RTA Weipa Pty Ltd

Amrun Rehabilitation Strategy – South of Embley Project

October 2025

DOCUMENT CONTROL

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[1] Plan approved by delegate 19 December 2025, however, approval was only provided to RTA Weipa PTY LTD 30 January 2026.

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1 INTRODUCTION

1.1. PURPOSE OF THIS PLAN

RTA Weipa Pty Ltd (RTAW) holds approval (EPBC 2010/5642) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for the South of Embley (SoE) Project[2]. This Rehabilitation Strategy has been prepared to address Conditions 33 to 40 of the approval. The Strategy has been prepared to ensure the rehabilitated areas are functionally equivalent to the pre-disturbance habitat, to enable similar land use to that of the pre-disturbance habitat, by the following species listed in Condition 33:

i) Red *Goshawk (Erythrotriorchis radiatus)* [vulnerable];

ii) Masked Owl *(Tyto novaehollandiae kimberli)* [vulnerable];

iii) Barn Swallow *(Hirundo rustica)* [migratory].

1.2. EXCLUSIONS FROM THIS STRATEGY

Condition 33(vi) requires that the Bare-rumped Sheath-tailed Bat (*Saccolaimus saccolaimus nudicluniatus*) be included in the Rehabilitation Strategy if identified at Condition 31(c) or Condition 32. Condition 31(a) required a targeted broad spectrum acoustic survey of the Project area for the Bare-rumped Sheath-tailed Bat be carried out before the commencement of the action, and Condition 31(c) required analysis of the acoustic survey results using references call of the Bare-rumped Sheath-tailed Bat. The survey found no evidence of this species from recordings of bat echolocation. The results of the survey were provided to the Department of Agriculture, Water and the Environment (DAWE) (formerly the Department of Environment) on 28 November 2013. In addition, no suspected or confirmed sightings of the Bare-rumped Sheath-tailed Bat have been made since, and consequently, this species is excluded from further consideration in accordance with Condition 33(vi).

2 BACKGROUND

A detailed environmental impact assessment of Matters of National Environmental Significance (MNES) under the EPBC Act is presented in the Final SoE Project Environmental Impact Statement (EIS) (RTA, 2013). The EIS identified a small number of threatened or migratory species that are potentially impacted by the SoE Project.

Key mitigation measures identified for these species are rehabilitation of mined areas to ecosystems that are functionally equivalent to pre-disturbance habitats, retention of extensive native vegetation surrounding watercourses and drainage depressions that intersect mining areas and the implementation of comprehensive weed, feral animal and fire management programs. These measures are discussed in further detail in Appendix A: Impact Avoidance Measures

[2] The Amrun Project is the first stage of the South of Embley (SoE) Bauxite Mine and Port Project. It was renamed in consultation with the local traditional owners. In this report, the SoE Project name is retained to be consistent with approval conditions.

2.1. REGULATORY REQUIREMENTS

The EPBC Act Approval (EPBC 2010/5642) conditions relating to the Strategy, and where they are addressed in this document, are outlined in **Table 1**.

Table 1: Rehabilitation Strategy EPBC 2010/5642 Approval Conditions

Condition		Addressed in
33	The approval holder must submit an adaptive **Rehabilitation Strategy**, covering the **construction and operation** of the project to ensure the rehabilitated areas are functionally equivalent to the pre-disturbance habitat, to enable similar land use to that of the pre-disturbance habitat, by the following matters of **national environmental significance**: i. Red *Goshawk (Erythrotriorchis radiatus);* ii. Masked Owl *(Tyto novaehollandiae kimberli);* iii. Barn Swallow *(Hirundo rustica);* and, iv. if identified at condition 31(c) or condition 32, the Bare-rumped Sheathtail Bat (*Saccolaimus saccolaimus nudicluniatus*).	Sections 3, 3.8.4 and 5 Section 1.2
34	The land area to be progressively rehabilitated over the life of the project must be no less than 28,880 hectares. Unless otherwise specified in the approved Rehabilitation Strategy at condition 33, rehabilitation works must commence within two (2) years: i. following mining in the area/s where it has been completed; or, ii. following decommissioning and removal of any infrastructure, in each area where that infrastructure will not be retained at the end of the project.	Sections 3.4 and 3.9 (c)
35	The Rehabilitation Strategy must include adaptive management strategies to benefit the species listed at condition 33. The Rehabilitation Strategy must include measures outlined in the **Final Environment Impact Statement** and address effective management strategies to identify desired outcomes, benchmarks, readily measurable performance indicators and goals, timeframes for reporting and implementation, corrective actions and contingency measures, and, specify the person/s roles with responsibility for implementing actions. The Rehabilitation Strategy must provide information detailing Traditional Owner employment opportunities, and mechanisms for reporting the number of local indigenous person/s actually employed in the implementation of this Strategy (consistent with condition 42).	Sections 3, 5 and 8 Section 10
36	The Rehabilitation Strategy must be submitted to the **Minister** for approval within 3 years of the commencement of **operations**. The approved Rehabilitation Strategy must be implemented.	Commencement date Section 2.3
37	Unless otherwise agreed to by the Minister in writing, every five (5) years from the first anniversary of the approval of the Rehabilitation Strategy at condition 33 a reviewed Rehabilitation Strategy must be submitted to the Minister. The approved Rehabilitation Strategy must be implemented.	Section 7

Condition		Addressed in
38	If the rehabilitation objectives identified for species identified at condition 33 do not meet any of the success criteria for any of these species as described in the approved Rehabilitation Strategy at condition 33 after 10 years of rehabilitation commencing, or as otherwise agreed in the approved Rehabilitation Strategy, the approval holder must notify the Minister in writing within 20 business days of the area (hectares) over which the rehabilitation objectives and success criteria were not met.	Section 8
39	Within six (6) months of notifying the Minister at Condition 38, the approval holder must submit to the Minister for approval an Offset Strategy outlining the offset to be provided for the matters of national environmental significance identified at condition 33. The related offset must be in accordance with the Environmental Protection and Biodiversity Conservation Act 1999 Environmental Offset Policy (October 2012), or its most current version.	Section 8
40	An approved Offset Strategy must be implemented.	Section 8

2.2. FUNCTIONAL EQUIVALENCE

Functional equivalence is a term that appeared in the literature in the late 1970's and since then has been used in a range of contexts. Discussions of functional equivalence originally centred on the concept of coexisting functional groups of species which have adapted to grow under the most common environmental conditions (Hubbell, 2005). However, functional equivalence has since been used as a generic term to describe equivalence in function of various environmental factors ranging from:

- Restored wetland water quality;
- Equivalence of restored salt marsh function and structure;
- Impact of similar predators on prey community patterns; and
- Generalist assemblages in plant-animal interactions (predator/prey; pollinators/plants; plant-animal seed dispersal).

For the purposes of this document functional equivalence is interpreted as follows.

With respect to the listed MNES, the rehabilitated areas will be broadly equivalent to the pre-disturbance habitat, where relevant, in terms of requirements for:

- nesting/breeding
- foraging
- roosting
- shelter
- dispersal
- forest structure

Note that functional equivalence should not be confused with the more common term, ecological equivalence (or ecological equivalents), which refers to different species that occupy similar ecological niches in similar ecosystems.

2.3. SOE PROJECT SUMMARY

The SoE Project involves the construction and operation of a bauxite mine and associated processing and Port facilities for shipping of bauxite to either Gladstone or international markets. The Project involves a staged increase in production up to 50 million dry product tonnes per annum (Mdptpa) of bauxite. The initial production stage (the Amrun Project) has a production capacity of approximately 22.8Mdptpa. Actual production rates and the timing and size of capacity expansions will depend on market conditions. Anticipated mine life for the SoE Project is approximately 40 years, depending on production rates.

The SoE Project is located near Boyd Point on the western side of Cape York Peninsula. The main components of the Project are illustrated in **Figure 1** (figure based on RTA, 2013) and summarised below. Detailed information on the Project is presented in the Final EIS (RTA, 2013).

- **bauxite mining** – involving the clearing, salvage of topsoil, stripping of overburden, extraction of up to 50Mdptpa of bauxite, replacement of topsoil and revegetation. Mined areas are being progressively rehabilitated;
- **bauxite processing** – crude bauxite is transported using a network of internal haul roads to one of two beneficiation plants (Boyd beneficiation plant, followed by a future plant near Norman Creek). A beneficiation plant separates the bauxite and waste materials through sizing, screening, washing and dewatering. Chemicals are not used in the process, only water. Fine waste materials are discharged to tailings storage facilities;
- **product bauxite stockpiles** – beneficiated product stockpiles, built by a stacker for subsequent reclaiming, are established adjacent to Boyd Port;
- **ancillary infrastructure** – involving the construction and operation of a diesel-fuelled power station, workshops, warehouse, administration facilities, package sewage treatment plant, temporary waste storage prior to disposal off-site and diesel storage facilities;
- **barge, ferry and tug facilities** – involving the construction and operation of a new ferry and tug terminal at Hornibrook Point, a roll on/roll off barge facility at Humbug Wharf, and a new barge and ferry terminal on the western bank of the Hey River;
- **on-site camp** – involving the construction and operation of a camp facility. Additional accommodation may be constructed in Weipa if required.
- **water infrastructure** – involving the construction and operation of a water supply dam on a freshwater tributary of Norman Creek (Arraw Dam[3]), plus pipelines, water treatment plants (for potable water) and artesian bores;
- **port and ship-loading facilities** – involving the construction and operation of the Chith Export Facility[4], shiploading and tug mooring facilities between Boyd Point and Pera Head. The Port includes a jetty, bulk carrier vessel wharf and berthing structures, tug and line boat moorings, ship-loader and dredging of berth pockets and departure areas.

The first bauxite shipment from the SoE Project departed on 2 December 2018, marking the official commencement of SoE Project operations.

[3] Arraw Dam was previously referred to as Dam C in the EIS. The Dam was named Arraw in 2017 which is the Wik-Waya term for Emu

[4] The Chith Export Facility was previously referred to as the Boyd Export Facility in the EIS. The facility was renamed Chith in 2017 which is the Wik-Waya term for Osprey.

