7, Part 3A of the *Protection of the Environment Operations* (General) Regulation 2009. Any pollution incident that causes actual or potential material harm will be reported to the relevant agencies immediately after it is identified, as described in the PIRMP. A copy of the PIRMP is located on Malabar's website at https://malabarresources.com.au/sustainability/documentation.

In accordance with Schedule 2, Condition E10 of Development Consent SSD 9526, Maxwell shall notify DPIE within seven days of becoming aware of a non-compliance. The notification shall be in writing to compliance@planning.nsw.gov.au and identify the development (including the development application number and name), set out the condition of SSD 9526 that the Project is non-compliant with, why 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.

4.4 Adaptive Management and Contingency Plan

In accordance with Schedule 2, Condition E4 of Development Consent SSD 9526, where any exceedance of performance measures has occurred, Maxwell shall, at the earliest opportunity:

- Take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;
- Consider all reasonable and feasible options for remediation (where relevant) and submit a report to DPIE describing those options and any preferred remediation measures or other course of action; and
- Implement reasonable remediation measures as directed by the Planning Secretary.

In accordance with Schedule 2, Condition E5(f) of Development Consent SSD 9526, the following contingency plan is used to manage any unpredicted impacts and their consequences, and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible:

- Review the unpredicted impact with consideration of any relevant activities and monitoring data;
- Identify the most likely source of the unpredicted impact;
- Review the existing process and current dust controls; and

- Implement appropriate mitigation measures.

Contingency plans for a range of scenarios where performance criteria are not met are summarised in **Table 5**.

4.5 Complaints Handling

The Maxwell UG Project maintains a 24-hour community hotline (1800 653 960) for any issues or enquiries. In addition to the community hotline, the site can also be contacted by emailing info@malabarresources.com.au.

If a complaint or enquiry is received regarding biodiversity, it is investigated as soon as reasonably practicable and managed in accordance with Maxwell's *Community Complaints and Enquiries Procedure*. Details such as complainant name, contact details, nature of concern, date, time and method of receival are recorded. While details of the enquiry vary depending on the nature and source of the enquiry, the following actions may result:

- Confirmation of whether the complainant would like the matter raised as a complaint or an enquiry.
- Identify further details which may assist in determining the cause of the complaint.
- Carry out an inspection of the site or conduct an assessment of monitoring results to identify the source.
- Identify if there is an exceedance or non-compliance with any consent or licence condition.
- Identify, where necessary and practical, methods to manage the source of the complaint and minimise the chance of a recurrence or the potential to generate further complaints.

All enquiries and/or complaints are recorded in an enquiries database. A summary of complaints is presented to the Community Consultative Committee (CCC) and included in the Annual Review and Environment Protection Licence Annual Return.

5 AUDIT, REVIEW AND IMPROVEMENT

5.1 Review Schedule

The suitability of this BMP will be reviewed in accordance with Schedule 2, Condition E7 of Development Consent SSD 9526, that is within three months of:

- the submission of an incident notification under Condition E9;
- the submission of an Annual Review under Condition E11;
- the submission of an Independent Environmental Audit under Condition E13;
- the approval of any modification of the conditions of SSD 9526; or
- notification of a change in development phase under Condition A13.

In accordance with Condition E8, if necessary, to improve the environmental performance of the site, cater for a modification or comply with a direction, this plan will be revised. The revised plan will be submitted to DPIE for approval within six weeks of the review.

5.2 Reporting

In accordance with Schedule 2, Condition E11 of Development Consent SSD 9526, by the end of March in each year after the commencement of the development, or other timeframe agreed by the Planning Secretary, an Annual Review report will be submitted to DPIE. The Annual Review will include the following:

- A description of the development that was carried out in the previous calendar year and the development proposed to be carried out over the current calendar year.
- A comprehensive review of biodiversity management results and complaints over the previous calendar year.

- A description of non-compliances which occurred in the previous calendar year and actions that were (or are being) taken to rectify the non-compliance and avoid reoccurrence.
- Evaluation of the effectiveness of biodiversity management measures.
- Trends in monitoring data and any discrepancies between predicted and actual impacts.
- Measures to be implemented over the next calendar year to improve the environmental performance of the development.

In accordance with Schedule 2, Condition E12 of Development Consent SSD 9526 copies of the Annual Review will be submitted to Muswellbrook Shire Council and made available to the CCC and any interested person upon request.