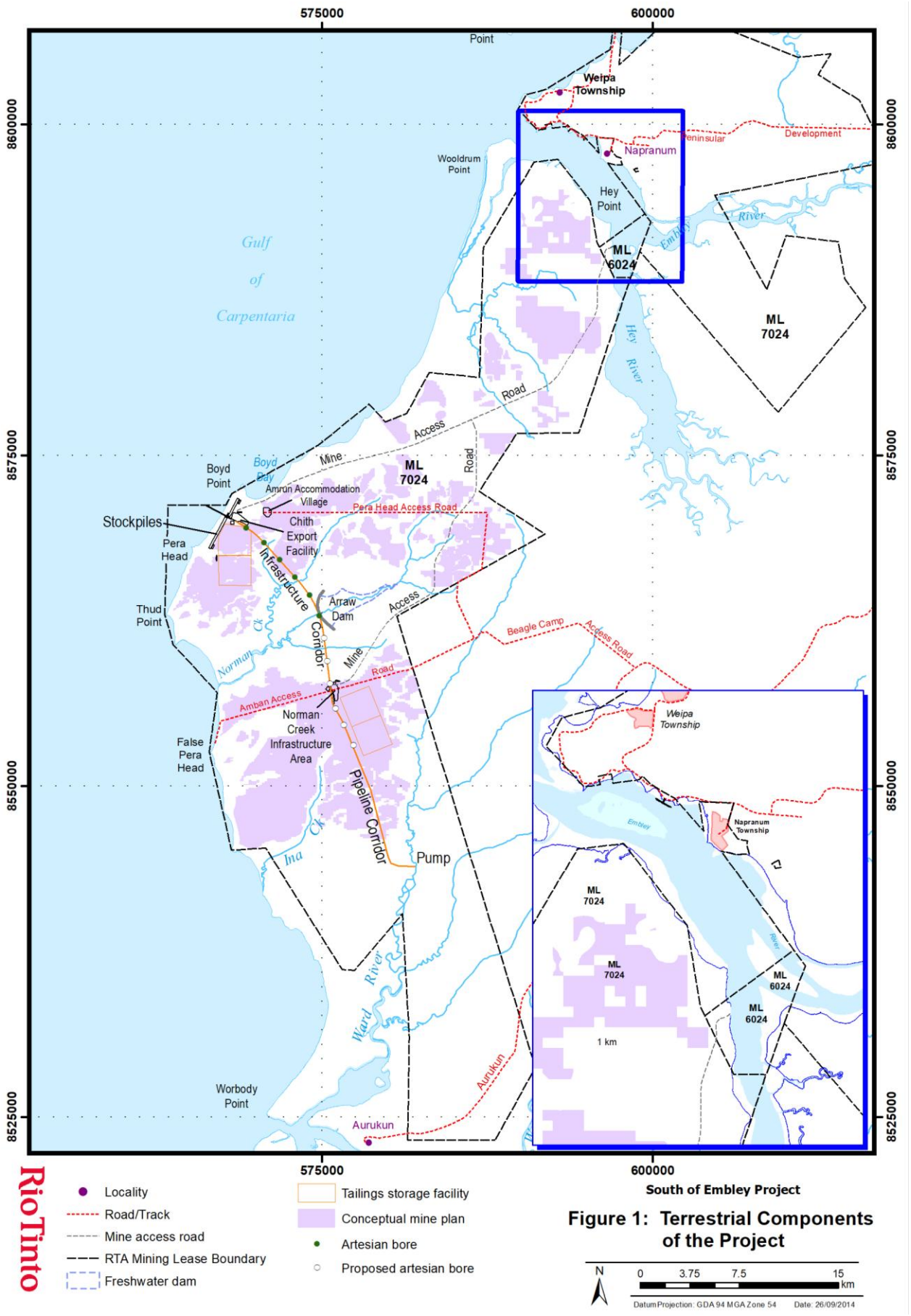

Figure 1: Components of the SoE Project

3 SoE REHABILITATION

This section outlines the rehabilitation management measures adopted for the SoE Project to ensure rehabilitation success. The measures are consistent with:

a) the Final EIS (RTA, 2013: Section 3.10), and
b) the Rehabilitation Management Plan (RTAW, 2022) which has been prepared under Condition C24 of Environmental Authority (EA) EPML00725113).

3.1. FINAL LANDFORM

Areas disturbed by mining activities and infrastructure will be rehabilitated to a stable landform with a self-sustaining vegetation cover. After overburden and soil are returned to the mine floor following mining, the final rehabilitated land surface is at a lower elevation than the original land surface due to the removal of the bauxite. There are no out-of-pit overburden dumps formed. Where mined areas abut non-mined areas, batters are formed, and these are contoured to a maximum slope of 25%.

Changes to topography due to mining and infrastructure at a local scale are minor, so there are no significant changes to the broad scale topography of the Project area. Prior to mining, areas are assessed to determine whether the post-mining landform will be seasonally inundated due to the final surface becoming close to the wet season watertable level. If this is the case, rehabilitation is planned such that local species from *Melaleuca* and *Lophostemon* dominated vegetation communities would be used.

Tailings storage facilities will appear as elevated features in the post-mining landscape. However, these comprise a relatively minor proportion of the disturbance footprint. The maximum allowable height of tailings storage facilities in the SoE Project area authorised in the EA are RL 55m at the Boyd Tailings Storage Facility and RL 80m at the future Norman Creek Tailings Storage Facility.

3.2. POST-MINING LAND USE

The overall goal of the rehabilitation program is to return the land to a post-mining land use that will be stable, self-sustaining, requires minimal maintenance, and protects downstream water quality. For mine rehabilitation, this means the establishment of a self-sustaining vegetation community comprising local native tree, shrub and grass species which are appropriate to the given landform.

3.3. REHABILITATION DOMAINS

Current and future disturbance areas are broken into "domains" which reflect the different activities that have or will be undertaken in those areas and, consequentially, the different post-mining land uses. The areas to be disturbed for the SoE Project are identified in their respective domains in Table 2.

Table 2: Current Domains and Associated Post-Mining Land Use

Domain	Description	Post-Mining Land Use
Mined area (benchmark)	Areas subject to mining activities - includes borrow pits and haul roads.	A self-sustaining vegetation community comprising appropriate local native tree, shrub and grass species, which provides habitat to support local flora and fauna species, including culturally important species. This includes: • native dry woodland vegetation dominated by *Eucalypts, Corymbias, Erythrophleum* and other framework species; • native wetland community dominated by *Melaleuca* and/or *Lophostemon* species
Tailings storage facilities	Above ground facilities holding tailings generated from the bauxite beneficiation process.	Self-sustaining landform and vegetation meeting criteria derived from monitoring and research of existing rehabilitation on Tailings Storage Facilities.
Infrastructure: Water	Includes water supply dam and other water infrastructure.	Subject to agreement with regulators and Traditional Owners some facilities may be left in place. Otherwise, the commitment is to remove structures at closure and rehabilitate as per the nominated criteria.
Infrastructure: Plant	Includes beneficiation plants, workshops, power station, product stockpiles and other hardstand areas, conveyors, and other fixed plant.	Subject to agreement with regulators and Traditional Owners some facilities may be left in place. Otherwise, the commitment is to remove structures at closure and rehabilitate as per the Mined area domain.
Infrastructure: Transport	Includes port, ferry/barge terminals, and mine access road.	Subject to agreement with regulators and Traditional Owners some facilities may be left in place. Otherwise, the commitment is to remove structures at closure and rehabilitate as per the nominated criteria.

3.4. REHABILITATION GOALS AND OBJECTIVES

The rehabilitation goals and objectives for the various Project domains are presented in Table 3. Generally, construction and operations share common goals and objectives but there are some differences, and these are outlined in the following sections.

Table 3: Rehabilitation Goals and Objectives for Project Domains

Mine Domain	Rehabilitation Goals	Rehabilitation Objective/s
Mined area	Long-term safety	The site is safe for humans and animals, now and in the foreseeable future.
	Non-polluting	Surface water remains uncontaminated.
		Land is suitable for final land use
	Stable landform	Landform design achieves appropriate erosion rates.
	Self-sustaining native dry woodland vegetation dominated by *Eucalyptus, Corymbia, Erythrophleum* and other framework species that meets criteria derived from dry woodland reference sites and trials.	Soil health
		Self-sustaining dry woodland vegetation and fauna habitat established; management requirements comparable to those of unmined dry woodland
	Self-sustaining wetland vegetation community that includes Melaleucas and other native plant species and supports native fauna	Soil health
		Self-sustaining wetland vegetation and fauna habitat established in seasonally inundated areas
		Local native mammals, birds, reptiles, amphibians & invertebrates using the site (or likely to)
Tailings Storage Facility	Long-term safety	The site is safe for humans and fauna, now and in the foreseeable future
	Non-polluting	Surface water remain uncontaminated
		Dust levels at sensitive human receptors meet EA conditions
	Stable landform	Landform design achieves appropriate erosion rates
		Slopes are geotechnically stable
		Vegetation cover to minimise erosion
		Very low probability of slope slippage with serious consequence in regards to environmental harm
	Sustainable land use	Establish specified self-sustaining natural vegetation
Water supply dam and other water infrastructure	Water infrastructure, such as the water supply dam, may be left in place.	Subject to agreement with regulators and Traditional Owners some facilities such as the water storage dam may be left in place. The Final Rehabilitation Report will address any on-going maintenance, management and funding requirements and shall be approved by the regulator Otherwise, the commitment is to remove structures at closure and rehabilitate as per objectives below
	Long-term safety	The site is safe for humans and fauna, now and in the foreseeable future

Mine Domain	Rehabilitation Goals	Rehabilitation Objective/s
Water supply dam and other water infrastructure	Non-polluting	Surface water remain uncontaminated
		Soil remains uncontaminated
		Dust levels at sensitive human receptors meet EA conditions
	Stable landform	Landform design achieves appropriate erosion rates
		Vegetation cover to minimise erosion
	Sustainable land use	As per Tailings Storage Facilities
Infrastructure: Plant	Some plant infrastructure may be left in place, otherwise rehabilitated as per Mined area domain.	Subject to agreement with regulators and Traditional Owners some facilities may be left in place. Otherwise, the commitment is to remove structures at closure and rehabilitate
Infrastructure: Transport	Transport infrastructure such as the Port, ferry and barge terminals, mine access road, may be left in place., otherwise rehabilitate as per Mined area domain.	Subject to agreement with regulators and Traditional Owners some facilities will be left in place. The Final Rehabilitation Report will address any on-going maintenance, management and funding requirements and shall be approved by the regulator.

3.4.1. Construction

Disturbance associated with the construction phases of the SoE Project will be minimised as much as practicable. Where possible, disturbance for temporary construction activities will occur in areas that are likely to be later disturbed for permanent infrastructure or mining to minimise overall disturbance. Topsoil will be removed and retained for later use in rehabilitation.

Areas cleared for temporary construction activities will be rehabilitated when no longer required. The following rehabilitation activities will be completed.

- Subsoils will be contour scarified to 300mm deep to minimise sheet or gully erosion.
- Topsoil will be respread on these areas to a thickness that reflects the original topsoil.
- Temporary erosion and sediment controls required whilst ground cover is re-established in the rehabilitation areas will be included in the erosion and sediment control layout maps and added to the erosion and sediment control plan monitoring areas.
- Ground cover may include natural seed bank in topsoils, mulched canopy material or hydromulch with select seed mix.
- Rehabilitated areas will be included in the annual weed monitoring program for the duration of construction.
- Rehabilitation works will be predominantly commenced (placement of topsoil and subsoil) within two (2) years following decommissioning and removal of any construction infrastructure. However, where the area is required for further operations or construction activities, rehabilitation will be postponed until the area is no longer required for such activities. This enables the previously disturbed land to be reused.

3.4.2. Operations

Rehabilitation aims to achieve the designated post-mining land use for each domain. Under the EA (Condition C20), rehabilitation can be considered successful when:

a) The site can be managed for its designated land-use (e.g.: similar to that of surrounding undisturbed areas);
b) No greater management input than for other land in the area being used for a similar purpose is required and there is evidence that the rehabilitation has been successful;
c) The rehabilitation is carried out in accordance with the specified goals, objectives, indicators and completion criteria; and
d) Written agreement is obtained from the landowner/holder and administering authority.

The rehabilitation objectives for mined areas within the SoE Project area required to satisfy the rehabilitation goals are shown in Table 3.

Infrastructure refers to any built facilities constructed for mining purposes or associated activities. The commitment is to remove all structures at closure and rehabilitate as per appropriate criteria. However, some infrastructure may be utilised, and in some cases depended on, by the broader community. The EA (Condition C26) allows such facilities to be retained, subject to agreement with regulators and Traditional Owners.

Rehabilitation works, starting with the placement of topsoil and subsoil, will predominantly commence within two (2) years following mining in the area/s where it has been completed or following decommissioning and removal of any infrastructure that will not be retained at the end of the project. Details of the rehabilitation process are outlined in the remainder of Section 3.

The nature of the bauxite mine pit development requires that a small portion of mined areas need to remain open for access to future mining areas (e.g. for haul road construction or active mine face access). Rehabilitation of these areas will be postponed until the area is no longer required for mining purposes. The area not rehabilitated within two years would be kept to the minimum practicable.

3.5. REHABILITATION INDICATORS

Rehabilitation indicators are parameters that are measured to track the performance of rehabilitation against a given objective and ultimately to determine if the completion criteria (standards that are to be met by successful rehabilitation) have been met in order to ensure high quality rehabilitation.

Indicators must be able to encompass the natural variation observed in biological data. Considerable variation may exist within a site, and between sites classified as the same land unit, and on the same site before and after major disturbances such as fire and drought.

Rehabilitated and analogue reference sites cannot achieve equivalency in short timescales. Therefore, rehabilitation benchmarks must be carefully considered, based on the expected ecological relationship between rehabilitated and analogue reference sites. The rehabilitation indicators for SoE Project are detailed in the Rehabilitation Management Plan (RTAW, 2022) and are reproduced in Appendix B (Tables B 1 and B 2).

3.6. COMPLETION CRITERIA

The Queensland Administering Authority define completion criteria as *"the standards that are to be met by successful rehabilitation. They will generally be in the form of numerical values that can be verified by measurement of the indicators selected for the rehabilitation objectives. They may include an element based on time, e.g. the criterion has been achieved for 7 consecutive years for 95 percent of the area."* (DES, 2018).

An adaptive management approach is taken with the development of completion criteria, as they may evolve over time. The current rehabilitation completion criteria for SoE Project are detailed in the Rehabilitation Management Plan (RTAW, 2022) and are reproduced in Appendix B (Tables B1 and B2).

3.7. REHABILITATION EARTHWORKS

3.7.1. Topsoil Management

Topsoil removal is conducted three to twelve months ahead of mining during the dry season when soil moisture is sufficiently low to minimise negative impacts on soil compaction. Wherever practical, topsoil and subsoil are stripped separately and returned directly to nearby areas of the mine floor. Topsoil and subsoil are replaced sequentially on mined areas available for rehabilitation and spread to depths similar to those that were stripped.

The overburden, subsoil and topsoil stripped from a new mining area are normally taken directly to an existing mined out area that is awaiting rehabilitation. Ideally, this material is respread, ripped and seeded within the same dry season. In circumstances when operational requirements prevent stripped material being directly re-located it is temporarily stockpiled. Wherever possible, stockpiles are located above areas subject to wet season inundation.

In the SoE Project area, topsoil from the initial clearing for construction of infrastructure areas, Tailings Storage Facilities and mine access road, will be kept separate from subsoils. These topsoil stockpiles may exist for an extended period of time as there will be little infrastructure rehabilitation early in the mine life. In addition, a balance of soil will need to be retained for rehabilitation following decommissioning of those infrastructure areas. Topsoil stockpiles generally contain sufficient native seed to naturally revegetate during the first wet season, providing good erosion control and initiating recovery of some of the biological and chemical values in the outer layer of the topsoil.

3.7.2. Ripping

The mine floor is ripped to increase water infiltration rates to reduce the severity of erosion and to maintain soil moisture and aeration. Ripping normally occurs immediately following the soil being respread on the mine floor but in some cases may be undertaken prior to the placement of soil for rehabilitation. The minimum ripping depth into the mine floor will be approximately 500 mm. Ripping will be carried out along the contour to reduce erosion.

3.8. REVEGETATION

MINING DOMAIN

Progressive rehabilitation is undertaken following the completion of mining.

3.8.1. Surface Preparation

Soil scarification is conducted immediately prior to seeding.

3.8.2. Plant Species Selection

Selection of local, native species will be based on their likely suitability to the anticipated post-mining conditions of the area to be rehabilitated. Proximity of the landscape to the wet season water table is the key factor determining which native plant community is most appropriate for the post-mining landscape. Where appropriate, culturally significant species will be incorporated into the rehabilitation program as identified in consultation with the Traditional Owners. These species will be included in the seed mix, where suited to the post-mining conditions of the area to be rehabilitated.

Most post-mining landscapes in the SoE Project area are expected to be suitable to support native dry woodland vegetation (land units 2b and 2c) dominated by *Eucalyptus*, *Corymbia*, *Erythrophleum* and other framework species (see Table 4 below).

Landscapes likely to be less free draining and seasonally inundated are most suited to *Melaleuca* swamp and *Melaleuca*/Swamp mahogany vegetation communities (predominantly land units 3b and 5j; see Table 4 below).

Based on these land units, a suite of 'framework' species was developed (Table **5** below) representing the key species which need to be re-established to ensure that the rehabilitation develops into a mature ecosystem which is resilient to the local disturbance regimes and meets the goals and objectives of the rehabilitation. A detailed description of the Land Units is provided in the Rehabilitation Management Plan (RTAW, 2022).

3.8.3. Direct seeding

Direct seeding, using either a belt spreader towed behind a tractor or aerial seeding augmented with hand seeding of large seeded species such as *Pandanus* and *Parinari nonda*. Seeding typically occurs within 2 years of the completion of mining and usually between the months November and January, to help ensure the soil moisture and follow-up rainfall is favourable to seedling establishment.

3.8.4. Soil Amelioration

Fertilizer application (generally, superphosphate at 200kg/ha) is normally applied aerially or through direct application with tractors (or other fertilizer regime indicated by any future rehabilitation trials and/or monitoring).

Table 4: Analogue Land Units for Dry Woodland and Wetland Rehabilitation

Land Unit	Description
Dry Woodland	
2b	Bauxite or laterite plateau; red earths; excessively drained. Tall Darwin stringybark woodland with Melville Island bloodwood, Cooktown iron-wood, nonda plum, Roth's wattle, tall perennial grasses and annual grasses and herbs.
2c	Bauxite plateau; mottled yellow earths; slightly impeded drainage. Darwin stringybark woodland with Melville Island bloodwood, nonda plum, Roth's wattle, perennial and annual grasses and herbs.
5b	Undulating plains and erosional slopes on bauxite and sandstone; lateritic yellow and red earths with hard setting surfaces; slow to medium drainage. Ironbark grassy woodland with Cooktown ironwood, quinine bush, beefwood and medicine bush.
5e	Colluvial deposits in upper reaches of broad drainage basins; bleached yellow podzolics; poorly drained with waterlogging for short periods in the wet season. Mixed woodland with long-fruited bloodwood, Cape York red gum, nonda plum, swamp mahogany, pandanus and bushman's peg. Banksia and Melville Island bloodwood are absent.
5f	Eroding slopes and scarps on colluvium from bauxite plateau; yellow podzolic and bleached gleyed podzolics with hard setting surfaces. Run-off rates are moderate but infiltration and drainage rates are slow. Broad-leaved carbeen and Darwin stringybark woodland with long-fruited bloodwood, Cooktown ironwood, Molloy red box, broad-leaved paperbark, beefwood, bushman's peg, boot-lace oak and spear grass.
Wetland	
7d	Colluvial deposits on footslopes or along the margins of drainage lines; yellow or gleyed podzolics; poorly drained, some waterlogging. Broad-leaved paperbark woodland with bladey grass, sometimes with long-fruited bloodwood, Cape York red gum and ghost gum.
5j	Upper parts of broad basins and colluvial foot slopes; soils range from loams to sands with an 'A' horizon present; drainage impeded at depth and waterlogged during the wet season. Long-fruited bloodwood-banksia woodland with swamp mahogany, wattles and bushman's peg.
3b	Fringe zones at most consistent water level in swamps (permanently saturated); bleached yellow podzolics and gleyed podzolics. Paperbark forest, sometimes of single species and often with distinct zonation. Weeping paper-bark, broad-leaved paperbark and cajuput tree.