In accordance with Schedule 2, Condition E17(a) of Development Consent SSD 9526, the Annual Review will be publicly available on Malabar's website at https://malabarresources.com.au/sustainability/documentation

5.3 Auditing

In accordance with Schedule 2, Condition E13 of Development Consent SSD 9526 within one year of commencement of development under this consent, and every three years after, unless the Planning Secretary directs otherwise, Maxwell will commission and pay the full cost of an Independent Environmental Audit of the development. The audit shall:

a) be led by a suitably qualified, experienced and independent auditor whose appointment has been endorsed by the Planning Secretary;

b) be conducted by a suitably qualified, experienced and independent team of experts (including any expert in field/s specified by the Planning Secretary) whose appointment has been endorsed by the Planning Secretary;

c) be carried out in consultation with the relevant agencies and the CCC;

d) assess the environmental performance of the development and whether it is complying with the relevant requirements in this consent, water licences and mining leases for the development (including any assessment, strategy, plan or program required under these approvals);

e) review the adequacy of any approved strategy, plan or program required under the abovementioned approvals and this consent;

f) recommend appropriate measures or actions to improve the environmental performance of the development and any assessment, strategy, plan or program required under the abovementioned approvals and this consent; and

g) be conducted and reported to the satisfaction of the Planning Secretary.

In accordance with Schedule 2, Condition E14 of Development Consent SSD 9526, within three months of commencing an Independent Environmental Audit, or other timeframe agreed by the Planning Secretary. Maxwell shall submit a copy of the audit report to the Planning Secretary, and any other NSW agency that requests it, together with its response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations. The recommendations shall be implemented to the satisfaction of the Planning Secretary.

Internal audits will be undertaken annually to ensure that the actions detailed in this plan have been carried out.

5.4 Access to Information

In accordance with Schedule 2, Condition E17 of Development Consent SSD 9526 before the commencement of construction until the completion of all rehabilitation required under SSD 9526, Maxwell will make the following information and documents (as they are obtained, approved or as otherwise stipulated within the conditions of Development Consent SSD 9526) that are relevant to this plan publicly available on Malabar's website:

- this BMP;
- all current statutory approvals for the development;
- the proposed staging plans for the development if the construction, operation or decommissioning of the development is to be staged;
- minutes of CCC meetings;
- regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent;
- a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;
- a summary of the current phase and progress of the development;
- contact details to enquire about the development or to make a complaint;
- a complaints register, updated monthly;
- the Annual Reviews of the development; and
- audit reports prepared as part of any Independent Environmental Audit of the development and the Applicant's response to the recommendations in any audit report.

This information shall be kept up to date, to the satisfaction of the Planning Secretary.

5.5 Records Management

All biodiversity management data is maintained in accordance with the Environmental Management Strategy and maintained on the premises for a period of at least five years.

5.6 Continuous Improvement

Feedback from the monitoring results and any complaints will be used to assess impacts and determine where improvements or mitigation measures are required. These measures will be reported on in the Annual Review.

5.7 Document Review History

A summary of the document history is outlined in **Table 9**.

Table 9. Document revision status

Issue	Issue Date	Review Team	Details of Change / Communication
1	August 2021	Robyn Skinner Colin Driscoll Donna McLaughlin	Document prepared following approval of Development Consent for SSD 9526 for the Maxwell UG Project.
1.1	September 2021	Robyn Skinner Donna McLaughlin	Document updated following review by DPIE.

6 INFORMATION, TRAINING AND INSTRUCTION

6.1 Competent Persons

Suitably qualified, competent and experienced persons shall be involved in the design, planning and implementation of this plan and related procedures.

6.2 Training

Biodiversity management training is provided to all employees and contractors through the Site Familiarisation process. From time to time, workforce communication and toolbox talks allow for discussion of the objectives and requirements of this and any other relevant Management Plans.

To ensure the effective implementation biodiversity controls, all site personnel involved in supervisory roles will undertake a more detailed awareness training package.

7 RESPONSIBILITIES

Responsibilities associated with this management plan are outlined **Table 10**.

Table 10. Responsibilities

Position	Responsibilities
General Manager	• Provide adequate resources for the implementation of this Plan.
HSEC Manager	• Oversee the implementation of this Plan. • Notify regulatory authorities and affected stakeholders of incidents in accordance with this Plan. • Coordinate periodic reviews of this Plan. • Ensure all personnel are trained in accordance with this Plan.
Environmental Coordinator	• Assist the HSEC Manager as required in the implementation of this Plan. • Coordinate investigations of biodiversity related incidents or complaints. • Coordinate the management of records and reporting of biodiversity data. • Manage biodiversity related complaints in accordance with the complaints management procedure. • Coordinate the implementation of the ecological monitoring program including review of results and implementation of any remedial actions. • Coordinate all internal and external audits. • Provide training in biodiversity protection and management to all relevant personnel.
Supervisors	• Notify the Environmental Coordinator of any incidents and exceedances involving biodiversity. • Implement biodiversity control measures as defined in this Plan. • Deliver any toolbox talks regarding biodiversity protection and management.
All Personnel	• Undertake works in accordance with the objectives and principles of this Plan. • Report any incidents involving biodiversity.

8 DOCUMENT INFORMATION

8.1 References

Hunter Eco (2019), Maxwell Project Biodiversity Development Assessment Report.