Table 5: Framework Species for Dry Woodland and Wetland Vegetation Types

Dry Woodland	Wetland
Corymbia clarksoniana	*Corymbia clarksoniana*
Corymbia nesophila	*Corymbia stockeri*
Corymbia stockeri	*Erythrophleum chlorostachys*
Erythrophleum chlorostachys	*Eucalyptus alba*
Eucalyptus alba	*Eucalyptus brassiana*
Eucalyptus brassiana	*Eucalyptus cullenii*
Eucalyptus cullenii	*Eucalyptus leptophleba*
Eucalyptus leptophleba	*Eucalyptus tetrodonta*
Eucalyptus tetrodonta	*Lophostemon suaveolens*
Lophostemon suaveolens	*Melaleuca leucadendra*
Melaleuca leucadendra	*Melaleuca stenostachya*
Melaleuca viridiflora	*Melaleuca symphyocarpa*
	Melaleuca viridiflora

3.8.5. Seedling propagation and planting

Supplementary seedling propagation and planting is completed where appropriate. This is normally restricted to:

- Previously rehabilitated areas which have failed to establish sufficient key species;
- Areas targeted for 'accelerated' rehabilitation (e.g. wildlife corridors);
- Areas where species struggle to establish (e.g. seasonally inundated areas); or
- Areas at risk of fire or competition from weeds where accelerated establishment and growth of framework species is desirable.

OTHER DOMAINS

Rehabilitation outside the mine domain will vary from the standard rehabilitation earthworks and/or revegetation processes. For example, a specialised seed mix is required for revegetating tailings dams; substantial decompacting, reprofiling and drainage works are required for haul roads; and water management facilities may be either retained or filled, contoured and rehabilitated (RTAW, 2022).

The rehabilitation schedule will vary depending on the facility involved.

a) Tailings Storage Facilities
   Prior to revegetation the tailings surface will be reshaped to facilitate free drainage and closure spillways will be established. The tailings surface will be revegetated within two years of the completion of drainage and reshaping earthworks. The main revegetation objective will be the attainment of a self-sustaining natural vegetation, to control erosion

and maintain downstream water quality. Tailing's embankments will be revegetated with trees and shrubs, similar to the mining domain.

b) Arraw Dam

As outlined in the EIS and subject to agreement with regulators and Traditional Owners, Arraw dam (approximately 700ha) will be retained for use as a permanent water storage facility for a long-term water supply.

c) Other Infrastructure (transport, plant and minor water facilities)

Other infrastructure will be revegetated within two years of decommissioning. Once available, revegetation of these areas will follow a similar process to the mining domain. Subject to agreement with regulators and Traditional Owners some infrastructure may be retained for longer term use (eg: barge terminal and access corridors for long term access).

3.9. REHABILITATION MONITORING

Monitoring is an integral part of the rehabilitation process. RTAW has designed and implemented a comprehensive monitoring program to assess rehabilitation performance. The monitoring program aims to:

- Assess rehabilitation progress towards the desired post-mining land uses;
- Maintain a mapped inventory of rehabilitation areas;
- Identify areas that require remediation; and
- Demonstrate compliance against relevant completion criteria.

The rehabilitation monitoring program consists of a number of individual components, including:

- Vegetation monitoring; including:
  - Early Assessment vegetation and erosion monitoring;
  - Monitoring rehabilitation development;
  - Assessment against completion criteria;
- Fauna monitoring; and
- Geographic monitoring.

a) Vegetation Monitoring

Rehabilitation efforts focus on the initial establishment of floristic composition dominated by framework species derived from reference site monitoring at analogous land units (listed in Table 4). In the wet-dry tropics, a major focus of monitoring is on assessing species composition and density within the first two to three years after establishment. It has been found that early assessment is a highly effective method of predicting mature rehabilitation performance.

The RTAW monitoring program initially focusses on relevant aspects of rehabilitation at the establishment stage (Quick Check and/or Early Assessment Monitoring), followed by monitoring of rehabilitation development over time (Performance Monitoring). Monitoring

identifies rehabilitation issues requiring remediation, ensuring rehabilitation remains on a trajectory towards meeting end point goals and objectives.

- The Quick Check survey is a simple site inspection that involves walking into each rehabilitated area at least 20m from the edge and recording observations. General site details recorded include presence of key tree, shrub, grass and weed species, and vegetation ground cover. Any problems that may require remediation, such as developing erosion, are noted
- Early Assessment monitoring aims to quantify the establishment of native species, confirming which rehabilitated areas are successful, and those that require remediation work. Monitoring plots 100m x 5m are established and used to record ground cover, species richness, density of framework species, other native species and woody weeds, as well as additional observations on erosion, weed dominance and soil condition.
- Performance Monitoring is used to assess the progress of rehabilitation towards meeting long-term goals and objectives and is based on 500 m^2 plots sampled at a rate of 1 per 20 ha. The monitoring data is used to assess Ground Cover, Framework Species Presence and Density, Species Richness and Diversity, Structural Composition, Native Species Recruitment, Weed Species, Health and Resilience to Disturbance, Fauna (in conjunction with Fauna Surveys), Course Woody Debris, Soil Horizon Development and Canopy Composition.
- Once Performance Monitoring indicates the site meets the Rehabilitation Completion Criteria, the sign off process for the area is initiated.

b) Fauna Monitoring

Monitoring details for confirming functional equivalence for each bird species listed in Condition 33 are outlined within Table 8, Section 5.

c) Geographic monitoring

A GIS database of all disturbed areas is maintained and updated annually to maintain an accurate inventory of disturbed and rehabilitated areas.

Condition 34 states "*The land area to be progressively rehabilitated over the life of the project must be no less than 28,880 hectares*". Rehabilitation areas will be reported annually, and the total progressive rehabilitation area will be tracked to ensure compliance with Condition 34 by the end of the Project.

3.10. CORRECTIVE ACTION

Rehabilitation which is identified as not achieving particular targets is flagged for management through the remediation program. The aim is to apply the most cost-effective remediation methods at the correct time for the optimal improvement of the rehabilitation so that it can once again be managed as 'successful rehabilitation'.

Rehabilitation may initially 'fail' for a number of reasons, but most commonly when a prolonged period of hot, dry weather occurs shortly after germination, resulting in widespread seedling mortality. Monitoring data can be used to show that 'failed' rehabilitation can typically be classified into one of several states requiring remediation. These can then be linked to an

appropriate remediation methodology, which is then further tailored to address the specific issues of each area of rehabilitation. Examples of sites requiring remediation include:

- Limited regeneration of framework species;
- Ecosystem significantly altered by weeds;
- Bare earth with limited establishment of vegetation;
- Bare earth caused by extended seasonal inundation; and/or
- Significantly eroded surfaces and slopes.

4 FUNCTIONAL REQUIREMENTS FOR LISTED SPECIES

To sustain threatened species in rehabilitated areas the overall desired outcome is to achieve functional equivalence of the rehabilitation and pre-disturbance habitat, to enable similar land use to that of the pre-disturbance habitat by the relevant MNES. This section reviews each species and their ecological requirements, and the ecological functions provided by the pre-disturbance forest and mine rehabilitation.

4.1. RED GOSHAWK (Erythrotriorchis radiatus)

4.1.1. Ecology

a) Distribution and Habitat

The Red Goshawk is very sparsely dispersed across Australia (Figure 2) and is classified as vulnerable (EPBC Act).

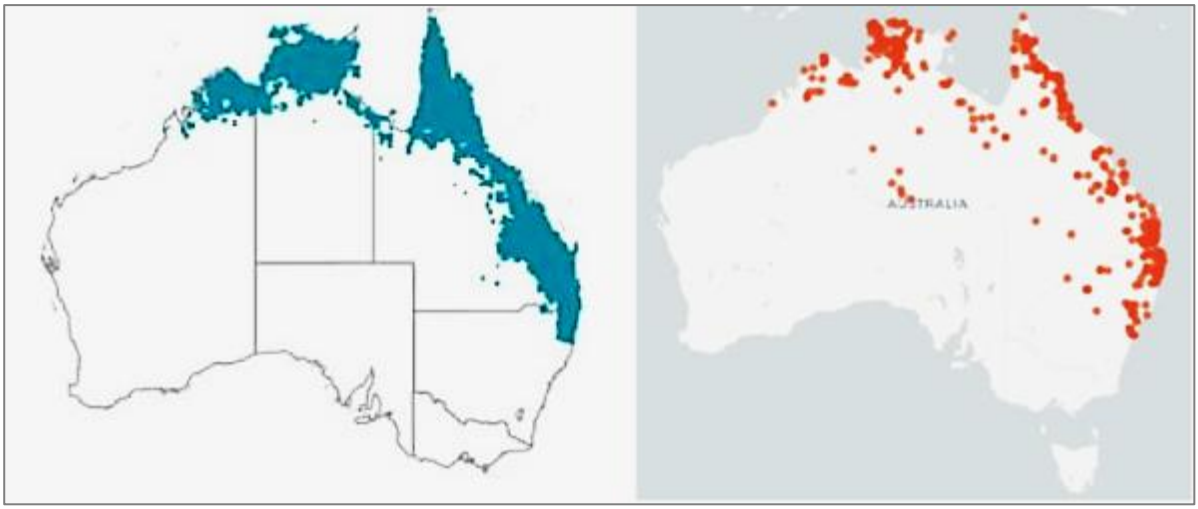

Figure 2: Red Goshawk distribution and records of occurrence

Distribution maps adapted from 1122 records in Atlas of Living Australia (ALA, 2021a).

Red Goshawks inhabit a variety of vegetation types, including eucalypt woodland, open forest, tall open forest, gallery rainforest, swamp sclerophyll forest and rainforest margins (Debus & Czechura, 1988a).

The Red Goshawk is seldom observed, with most encounters brief and rarely made at close quarters (Debus & Czechura, 1988b). Their cryptic behaviour may result in the Red Goshawk being overlooked and under reported (Debus & Czechura, 1988b).

b) Breeding

The breeding habitat for Red Goshawks is likely to be a narrow subset of the general habitat, with nests located in tall trees close to rivers or lagoons (Aumann & Baker-Gabb, 1991). Further information regarding Red Goshawk nesting on Cape York is presented in Section 4.1.2 below.

c) Roosting

There is little published information on roosting habitats. During incubation and nesting periods, the female remains at the nest.

d) Feeding

The Red Goshawk is primarily a bird specialist predator favouring medium to large birds but with some mammals, reptiles and large insects also consumed (Ryan, 2006). Czechura et al. (2009) provides the most comprehensive review of Red Goshawk prey in northern Queensland, documenting prey species found in Red Goshawk nests, while Debus and Czechura (1988a) provide a valuable compilation of reported prey species across northern Australia from various reference sources.