Malabar Coal (2020), Maxwell Project Biodiversity Stewardship Site Assessment Report.

Department of the Environment (2015), Threat abatement plan for predation by feral cats, Canberra, ACT: Commonwealth of Australia.

Department of the Environment (2016), Central Hunter Valley eucalypt forest and woodland: a nationally-protected ecological community, Commonwealth of Australia 2016.

Department of Planning, Industry and Environment (2021), BioNet Vegetation Classification. https://www.environment.nsw.gov.au/NSWVCA20PRapp/default.aspx.

8.2 Definitions and Abbreviations

Term	Definition
APZ	Asset Protection Zone
BC Act	Biodiversity Conservation Act 2016
BCD	Biodiversity and Conservation Division within DPIE
BDAR	Biodiversity Development Assessment Report
BFMC	Bush Fire Management Committee
BMP	Biodiversity Management Plan
CCC	Community Consultative Committee
CEEC	Critically Endangered Ecological Community
CL	Coal Lease
CHPP	Coal Handling and Preparation Plant
DA	Development Approval
DPIE	NSW Department of Planning, Industry and Environment
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EP&A	Environmental Planning and Assessment
GDP	Ground Disturbance Permit
LLS	Local Land Services
m	Metres
MAC	Mt Arthur Coal
MSC	Muswellbrook Shire Council
NSW	New South Wales
PA	Project Approval
PIRMP	Pollution Incident Response Management Plan
SSD	State Significant Development
TARP	Trigger Action Response Plan
Toolbox Talk	A forum where information is presented to the crews
UG	Underground

APPENDIX 1 – REGULATORY REQUIREMENTS

State Significant Development Consent 9526

<table>
<tr><th>Clause</th><th>Requirement</th><th>Section of Plan</th></tr>
<tr><td>B45</td><td>Maxwell Infrastructure Biodiversity Offset Areas

The Applicant must:
(a) protect and maintain the Drayton Wildlife Refuge; and
(b) protect, maintain and enhance the Northern Offset Area,

as shown in Figure 11 in Appendix 5 and as described in the EIS.</td><td>

3.1.1
3.1.2

Figure 2</td></tr>
<tr><td>B46</td><td>The Applicant must establish, maintain and protect the Southern Offset Area, as summarised in Table 5 and shown conceptually in Figure 11 in Appendix 5.

Table 5: Southern Offset Area requirements
<table>
<tr><th>Area</th><th>Offset Type</th><th>Minimum Size (ha)</th></tr>
<tr><td rowspan="5">Southern Offset Area</td><td>Narrow-leaved Ironbark Woodland</td><td>26</td></tr>
<tr><td>Spotted-Gum-Grey Box Open Forest Woodland</td><td>19</td></tr>
<tr><td>Forest Red Gum Open Forest and Woodland (Hunter Lowland Redgum Forest EEC)[a]</td><td>15</td></tr>
<tr><td>Yellow Box and Grey Gum Woodland (White Box Yellow Box Blakely's Red Gum Woodland EEC)[a]</td><td>24</td></tr>
<tr><td>Rehabilitated woodland/pasture</td><td>4</td></tr>
</table>
a Identified vegetation communities must be established to a level that meets the listing criteria for the relevant EEC or CEEC as defined under the BC Act.tar</td><td>2.4.3, 3.1.3, 3.3, 3.4
Figure 7</td></tr>
</table>

Clause	Requirement	Section of Plan
B47	Prior to commencing construction under this consent, or other timeframe agreed by the Planning Secretary, the Applicant must retire the biodiversity credits specified in Table 6 below. The retirement of credits must be carried out in consultation with BCD and in accordance with the Biodiversity Offsets Scheme of the BC Act, to the satisfaction of the BCT.	2.5