Parrots comprise 40 - 60% of the number of prey items and over 50% of the biomass of Red Goshawk diet, including Red-collared Lorikeets, Blue-winged Kookaburras and Red-tailed Black Cockatoos (Aumann & Baker-Gabb, 1991). Over 50% of prey items were in the 101 - 250 g size range. Within Cape York, the dominant prey of the Red Goshawk comprises mainly parrots and large passerines, particularly Rainbow Lorikeets and large honeyeaters, with mammals rarely predated (Czechura, et al., 2009). There is no evidence that Red Goshawks eat carrion (Ryan, 2006).

Appendix 6B of the South of Embley Project Environmental Impact Statement (RTA, 2013) includes a compilation of Red Goshawk prey species referenced in the literature and an analysis of prey species found in various native habitats of the Weipa region including Darwin Stringybark forest (37 prey species) and riparian and swamp habitats (71 prey species), compared to those found in Weipa mine rehabilitation (66 prey species).

Further recent research, conducted between 2019 and 2023, has found that Red Goshawk prey selection is likely specialised and not proportional to the relative availability of birds within the environment. The results of this study found that 75.9% of the Red Goshawk diet (or dataset of the study) were made up of four key species: Rainbow/Red-collard Lorikeet, Blue-winged Kookaburra, Sulphur-crested Cockatoo and Laughing Kookaburra (Dacelo novaeguineae) (MacColl et al., 2024).

RTA has partnered with DES, the University of Queensland (UQ) and the Australian Wildlife Conservancy (AWC) to sponsor an ongoing Ph.D. project to study juvenile and adult Red Goshawk dispersal, habitat utilisation, prey selection, juvenile mortality and nest viability across northern Australia. This project has examined prey remains at Red Goshawk nests from Cape York Peninsula and the Top End. Early results of remains which could be accurately identified to species level, indicate a dominance of *Psittaciformes* (parrots and cockatoos, mostly Rainbow and Varied Lorikeets), particularly on Cape York Peninsula.

The Red Goshawk exhibits various foraging behaviours, including hunting above the tree canopy (Czechura, et al., 2009; Debus & Searle, 2014) and fast direct attack at a mixed assemblage of avian prey in the canopy of an emergent. Other behaviours include skulking through the tree canopy, fast active flight low over or below the tree canopy and along the edge of riparian vegetation and riverine forest (Czechura, et al., 2009; Debus & Czechura, 1988a). Both direct flying and glide attacks from the perch, as well as dive attacks from soaring and prospecting were common (Aumann & Baker-Gabb, 1991).

Red Goshawks appear to use areas of varied vegetation for both hunting and breeding sites. Mosaics of different vegetation types, near permanent freshwater, are likely to support a diversity of prey species throughout the year. Lowland, freshwater wetlands appear to be important foraging habitat in autumn-winter. Open forest and woodland are suited to the search and attack techniques of this long-winged hawk, with ecotones likely to contain prey

that can be ambushed or pursued and captured in adjacent open forest or woodland (Czechura, et al., 2010; Debus & Czechura, 1988b). Foraging activity can occur up to 8 km from known nesting sites (Marchant & Higgins, 1993) with birds observed up to 10 km from a nest (Aumann & Baker-Gabb, 1991).

e) Dispersal/Migration

The dispersal of juveniles from their natal territories in the Northern Territory appears to be extensive, with records of individuals hundreds of kilometres from their known breeding range (Aumann & Baker-Gabb, 1991).

Red Goshawks have relatively large home ranges, both in the breeding and non-breeding periods. Adult females in the nestling and post-fledging period can have a home range of approximately 120 km^2 and a male in non-breeding season of approximately 200 km^2 (Aumann & Baker-Gabb, 1991). Large home ranges and low breeding densities in Northern Australia are likely to relate to low food availability. The medium size prey species spend much of each day on widely separated water courses, however they are far less abundant in the intervening country. As a consequence, Red Goshawks (and other medium sized bird specialists) are scarce in the north despite an abundance of tree and nest sites (Aumann & Baker-Gabb, 1991).

4.1.2. Presence in the Weipa Region

a) Cape York Population and presence on the mining lease

On Cape York high priority habitat is believed to include extensive open forest and woodland, permanent water and varied topography (Czechura, et al., 2010). Red Goshawks are generally encountered in areas supporting extensive mosaics of native vegetation, consisting of riparian forest, tall woodland, woodland, open woodland and shrubland. In particular, vegetation dominated or co-dominated by Darwin stringybark *Eucalyptus tetrodonta*, Molloy red box *E leptophleba*, Bloodwoods Corymbia spp. and Melaleuca spp. (Czechura, et al., 2010).

In the Cape York region, Czechura (Czechura, et al., 2009; Czechura, et al., 2010) describes nests as having typically been found:

- in tall woodland dominated by Darwin Stringybark (*E. tetrodonta*), often with Clarkson's Bloodwood (*Corymbia clarksoniana*), Melville Island Bloodwood (*C. nesophila*), Hyland's Bloodwood (*C. hylandii*) and Weeping Paperbark (*Melaleuca leucadendra*)
- within 1 km of permanent water (in a watercourse, lagoon or swamp)
- located 20 to 35 m above the ground
- on the edge of the outer canopy of mature emergent eucalypts or paperbarks, with little or no substantial branching under 10 - 15 m
- constructed on a substantial horizontal or near horizontal forked limb, free of obstructing limbs below and to the sides of the nest, braced against an oblique vertical fork
- in trees with canopies described as shallow or umbrella shaped
- in trees that were located at breaks in uniform tree cover, such as along rivers and roadways.

Survey data for Red Goshawk nest use (15 nests) collected at various locations both on and off the Rio Tinto mining leases in the vicinity of Weipa between 2016 and 2020 provides some useful (but limited) insight into the habitat utilisation of Red Goshawks in the Weipa region. Two tree species were primarily used for nest utilisation, *Eucalyptus tetrodonta* and *Corymbia nesophila*, with an average tree height of 22 m. All nests were recorded in live trees. Nests were constructed at an average height of 18 m, which is slightly less than the lower limits reported in the literature. Since completing this study, two nests have been found on the SoE Project Area.

To help better understand habitat use and dispersal patterns of the Red Goshawk, the RTA/DES/UQ/AWC Red Goshawk research partnership developed a capture and tagging program. While data analysis is still in its early stages, early results indicate that the Red Goshawk primarily forages along drainage lines and wetlands and rarely hunts outside these areas. The satellite tracking data indicates that nearly all Red Goshawk foraging activity occurs less than 1½ km from a watercourse[5] or wetland[6]. For the purposes of this discussion, these areas are referred to as prime foraging areas. Areas outside this zone are believed to be low-quality foraging habitat. Analysis of confirmed nesting sites in the vicinity of the Weipa mining leases indicates that prime nesting habitat predominantly occurs within the same 1½ km zone, but that occasionally nests can be located at a greater distance from water.

Bauxite mining involves extraction of a suitable grade of commercial ore from the elevated bauxite plateau which is located outside the main drainage lines. Some areas of commercial ore are contiguous, while others comprise scattered pockets interspersed with areas of non-commercial bauxite. Bauxite quality often declines close to major drainage lines and orebody depth is reduced by water erosion. When the distribution of commercial bauxite and the environmental buffer system are considered in relation to permanent water, the majority of prime goshawk nesting and foraging habitat remains undisturbed by the approved project.

b) Functions provided by the pre-disturbance habitat

The Red Goshawk extensively utilises open eucalypt forest and woodlands for foraging. The taller trees, predominantly near water, are favoured for nesting, and most likely for roosting. The eucalypt forest provides habitat for suitable prey predominantly comprised of parrots and large passerines, especially Rainbow Lorikeets, Blue-winged kookaburra, Sulphur-crested Cockatoo and Laughing Kookaburra.

Approximately half of the mine area falls within the prime foraging zone of less than 1½ km from a watercourse or wetland, with the remainder of the mine falling within low-quality foraging habitat.

4.1.3. Ecological functions provided by the rehabilitated landscape

The Red Goshawk occupies a large home range of around 120 - 200 km^2 (Aumann & Baker-Gabb, 1991), normally supporting extensive mosaics of riparian forest, tall woodland, woodland, open woodland and shrubland. Overlay of theoretical 120 - 200 km^2 home ranges

[5] The analysis defines a watercourse as any watercourse appearing on the Vegetation management watercourse and drainage feature map (certified for use under the Vegetation Management Act 1999).
[6] The analysis defines a wetland as a wetland with a Regional Ecosystem Wetland Code of C, E, L, P or R (Palustrine, Estuarine, Lacustrine and Riverine wetlands; but not floodplains or frequently inundated areas).

over the final mine rehabilitation landscape indicates that rehabilitation would only form a portion of the potential post-mining territories, with environmental buffers and other undisturbed land typically comprising half of its territory. As a result, a Red Goshawk hunting in the rehabilitated landscape would forage across a variety of both native and rehabilitated forest types.

Fauna surveys over a range of rehabilitation ages at Weipa indicate an abundance of Red Goshawk prey species in rehabilitated areas, including parrots and large passerines, especially Rainbow Lorikeets, Blue-winged Kookaburra, Sulphur-crested Cockatoo and Laughing Kookaburra. It is anticipated that successful rehabilitation will form a similar forest structure to the original forest and will be suitable for a variety of foraging behaviours. Retention of the environmental buffers provides substantial undisturbed habitat dissecting the rehabilitated areas, providing a variety of ecotonal boundaries for foraging while preserving large, live trees in the area as young revegetation matures.

The majority of potential sites suitable for nesting within the Project Area fall either within the environmental buffer system or unmined areas, ensuring continuity of suitable nesting sites adjacent to rehabilitated areas.

The Red Goshawk is rarely sighted on the Weipa plateau so measurement of functional equivalence must rely upon assessing the ability of the rehabilitation landscape to meet the foraging function provided by the pre-disturbance landscape.

Section 5 of this Rehabilitation Strategy (see page 36) outlines outcomes, benchmarks, performance measures and success criteria to guide the development of functional equivalence of rehabilitation and the pre-disturbance forest for the Red Goshawk.