Credit Type	*Credits Required*
Ecosystem Credits	
PCT1607 Blakely's Red Gum – Narrow-leaved Ironbark – Rough-barked Apple Shrubby Woodland of the Upper Hunter (Woodland)	9
PCT1607 Blakely's Red Gum – Narrow-leaved Ironbark – Rough-barked Apple Shrubby Woodland of the Upper Hunter (Derived Native Grassland)	59
PCT1606 White Box - Narrow-leaved Ironbark – Blakely's Red Gum Shrubby Open Forest of the Central and Upper Hunter (Woodland)[a,c]	216
PCT1606 White Box - Narrow-leaved Ironbark – Blakely's Red Gum Shrubby Open Forest of the Central and Upper Hunter (Derived Native Grassland)[a,c]	971
PCT1655 Grey Box – Slaty Box Shrub – Grass Woodland on Sandstone Slopes of the Upper Hunter Valley and Sydney Basin (Woodland)[b,c]	21
PCT1692 Bull Oak Grassy Woodland of the Central Hunter Valley (Woodland)[c]	45
PCT201 Fuzzy Box Woodland on Alluvial Brown Loam Soils mainly in the NSW South Western Slopes Bioregion (Woodland)[c]	15
PCT201 Fuzzy Box Woodland on Alluvial Brown Loam Soils mainly in the NSW South Western Slopes Bioregion (Derived Native Grassland)	14
PCT1691 Narrow-leaved Ironbark – Grey Box Grassy Woodland of the Central and Upper Hunter (Woodland)[b,c]	184
PCT1691 Narrow-leaved Ironbark – Grey Box Grassy Woodland of the Central and Upper Hunter (Woodland)	6
PCT1604 Narrow-leaved Ironbark – Grey Box – Spotted Gum Shrub – Grass Woodland of the Central and Upper Hunter[c]	44
PCT1604 Woodland Rehabilitation	214
Species Credits	
Pine Donkey Orchid (*Diuris tricolor*)[d]	1,474
Tarengo Leek Orchid (*Prasophyllum petilum*)[c, d]	1,114
Rusty Greenhood (*Pterostylis chaetophora*)[d]	229
Tesselate Everlasting (*Ozothamnus tesselatus*)[c, d]	217
Austral Toadflax (*Thesium australe*)[c, d]	34
Pink-tailed Legless Lizard[c]	382
Striped Legless Lizard[c]	1,126
Squirrel Glider	524
Southern Myotis	9

[a] → *Commensurate with White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC under the EPBC Act*
[b] → *Commensurate with Central Hunter Valley Eucalypt Forest and Woodland CEEC under the EPBC Act*
[c] → *Under clause 6.6A of the Biodiversity Conservation Regulation 2017, variation rules do not apply to the identified species or community and the required credits must be retired on a like-for-like basis*
[d] → *Total credit requirements have been calculated based on assumed presence of this species and may be reduced under condition B49*

Section Break (Next Page)

Clause	Requirement	Section of Plan
B48	Prior to commencing any works associated with the realignment of Edderton Road, or other timeframe agreed by the Planning Secretary, the Applicant must retire the biodiversity credits specified in Table 7 below. The retirement of credits must be carried out in consultation with BCD and in accordance with the Biodiversity Offsets Scheme of the BC Act, to the satisfaction of the BCT.	2.5

***Table 7:** Biodiversity Offset Requirements (Stage Two)*

Credit Type	*Credits Required*
Ecosystem Credits	
PCT1606 White Box - Narrow-leaved Ironbark – Blakely's Red Gum Shrubby Open Forest of the Central and Upper Hunter (Woodland)[a,c]	2
PCT1606 White Box - Narrow-leaved Ironbark – Blakely's Red Gum Shrubby Open Forest of the Central and Upper Hunter (Derived Native Grassland)[a,c]	45
PCT1655 Grey Box – Slaty Box Shrub – Grass Woodland on Sandstone Slopes of the Upper Hunter Valley and Sydney Basin (Woodland)[b,c]	2
PCT1655 Grey Box – Slaty Box Shrub – Grass Woodland on Sandstone Slopes of the Upper Hunter Valley and Sydney Basin (Derived Native Grassland)	24
PCT1731 Swamp Oak – Weeping Grass Grassy Riparian Forest of the Hunter Valley	4
PCT201 Fuzzy Box Woodland on Alluvial Brown Loam Soils mainly in the NSW South Western Slopes Bioregion (Derived Native Grassland)	26
PCT1691 Narrow-leaved Ironbark – Grey Box Grassy Woodland of the Central and Upper Hunter (Woodland)[b,c]	51
Species Credits	
Pine Donkey Orchid *(Diuris tricolor)*[d]	157
Tarengo Leek Orchid *(Prasophyllum petilum)*[c,d]	98
Rusty Greenhood *(Pterostylis chaetophora)*[d]	57
Tesselate Everlasting *(Ozothamnus tesselatus)*[c,d]	5
Pink-tailed Legless Lizard[c]	41
Striped Legless Lizard[c]	99
Squirrel Glider	33
Southern Myotis	36

[a] → *Commensurate with White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC under the EPBC Act*

[b] → *Commensurate with Central Hunter Valley Eucalypt Forest and Woodland CEEC under the EPBC Act*

[c] → *Under clause 6.6A of the Biodiversity Conservation Regulation 2017, variation rules do not apply to the identified species or community and the required credits must be retired on a like-for-like basis*

[d] → *Total credit requirements have been calculated based on assumed presence of this species and may be reduced under condition B49*