Additional Data Gathering for the Red Goshawk

The following additional activities outside the scope of this strategy will continue:

- Red Goshawk tagging and tracking program in collaboration with DES to continue research into Red Goshawk ecology on Cape York
- Maintenance of a GIS register of Red Goshawk sightings which, as far as possible, records the following information for each sighting:
    - Location (co-ordinates);
    - Number of birds;
    - Age class;
    - Breeding Status
    - Types of habitat(s) used; and
    - Manner in which the habitat is being used.

4.2. MASKED OWL (Tyto novaehollandiae kimberli)

4.2.1. Ecology

a) Distribution and Habitat

Various Masked Owl subspecies are distributed throughout Australia (Figure 3) with habitat usage varying across subspecies (Debus, 1993).

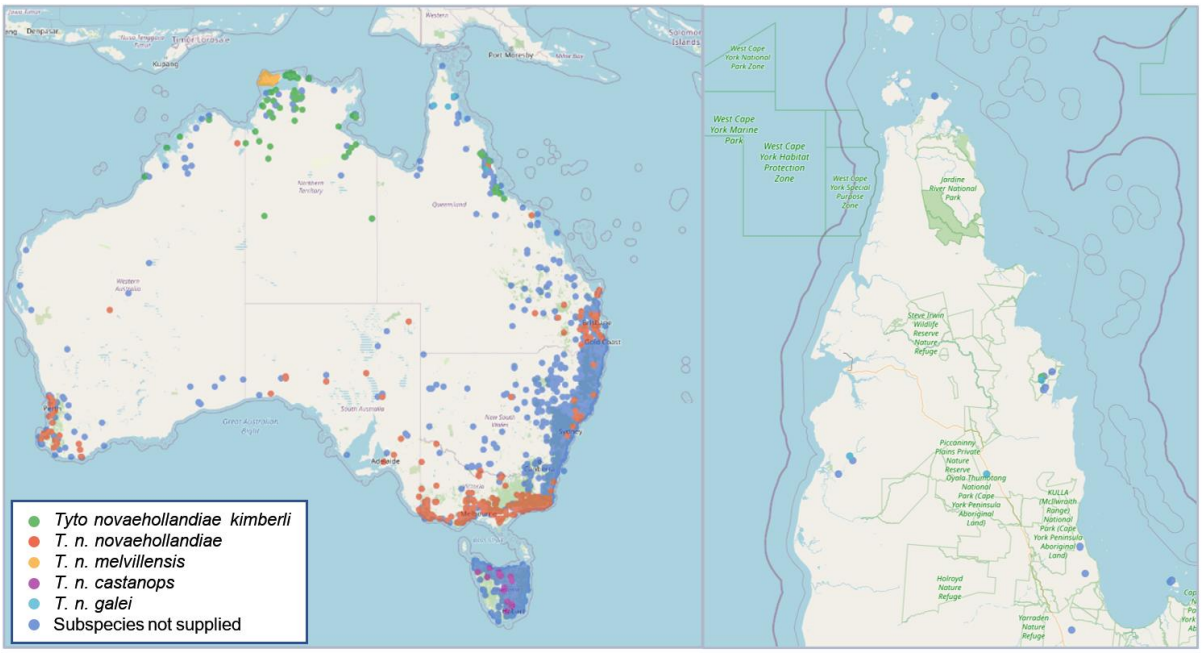

Figure 3: Masked Owl records of occurrence - distribution maps adapted from 1122 records in Atlas of Living Australia (ALA, 2021b).

The number of Masked Owl subspecies recognised within Australia varies between authorities, with the Masked Owl (northern subspecies) variously listed as either *Tyto novaehollandiae galei* (Clements, et al., 2019; Debus, 1993; Mason, 1983) or *T. n. kimberli* (Debus, 2012; Woinarski, 2004). A single taxon (*T. n. kimberli*) is recognised under the Queensland *Nature Conservation Act 1992* and nationally under the EPBC Act, where it is listed as Vulnerable (DAWE, 2000).

Masked Owls (*Tyto novaehollandiae*) are highly cryptic, unobtrusive and can be difficult to identify (Garnett, et al., 2011). The northern subspecies (*T. n. kimberli*) and Tiwi Islands subspecies (*T. n. melvillensis*) are smaller than the other mainland Australian Masked Owl subspecies (Woinarski, 2004) but larger than other *Tyto* species occurring within their distribution. The Northern Masked Owl superficially resembles the more widely distributed Eastern Barn Owl (*T. alba delicatula*), which has led to an inaccuracy in the data distribution records. The Northern Masked Owl is distinguishable from the Barn Owl by its distinctive feathering on the legs, more robust feet and claws (Woinarski, 2004) and more distinctive plumage markings.

Habitat usage by *Tyto novaehollandiae* appears highly reliant upon the presence of hollows and prey abundance (Debus, 1993; Peake, et al., 1993) resulting in a mosaic of habitats utilised within a home range including riparian and forested areas suitable for breeding and roosting, and more open/less densely forested areas for foraging (Debus, 1993; Kavanagh & Murray, 1996; Todd, et al., 2018). Vegetation type usage varies between location and

subspecies. In south-eastern New South Wales, Masked Owls appeared to be restricted to areas of forest >200ha and were not detected in smaller or degraded fragments of forest and woodlands, despite being territorial (Kavanagh & Stanton, 2002). Radio-tracked birds in East Gippsland, Victoria, were exclusively detected within structurally dense forest, travelling up to five kilometres per night, although were observed to opportunistically forage along roads cutting through the forest (Bilney & L'Hotellier, 2013). Other observations in East-Gippsland have noted that the forests and woodlands provide the hollows and prey, dense ground cover in heathlands also provides habitat for ground dwelling prey, and the ecotones, road edges and disturbed areas such as farmland, provide foraging grounds to capture prey (Peake, et al., 1993). The Tasmanian Masked Owl (*T. n. castanops*), though found in a variety of woodland types, tended to favour areas adjacent to cleared, grassland or heathland habitats (Bell & Mooney, 2002). Radio tracking of *T. n. castanops* indicated that native, structurally diverse riparian patches were utilised for roosting during the day, while low density stringybark forest, ecotones between riparian and pasture, and forest and pasture ecotones were favoured for foraging, with less than 3% of time spent at >100 m from a clearing, even when more intact forest was present within the home range (Young, et al., 2020). A juvenile and adult female were tracked and the home range for the adult was estimated at over 20 km^2, with core habitat approximately 3 km^2 (Young, et al., 2020). Irrespective of location, *T. novaehollandiae* appears adapted to hunt on habitat edges where prey is more accessible (Young, et al., 2020).

Irrespective of subspecies, the species requires a mosaic of vegetation types within a home range, including riparian and forested areas suitable for roosting and more open/less densely forested areas for foraging.

The Atlas of Living Australia records three sightings of the Masked Owl along the Watson River, east of Aurukun (Figure 3). No records of the Masked Owl were made during over 200 hours of bauxite plateau monitoring and investigations for the SoE Project, Skardon River Project or Bauxite Hills Project EIS's (see Table 6 below).

Despite the lack of Masked Owl observations on Cape York, the difficulty in locating this cryptic species means it is likely that the Masked Owl is more widespread on Cape York than currently documented (Jackett, et al., 2020).

b) Breeding

Masked Owls are thought to live as monogamous, sedentary life-long pairs for approximately 10 to 15 years in large permanent home ranges of 5-10 km^2 or greater (Kavanagh & Murray, 1996; Thomson, 2020). Size of the home range is thought to vary across the subspecies distribution, with a larger range expected in areas with fluctuating prey species and competition, particularly in the tropics (Debus, 1993). Timing of breeding tends to be determined by food supply (Bilney & L'Hotellier, 2013; Thomson, 2020; Todd, 2006). Captive birds do not appear to adhere to strict seasons and will breed year-round, several times a year (Fleay, 2016), although wild birds may not breed every year, particularly in the presence of disturbance (Thomson, 2020). Although the Masked Owl tends to breed opportunistically, there is a propensity for *Tyto novaehollandiae castanops* to breed in spring, *T n. novaehollandiae* to lay eggs from autumn to spring (Kavanagh , 1996), and *T. n. kimberli* at the end of the wet season (Ward, 2010).

Breeding habitat requires old growth forest with large hollows with water nearby (Kavanagh , 1996).

c) Roosting

Masked Owls roost during the day in large tree hollows with either trunk access or vertical tree spouts (Bilney & L'Hotellier, 2013; Kavanagh & Murray, 1996) and amongst dense foliage outside native bushland areas (Kavanagh & Murray, 1996) or within creek and gully vegetation (Peake, et al., 1993). In the absence of their preferred tree hollows, the Masked Owl appears adapted to utilising caves and dense foliage perches for roosting (Debus, 1993). Nesting also occurs in tree hollows and in some areas, they appear to favour utilising dead or damaged eucalypt trees (Bilney & L'Hotellier, 2013; Peake, et al., 1993). Nesting hollow dimensions for the Victorian populations have been recorded as one to three metres deep and ranging from 20 to 50 cm wide (Peake, et al., 1993).

d) Feeding

Masked Owls are opportunistic predators and will hunt locally abundant species (Kavanagh , 1996). They are described as a reluctant flier, tending to hunt after dark by perching on low vantage points, such as fence posts, and utilising their acute hearing to ambush prey (Debus, 1993). They have been observed flying between regular perching sites within their territory rather than hunting on the wing (Debus, 1993).

Pellets collected across the subspecies have contained birds, rodents, small marsupials, various terrestrial and arboreal mammals (gliders and possums), rabbits, Ghost Bat (*Macroderma gigas*), insects and lizards (Debus, 1993), although it appears that terrestrial species tend to dominate the diet (Bilney & L'Hotellier, 2013; Kavanagh , 1996; Peake, et al., 1993; Thomson, 2020; Todd, 2006). Diet of the northern Masked Owl is less well reported but include ground-dwelling mammals such as rats (e.g., *Rattus sordidus*) and mice (e.g., *Melomys burtonii*) (Fitzsimons & Rose, 2008).

e) Dispersal

Dispersal behaviour of the Masked Owl is undocumented, most likely due to the difficulty of locating this highly cryptic and unobtrusive species.

4.2.2. Presence in the Weipa Region

a) Cape York Population and presence on the mining lease

Population estimates for the northern Masked Owl are rough guestimates at best due to the paucity of data available for this subspecies. Three distinct subpopulations are recognised based on disjunct suitable habitat, intermittent known locational records and morphological variance; and occur within the Kimberley, Western Australia; Northern Territory from Katherine to the Coburg Peninsula; and north-eastern Queensland from Atherton tablelands to Cape York Peninsula (Figure 4). An estimate of approximately 1,000 mature individuals has been assigned to each subpopulation for conservation purposes, although this may well be over 500 (Garnett, et al., 2011). A recent review of all *Tyto novaehollandiae kimberli* records for Cape York Peninsula, wet tropics and Einasleigh Uplands from online databases, published reports and journal articles located 96 records of the species, of which only 16 could be positively assigned to Masked Owl as opposed to potentially being a false record for Eastern Barn Owl. Of the 15 records within Cape York, seven were considered reliable and eight undetermined (Jackett, et al., 2020). Of the three records occurring along the Watson River, on the west coast near Aurukun (Figure 5), two were human observation with no date supplied, and the third a skin sent into the South Australian Museum in 1914 (ALA, 2021b). There are

very few recent observations of the bird on Cape York Peninsula, with only four dated records north of Coen in the last 100 years (most recently at Iron Range and at Punsand Bay, Cape York in 2018) and four undated records. A measurable decline has been observed in Northern Territory, Western Australia and the wet tropics (DAWE, 2000).

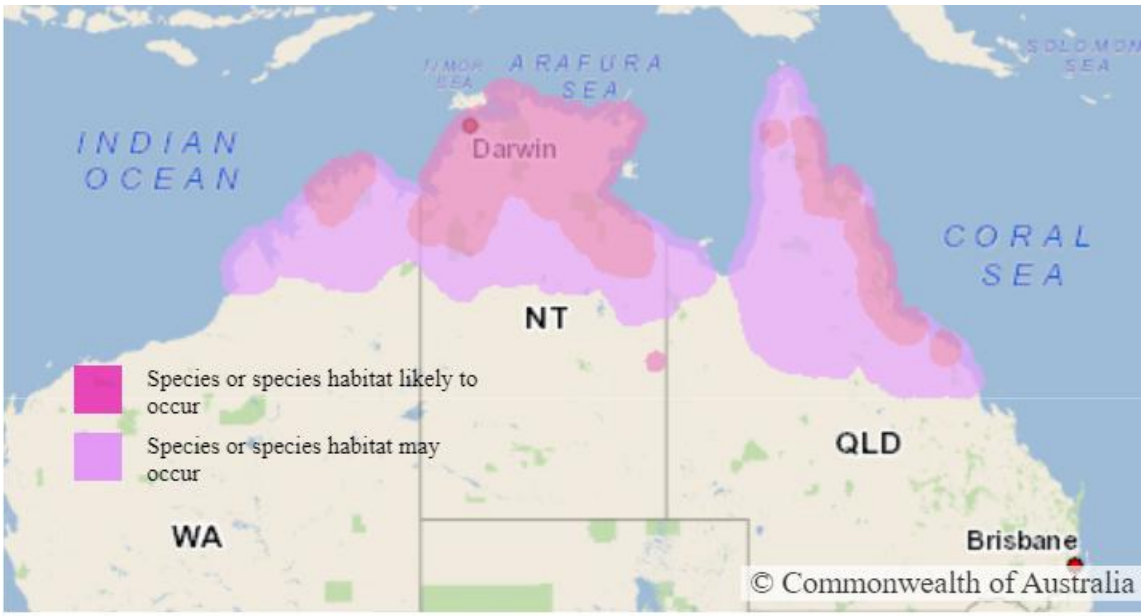

Figure 4: Subpopulation distribution of *Tyto novaehollandiae kimberli*
(Map source SPRAT profile DoAWE, 2000)

Figure 5: Masked Owl records for the Aurukun Region
Showing Record Numbers from Atlas of Living Australia (ALA, 2021b)

A total of 22 different Regional Ecosystems (RE's) were identified within a 500 m radius of the seven confirmed *Tyto novaehollandiae kimberli* records within Cape York (Jackett, et al., 2020). Darwin Stringybark *Eucalyptus tetrodonta* was a dominant tree species associated with *T. n. kimberli* along with several bloodwoods and Broad-leaf Paperbark (*Melaleuca viridiflora)* (Jackett, et al., 2020).

Several studies within Cape York Peninsula, and more specifically within the Weipa region, have failed to observe the Masked Owl. The studies were of varying degrees of survey effort but when combined account for over 200 search hours (Debus & Searle, 2014; Metro Mining, 2015; RPS Australia East Pty Ltd, 2015) (Table 6). Some authors, however, have highlighted that the absence of a sighting does not exclude the presence of the bird within the area (Debus & Searle, 2014; RPS Australia East Pty Ltd, 2015) and (Jackett, et al., 2020) stated that it is likely that the Masked Owl is more widespread on Cape York Peninsula than is currently documented.

Table 6: Survey effort for the Masked Owl within the Weipa area

Survey	Survey timing	Survey activity	No. nights	Duration of survey (hours)	No. of sites	Total survey effort (hours)	Sources
SoE EIS (2006-2009, 2012)	May 2007/8, June 2008/12, July 2006, Oct 2012, Dec 2007/8	Call playback	20	0.3	51	15.8	(RTA, 2013, Section 6)
		Spotlight session	28	0.3	44	42	
		Vehicle traverses	29	0.3		66	
Bauxite Hills EIS	Nov 2014, Feb 2015	Call playback	4	Only total stated	15?	8	(Metro Mining, 2015)
Skardon River EIS	February 2015	Call playback				2	(RPS Australia East Pty Ltd, 2015)
		Vehicle spotlighting				40	
Red goshawk and owl survey (2012, 2013)	July, August	Call play back	4	0.2	37	32	(Debus & Searle, 2014)
		Spotlighting	Combined with call back survey effort				
		Vehicle traverses	Undertaken but not defined				
2014 post wet regen fauna survey	July 2014	Call back	3	0.1	33	Unclear in report	(Ecotone Environmental Services, 2014a)
Masked Owl surveys 2015 - 2017	2015 - 2017	Call back	18	0.3	50	25	(RTAW, 2017)

b) Functions provided by the pre-disturbance habitat

Low to tall open woodland or forest dominated by *Eucalyptus tetrodonta* and the associated bloodwoods have been identified as primary habitat on Cape York Peninsula for this species (Jackett, et al., 2020). Darwin stringybark forest supports prey for the Masked Owl such as Northern Brown Bandicoots, *Melomys* spp., *Rattus* spp., arboreal mammals such as Common Brushtail Possums, Sugar Gliders, Black-footed Tree-rats and Giant White-tailed rats (RTA, 2013, Appendix 6B). The Darwin stringybark forest also provides suitable habitat nearby to the riparian forest for roosting. The Final EIS concluded that areas within the mine lease were of moderate to low habitat suitability due to the lack of abundant small mammal populations (RTA, 2013, Section 6). Camera trap survey records of undisturbed woodland since that time (2018 - 2020) record a count of only 190 small to medium mammal sightings within the 2b Darwin Stringybark forest (Ecotone, 2021) in the SoE Project area. Other surveys in the region in 2010 and 2015 have also detected low abundance of appropriately sized small to medium prey mammals (RPS Australia East Pty Ltd, 2015). A general decline of small mammal populations in tropical woodlands has been observed elsewhere in northern Australia (Fitzsimons, et al., 2010) and is attributed as the most probable cause of the decline and low

density of the Masked Owl (Garnett, et al., 2010). The cause behind small mammal decline in northern Australia is not accurately known but is believed to be related to a variety of factors including fire regime, feral predators and disease or potential interaction of all of these factors (Fitzsimons, et al., 2010).

4.2.3. Ecological functions provided by the rehabilitated landscape

The Masked Owl uses a range of habitats for foraging (refer to Section 4.2.1 (a)), including more open/less densely forested areas. Rehabilitated areas provide habitat for prey species and are expected to support foraging opportunities for the Masked Owl although, similar to the pre-disturbance forest, low numbers of small mammals have so far been recorded in rehabilitation.

As noted in Section 4.2.1 (c), Masked Owls prefer to roost amongst dense foliage or within creek and gully vegetation. The environmental buffers along drainage lines and adjacent areas of unmined habitat form part of the rehabilitated landscape and preserve the vast majority of the potentially suitable roosting and breeding habitat in the SoE Project area.

Since the Masked Owl has not been sighted on RTAW's mining leases, measurement of functional equivalence must rely to a large extent upon assessing the ability of the rehabilitation landscape to meet the identified functions provided by the pre-disturbance landscape.

The rehabilitated forest will create potential foraging habitat for the Masked Owl, with prey diversity being a major factor in determining its suitability for the species.

The preferred roosting and breeding habit in the pre-disturbance landscape falls almost entirely within the riparian corridors protected by the environmental buffer system and other adjacent unmined habitat. These habitats will remain undisturbed from the approved project.

Section 5 of this Rehabilitation Strategy (see page 36) outlines outcomes, benchmarks, performance measures and success criteria to guide the development of functional equivalence of rehabilitation and the pre-disturbance forest for the Masked Owl.

4.3. BARN SWALLOW (*Hirundo rustica*)

4.3.1. Ecology

a) Distribution and Habitat

The south and east Asian subspecies of the Barn Swallow (*Hirundo rustica gutturalis*) migrates to Northern Australia (Figure 1) during the Austral summer months (Klapste, 1977; Pedler, 1977).