Clause	Requirement	Section of Plan
B49	The biodiversity credit requirements outlined in conditions B47 and B48 for *Diuris tricolor; Prasophyllum petilum; Pterostylis chaetophora; Ozothamnus tesselatus* and *Thesium australe*, may be reduced if the Applicant demonstrates, to the satisfaction of the Planning Secretary, that the credit requirements in Table 6 and/or Table 7 do not accurately reflect the extent of impacts on these species as a result of the development. Any request from the Applicant to reduce these credit requirements must: (a) be in writing and addressed to the Planning Secretary; and (b) be supported by an expert report or survey report outlining the findings of additional surveys, which has been prepared: (i) by a suitably qualified and experienced person/s; [a,b] (ii) in accordance with the BAM; (iii) in consultation with Council; and (iv) in consultation with BCD, to the satisfaction of the Planning Secretary. [a] In the case of an expert report, a 'suitably qualified and experienced person' means a person who meets the relevant requirements outlined in section 6.5.2 of the BAM [b] In this case of a survey report, a 'suitably qualified and experienced person' means an accredited person as defined in section 1.6 of the BC Act.	2.5
B50	The Applicant must ensure that the Biodiversity Offset Strategy and the Rehabilitation Strategy for the development focus on the regeneration, enhancement and/or re-establishment of: a) the following vegetation communities: (i) *White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions* CEEC; (ii) *Central Hunter Grey Box-Iron Bark Woodland in the NSW North Coast and Sydney Basin Bioregions* CEEC; and b) habitat and/or foraging resources for other significant and/or threatened flora and fauna species, including: (i) Pink-tailed Legless Lizard; (ii) Striped Legless Lizard; (iii) Swift Parrot; and (v) Regent Honeyeater. ***Notes**:* *Identified species and communities are as defined under the BC Act.*	In accordance with Condition B76, this condition relates to the Southern Offset Area, and is addressed in Section 3.1.3.
B51	**Biodiversity Management Plan** The Applicant must prepare a Biodiversity Management Plan for all areas of the development, that are not, or will not, be subject to condition C8(g)(iv)[1], to the satisfaction of the Planning Secretary.	1.2
	This plan must: a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;	2.3
	b) be prepared in consultation with BCD and Council;	2.3 Appendix 4
	c) describe the short, medium, and long term measures to be undertaken to manage the remnant vegetation and fauna habitat and in the Maxwell Infrastructure Biodiversity Offset Areas required under conditions B45 and B46;	3.3
	d) describe how biodiversity management would be integrated with similar measures within other management plans, including the Rehabilitation Management Plan referred to in condition B82;	3.3

[1] "C8 The Applicant must prepare an Extraction Plan for all second workings on site of the development to the satisfaction of the Planning Secretary. Each Extraction Plan must… (g) include ..(iv) Biodiversity Management Plan.."

Clause	Requirement	Section of Plan
	e) include detailed performance and completion criteria for evaluating the performance of the Maxwell Infrastructure Biodiversity Offset Areas required under conditions B45 and B46 and include triggers for remedial action, where these performance or completion criteria are not met;	3.5, 3.6
	f) describe the measures to be implemented to: (i) fulfil or build upon the commitments outlined in the Offset Strategy dated June 2016 with respect to the Drayton Wildlife Refuge and North Offset Area;	3.3
	(ii) satisfy the requirements of condition B46 of this Schedule with respect to the Southern Offset Area; and	3.1.3
	(iii) manage and respond to spontaneous combustion risks on vegetation establishment within the Southern Offset Area, including replanting or the provision of compensatory offsets, if needed;	3.3
	g) describe the measures to be implemented within the approved disturbance areas to:	
	(i) minimise the amount of clearing;	3.3.1
	(ii) minimise impacts on fauna, including undertaking pre-clearance surveys;	3.3.1
	(iii) provide for the salvage, transplanting and/or propagation of any threatened flora found during pre-clearance surveys, in accordance with the *Guidelines for the Translocation of Threatened Plants in Australia* (Vallee et al., 2004), where feasible; and	3.3.2
	(iv) maximise the salvage of resources, including tree hollows, vegetation and soil resources, for beneficial reuse, including fauna habitat enhancement;	3.3.1
	h) describe the measures to be implemented on the site to:	
	(i) minimise impacts to threatened ecological communities listed under the BC Act and EPBC Act, and contribute to conservation strategies for these communities;	3.3
	(ii) minimise impacts on fauna habitat resources such as hunting and foraging areas, habitat trees, fallen timber and hollow-bearing trees	3.3.1
	(iii) enhance the quality of vegetation, vegetation connectivity and fauna habitat including through the assisted regeneration and/or targeted revegetation of appropriate canopy, sub-canopy, understorey and ground strata	3.3.9
	(iv) introduce naturally scarce fauna habitat features such as nest boxes and salvaged tree hollows and promote the use of these introduced habitat features by threatened fauna species;	3.3.10
	(v) manage any potential conflicts between these works and Aboriginal heritage values; and	3.3.12
	(vi) protect vegetation and fauna habitat outside of the approved disturbance areas;	3.3.2
	(vii) manage the collection and propagation of seed from the local area	3.3.9
	(viii) control weeds, including measures to avoid and mitigate the spread of noxious weeds	3.3.5
	(ix) control feral pests with consideration of actions identified in relevant threat abatement plans	3.3.6
	(x) control erosion;	3.3.11
	(xi) manage any grazing and agriculture	3.3.2, 3.3.7
	(xii) control access to vegetated or revegetated areas; and	3.3.7
	(xiii) manage bushfire hazards;	3.3.4
	i) include a seasonally-based program to monitor and report on the effectiveness of the above measures, progress against the detailed performance indicators and completion criteria, and identify improvements that could be implemented to improve biodiversity outcomes;	4.2

Clause	Requirement	Section of Plan
	j) identify the potential risks to the successful implementation of the Biodiversity Management plan, and include a description of the contingency measures to be implemented to mitigate against these risks; and	3.2
	k) include details of who would be responsible for monitoring, reviewing, and implementing the plan.	Table 10
B52	The Applicant must not commence construction until the Biodiversity Management Plan is approved by the Planning Secretary.	1.2
B53	The Applicant must implement the Biodiversity Management Plan as approved by the Planning Secretary. ***Note:*** *The Biodiversity Management Plan and Rehabilitation Management Plan need to be substantially integrated for achieving biodiversity objectives for the rehabilitated site.*	1.2 1.2, 3.3
E4	The Applicant must assess and manage development-related risks to ensure that there are no exceedances of the criteria and performance measures in this consent. Any exceedance of these criteria or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation. Where any exceedance of these criteria or performance measures has occurred, the Applicant must, at the earliest opportunity: (a) Take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur; (b) Consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and (c) Implement reasonable remediation measures as directed by the Planning Secretary.	3.3, 4.2, 4.3 4.4
E5	Management plans required under this consent must be prepared in accordance with relevant guidelines, and include: (a) a summary of relevant background or baseline data;	2.4
	(b) details of: (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); (ii) any relevant limits or performance measures and criteria; and (iii) 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;	2.1, Appendix 1 3.3 3.3, Table 7
	(c) any relevant commitments or recommendations identified in the document/s listed in condition A2(c);	2.2, Appendix 2
	(d) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	3.3
	(e) a program to monitor and report on the: (i) impacts and environmental performance of the development; and (ii) effectiveness of the management measures set out pursuant to condition E5(c);	4.1
	(f) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	3.17
	(g) a program to investigate and implement ways to improve the environmental performance of the development over time;	5.4

Clause	Requirement	Section of Plan
	(h) a protocol for managing and reporting any: (i) incident, non-compliance or exceedance of any impact assessment criterion or performance criterion); (ii) complaint; or (iii) failure to comply with other statutory requirements;	4.3 4.5 4.3
	(i) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	5.2, 5.4
	(j) a protocol for periodic review of the plan. ***Note:*** *The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*	5.1
E6	The Applicant must ensure that management plans prepared for the development are consistent with the conditions of this consent and any EPL issued for the site	1.2
E7	Within three months of: (a) the submission of an incident report under condition E9; (b) the submission of an Annual Review under condition E11; (c) the submission of an Independent Environmental Audit under condition E13; (d) the approval of any modification of the conditions of this consent (unless the conditions require otherwise); or (e) notification of a change in development phase under condition A13; The suitability of existing strategies, plans and programs required under this consent must be reviewed by the Applicant.	5.1
E8	If necessary, to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies, plans and programs required under this consent must be revised, to the satisfaction of the Planning Secretary. Where revisions are required, the revised document must be submitted to the Planning Secretary for approval within six weeks of the review. Note: This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development.:	5.1
E9	The Applicant must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing to compliance@planning.nsw.gov.au and identify the development (including the development application number and name) and set out the location and nature of the incident	4.2
E10	Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non- compliance. The notification must be in writing to compliance@planning.nsw.gov.au and identify the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, why 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. Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.	4.2

APPENDIX 2 – MAXWELL PROJECT EIS AND SUPPORTING DOCUMENT COMMITMENTS

Source	Details	Reference
EIS Section 8.25	Measures to mitigate impacts from the Project on biodiversity are outlined in **Table 8-2 Measures to Mitigate and Manage Potential Biodiversity Impacts**. *The mitigation measures in Table 8-2 are summarised below:* • *Presence of a Trained Ecological or Licensed Wildlife Handler* • *Vegetation Clearance Protocol* • *Mine Site Rehabilitation and Revegetation* • *Salvage and Re-use of Material for Habitat Enhancement within the Mine Site Rehabilitation* • *Site Induction* • *Access* • *Feral Animal Management* • *Weed Management* • *Bushfire Management* • *Fencing* • *Speed Limits*	Table 2 3.4 1.2, 3.1 Table 2 Table 2 Table 2 3.9 3.8 3.7 3.8, 3.9, 3.10 3.11
EIS Section 8.25	In addition, the following measures will be implemented to conserve threatened flora not likely to be impacted by the Project: • Malabar will erect a livestock-proof fence around a 20 m buffer from the *Hunter Valley Weeping Myall (Acacia pendula) Woodland*/*Acacia pendula* population in the Hunter Catchment. The area will be signed 'Environmental Protection Area'. • Malabar will erect a livestock-proof fence around a 20 m buffer from the *Diuris tricolor* records. The area will be signed 'Environmental Protection Area'.	3.5
EIS Section 8.25	Biodiversity Offset Strategy - Existing Biodiversity Offsets The existing biodiversity offsets for the Maxwell Infrastructure will be incorporated into the Biodiversity Offset Strategy for the Project.	1.2
EIS Section 8.25	Project Biodiversity Offset Strategy The sub-sections below describe how the Project Biodiversity Offset Strategy will address both Commonwealth and NSW biodiversity offset requirements.	1.2. The biodiversity offset requirements for the Maxwell Underground and Edderton Road Realignment (Conditions B47 to 49 of Development Consent SSD 9526) will be addressed separately in accordance with the NSW Biodiversity Offset Scheme under the Biodiversity Conservation Act 2016 (BC Act). Accordingly, the management of these offset areas does not form part of the scope of this BMP.

APPENDIX 3 – PLANNING SECRETARY ENDORSEMENT

Planning, Industry & Environment

Donna McLaughlin
HSE Manager
Maxwell Ventures (Management)PTY LTD
Thomas Mitchell Drive
Muswellbrook, NSW 2333

01/03/2021

Dear Ms McLaughlin

Maxwell Underground (SSD-9526)
Biodiversity Management Plan

I refer to your request (SSD-9526-PA-2) for the Planning Secretary's approval of suitably qualified persons to prepare the Biodiversity Management Plan for the Maxwell Underground (SSD-9526).

The Department has reviewed the nominations and information you have provided and is satisfied that these experts are suitably qualified and experienced. Consequently, I can advise that the Planning Secretary approves the appointment of Colin Driscoll, an independent environmental consultant trading as HUNTER ECO, to be appointed as a suitably qualified and experienced person to assist in the preparation of the Biodiversity Management Plan.

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

Yours sincerely

Matthew Sprott
Director
Resource Assessments (Coal & Quarries)

As nominee of the Planning Secretary

4 Parramatta Square, 12 Darcy Street, Parramatta 2150 | dpie.nsw.gov.au | 1

APPENDIX 4 – CONSULTATION WITH BCD, MSC AND BCT

Raised By	Consultation Feedback	Outcome
Biodiversity and Conservation Division	BCD recommends that Section 3.1.3, Table 1 'Performance Criteria for Biodiversity Management Areas' and Table 2. 'Triggers and remedial actions for potential risks to achieving targeted vegetation communities' is amended to include the objective that targeted vegetation endangered ecological communities will be recognisable as those vegetation communities.	**Section 3.1.3**, **Table 1** - 'Performance Criteria for Biodiversity Management Areas' and **Table 5** (*was incorrectly labelled as Table 2*) - 'Triggers and remedial actions for potential risks to achieving targeted vegetation communities' have been amended to include that the targeted vegetation endangered ecological communities will be recognisable as those vegetation communities as detailed in Development Consent SSD 9526 (refer to pages 15, 20 and 36).
	BCD recommends that any High Threat Weeds that can invade and alter native vegetation are controlled, and where possible eradicated from the ecological rehabilitation, and as a maximum kept to <10% cover in the grassland rehabilitation to give ecological rehabilitation the best chance of success.	**Section 3.8** has been amended to include the commitment to eradicate where possible and as a maximum keep to less than 10 per cent cover in the grassland rehabilitation (refer to page 25).
	BCD recommends that Figure 3 'Threatened Flora Species/Endangered Population' is updated to include the *Prasophyllum petilum* record from beside Thomas Mitchell Drive.	**Figure 3** has been updated to include the *Prasophyllum petilum* record from beside Thomas Mitchell Drive (refer to page 11).
	BCD recommends that *Anagallis arvensis* (now *Lysimachia arvensis*) is removed from the table of 'Species Characteristic to Different Vegetation Communities' and is not included in any rehabilitation seed mix.	*Anagallis arvensis* has been removed from **Table 4** – 'Species Characteristic to Different Vegetation Communities' and is not included in any rehabilitation seed mix (refer to page 28).
	BCD recommends that vegetation monitoring is done using the Biodiversity Assessment Method, to be consistent with current best practice.	**Section 4.2.2** has been amended to include that vegetation monitoring will be undertaken using the Biodiversity Assessment Method, to be consistent with current best practice (refer to page 39).
	BCD recommends that the Table of Contents is revised to include the titles and page numbers of figures and tables in the main body of the Biodiversity Management Plan.	The **Table of Contents** has been revised to include the titles and page numbers of figures and tables in the main body of the Biodiversity Management Plan (refer to page 4).
	BCD recommends that minor typographic errors are revised.	Minor typographic errors have been revised including: Page 28 – **Table 1** was corrected to **Table 4**. Page 32 – **Table 2** was corrected to **Table 5**.
Muswellbrook Shire Council	The draft Biodiversity Management Plan has been reviewed. The only change we seek as that the Drayton Wildlife Refuge, Northern Offset Area and Southern Offset Area be clearly labelling on Figure 2 - it is a bit ambiguous at present.	Labels have been added to **Figure 2** for the Wildlife Refuge, Northern Offset Area and Southern Offset (refer to page 7).

Raised By	Consultation Feedback	Outcome
Biodiversity Conservation Trust	What is the proposed covenant type to be used to protect the Northern and Southern Offset areas within the Drayton Wildlife Refuge? The BCT notes that a Wildlife Refuge is not a secure form of in-perpetuity covenant.	The existing and approved offset strategy has been incorporated into this Biodiversity Management Plan and a conservation and biodiversity bond has been provided to DPIE for the continued management of the offsets. No change required to the BMP.
	Weed control targets in Table 1 of the BMP of <20% are not high enough to establish, maintain and protect the Northern and Southern offset areas. The BCT strongly recommends revising these targets to <10% weed cover.	Completion criteria for weed control in **Table 1** has been amended to < 10% (refer to page 18).

APPENDIX 5 – DPIE CORRESPONDENCE

Planning, Industry & Environment

Mrs Donna McLaughlin
HSEC Manager
Maxwell Ventures (Management) PTY LTD
Thomas Mitchell Drive
Muswellbrook New South Wales 2333

02/09/2021

Dear Mrs McLaughlin

Maxwell Underground - (SSD-9526)
Biodiversity Offset Credit Retirement Time Extension

I refer to your request (SSD-9526-PA-35) and letter submitted to the Department on the 13 August 2021, for a time extension to retire Biodiversity Offset Credits as required under the conditions of consent for the Maxwell Underground - Biodiversity Offset Credit Retirement (SSD-9526-PA-35).

I understand that Maxwell Underground has prepared a draft Biodiversity Stewardship Application for a land-based offset property. The proposed offset property provides sufficient credits to satisfy the biodiversity credit requirements in Conditions B47 and B48 of Development Consent SSD 9526.

I note that Maxwell Underground met with NSW Biodiversity Conservation Trust (BCT) on 27 July 2021. BCT have advised that the first review of the draft application would take two weeks and a full assessment of the application may take up to six months. Therefore, the credits are expected to be formalised and retired before the 30 June 2022.

Accordingly, I grant an extension of time until 30 June 2022 to finalise the Biodiversity Offset Credit Retirement application.

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

Yours sincerely

Carl Dumpleton
A/Director
Resource Assessments (Coal & Quarries)

As nominee of the Secretary

320 Pitt Street Sydney 2000 | GPO Box 39 Sydney 2001 | dpie.nsw.gov.au | 1

Planning, Industry & Environment

Donna McLaughlin
Manager Environment& Community
Maxwell Ventures (Management) Pty Ltd
Thomas Mitchell Drive
Muswellbrook, NSW, 2333

20/09/2021

Dear Mrs. McLaughlin

Maxwell Underground (SSD-9526)
Biodiversity Credit Requirements

I refer to the Biodiversity Credit Requirements letter submitted in accordance with Condition B49 of Schedule 2 of the Development Consent for the Maxwell Underground Mine (SSD-9526).

The Department has carefully reviewed the document and is satisfied that it meets the relevant requirements of condition B49. Accordingly, the Secretary has approved the request to reduce biodiversity credit requirements under Condition B49 as folows:

1. The Department (including the Biodiversity and Conservation Division) is satisfied that the offset requirements in Conditions B47 and B48 of Schedule 2 for *Pterostylis chaetophora*, *Ozothamnus tesselatus* and *Thesium australe* can be reduced to zero for this project.

2. However, the 0.3 hectares of habitat considered suitable for *Diuris tricolor* and *Prasophyllum petilum* within the Stage One development footprint has not been surveyed in full compliance with *Surveying threatened plants and their habitats: NSW survey guide for the Biodiversity Assessment Method* (BCD, 2020). Therefore, the Table 6 'Biodiversity credit requirements (Stage One)' required for *Diuris tricolor* are changed from 1,474 credits to 5 credits, and for *Prasophyllum petilum* are changed from 1,114 credits to 6 credits.

3. The credit requirements for *Diuris tricolor* and *Prasophyllum petilum* in Table 7 'Biodiversity credit requirements (Stage Two)' can be changed to zero.

If you wish to discuss the matter further, please contact Wayne Jones on 6575 3406 or Robert Gibson of the Biodiversity and Conservation Division on (02) 4927 3154.

Yours sincerely

JEvans

Jessie Evans
Director
Resource Assessments (Coal & Quarries)

As nominee of the Secretary

APPENDIX 6 – REGULATORY APPROVAL