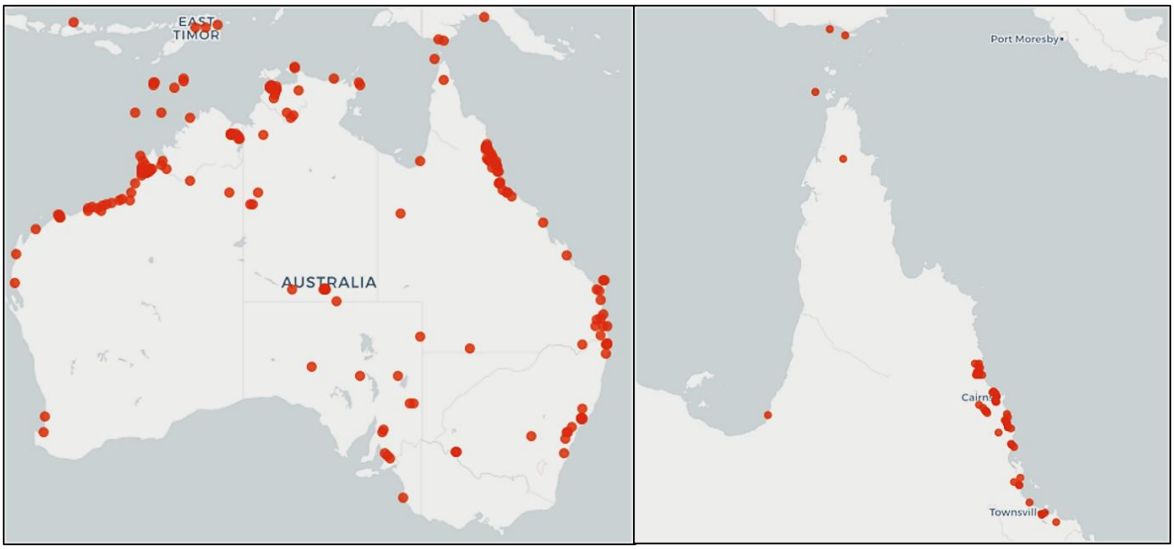

Figure 6: Winter range distribution of the Barn Swallow (*Hirundo rustic gutturalis*)

Distribution maps adapted from Atlas of Living Australia (ALA, 2021c).

In Australia, the Barn Swallow is recorded in open country in coastal lowlands, often near water, towns and cities. Birds are often sighted perched on overhead wires (Pizzey, 1980; Blakers, et al., 1984), and also in or over freshwater wetlands, paperbark *Melaleuca* woodland, mesophyll shrub thickets and tussock grassland (Schodde & Mason, 1999; Menkhorst, et al., 2017; Slater, et al., 1986). The species avoids heavily wooded or precipitous areas and densely built-up locations (Menkhorst, et al., 2017; Slater, et al., 1986; Brown & Brown, 1999). It prefers open country with low vegetation such as wetlands, pasture, meadows and farmland, canefields, coastal inshore areas and urban areas preferably with nearby water (Menkhorst, et al., 2017; Slater, et al., 1986).

The species is most likely found in congregations of other swallows or martins (Hirundinidae) and swifts (Apodidae) (Higgins, et al., 2006). There are few records of barn swallows utilising forested areas (Klapste, 1977) and it is believed that forested areas are not a preferred habitat type for this species (Menkhorst, et al., 2017; Slater, et al., 1986).

b) Breeding

The Barn Swallow breeds in the northern hemisphere (Cramp, 1988) and is a non-breeding visitor to Australia.

c) Roosting

In the northern hemisphere, Barn Swallows are found roosting in reedbeds (Cramp, 1988; Lekagul & Round, 1991; Coates & Bishop, 1997) with up to 100,000 birds recorded roosting together at some sites in late summer. In cold weather, the species may also roost communally in buildings (Cramp, 1988).

Limited Australian information indicates the species prefers to roost in reed or cane beds usually over water (Brown & Brown, 1999; van den Brink , et al., 2010; Burney, 2002) but occasionally using trees or wires (e.g., Moreau, 1972; Ismail, et al., 2020).

d) Feeding

The Barn Swallow is almost entirely insectivorous, consuming mainly flying insects (Cramp, 1988). The species feeds by aerial pursuit or gleaning or skimming insects from plants or water surface. They feed mainly low over the ground or water (Cramp, 1988; Coates & Bishop, 1997; Higgins, et al., 2006; Turner & Rose, 1989). Occasionally, birds are recorded feeding on clear ground, such as roads, paths and beaches, by walking around and picking at the surface (Cramp, 1988; Turner & Rose, 1989).

Insect Orders recorded in the summer diet of the Barn Swallow in Europe and northern Africa include Ephemeroptera (mayflies), Odonata (damsel flies), Plecoptera (stoneflies), Orthoptera (grasshoppers), Dermaptera (earwigs), Psocoptera, Hemiptera (bugs), Neuroptera (lacewings), Lepidoptera (adult and larvae moths and butterflies), Trichoptera (caddis flies), Diptera (flies), Hymenoptera (bees, ants and wasps) and Coleoptera (beetles) (Cramp, 1988).

In the non-breeding range, a smaller variety of insects in the diet is recorded, with the Barn Swallow more dependent on Hymenoptera (bees, ants, wasps) in Africa than in Britain. The species is also recorded eating termites (Isoptera) (Cramp, 1988). No information on diet in Australia is known (Barker & Vestjens, 1990).

e) Dispersal/Migration

Little is known about Barn Swallow migration on Cape York, but extensive areas of potentially suitable habitat are available for Barn Swallow migration along coastal areas (*Melaleuca* woodland, mesophyll shrub thickets, tussock grassland, wetlands, coastal inshore areas and salt flats).

4.3.2. Presence in the Weipa Region

a) Cape York population and presence on the mining lease

Barn Swallows have rarely been recorded on Cape York, with only two documented sightings on the mainland (North Alice Creek in 1858 and a second record approximately 60km further north in 1974).

Although the Barn Swallow has been identified as a likely inhabitant of the Weipa sub-region, it was not observed at the SoE Project area during EIS field surveys (RTA, 2013), nor has it been observed during any other fauna surveys on the RTAW Mining Leases.

b) Functions provided by the pre-disturbance habitat

Forested areas are not a preferred habitat type for this species (Menkhorst, et al., 2017; Slater, et al., 1986) and therefore the use of the pre-disturbance forest habitat is expected to be limited to occasional incursion into air space above the forest while foraging for food in adjacent, more preferred, habitat.

4.3.3. Ecological functions provided by the rehabilitated landscape

Mine rehabilitation is projected to have a similar forest structure to analogue pre-disturbance forest habitat (land units listed in Table 4). Similar to the pre-disturbance forest, Barn Swallow use of the rehabilitated landscape is expected to be limited to the occasional incursion into the air space above the rehabilitation while foraging for food in adjacent more preferred habitat. The pre-disturbance forest habitat does not provide suitable roosting habitat.

It is possible that Barn Swallows may utilise young rehabilitation areas more than mature areas since young rehabilitation is a more open habitat, and more similar to the preferred Barn Swallow habitat of open country with low vegetation.

The Barn Swallow has not been sighted on the Weipa mining leases to date, so measuring achievement of functional equivalence must rely in part upon assessing other measures related to Barn Swallow ecology. The literature indicates the Barn Swallow is often found foraging in congregations of other swallows or martins (Hirundinidae) (Higgins, et al., 2006). Therefore, it is proposed that assessing the foraging behaviour of the more common Welcome Swallow (*Hirundo neoxena*) within rehabilitation be used as an analogue measure to assess functional equivalence of the rehabilitation.

Section 5 of this Rehabilitation Strategy (see page 36) outlines outcomes, benchmarks, performance measures and success criteria to guide the development of functional equivalence of rehabilitation and the pre-disturbance forest for the Barn Swallow.

5 ESTABLISHING FUNCTIONAL EQUIVALENCE IN REHABILITATION

The previous Section described the ecology of the listed species, summarised the current knowledge of the distribution of each species and outlined key ecological functions provided by the pre-disturbance forest. Section 5 outlines a pathway towards establishing rehabilitation that is functionally equivalent to the pre-disturbance forest. In this Section desired outcomes, benchmarks, performance measures and success criteria are proposed for each species.

This rehabilitation strategy acknowledges that to return an ecosystem to full function is temporally dependent in achieving the benchmarks noted in table(s) 7 and 8. As such, a percentage indicator of <100% towards ecosystem functional equivalence trajectory has been adopted, providing an opportunity for adaptive management where needed. This approach is consistent with that similarly adopted in publicly accessible rehabilitation plans and strategies for other Projects approved under the EPBC Act (RPS, 2011; QGC, 2020; APLNG, 2016).

5.1. DESIRED OUTCOMES AND BENCHMARKS

Table 7 lists the identified pre-disturbance forest functions for each species in Section 3.8.4, against desired outcomes and benchmarks under which to measure rehabilitation success.

Table 7: Desired Outcomes and Benchmarks for listed species

Pre-disturbance Forest Functions	Desired Outcomes	Benchmarks
Red Goshawk		
Foraging and roosting are the main functions served by the pre-disturbance forest. Recent tracking data indicates foraging is normally restricted to within 1½ km from a watercourse or wetland. Nesting occurs in the area but is normally associated with riparian areas near permanent water. The overwhelming majority of potential nesting sites will remain undisturbed within environmental buffers and shallow uncommercial bauxite reserves near drainage lines.	The rehabilitated landscape provides equivalent quality of foraging and roosting opportunities to those in the pre-disturbance landscape	A similar variety of prey species occupy mine rehabilitation compared to the pre-disturbance forest Rehabilitated sites develop a similar forest structure to the pre-disturbance forest habitat to support foraging/ hunting activities.
Masked Owl		
Foraging is the main function served by the pre-disturbance forest. Nesting and roosting could potentially occur in the SoE Project area but these are expected in the sheltered riparian areas. Potential nesting/roosting sites will remain undisturbed within environmental buffers and shallow uncommercial bauxite reserves near drainage lines. Despite extensive searches, no evidence of the masked Owl has been found on the SoE Project area.	The rehabilitated landscape provides equivalent quality of foraging opportunities to those in the pre-disturbance landscape	A similar variety of prey species occupy mine rehabilitation compared to the pre-disturbance forest Rehabilitated sites develop a similar forest structure to the pre-disturbance forest habitat to support foraging activities.
Barn Swallow		

Pre-disturbance Forest Functions	Desired Outcomes	Benchmarks
Foraging is the main function served by the pre-disturbance forest. The species breeds in the northern hemisphere. The literature indicates open forest is unsuitable roosting habitat	The rehabilitated landscape provides equivalent quality of foraging opportunities to those in the pre-disturbance landscape	Foraging behaviour of Welcome Swallows (an analogue species[1]) over rehabilitation is comparable to the level of foraging over the pre-disturbance forest habitat.

[1] Refer to Section 4.3.3 for further detail on the use of the Welcome Swallow as an analogue species to indicate functional equivalence of rehabilitation.

5.2. PERFORMANCE MEASURES, SUCCESS CRITERIA AND CONTINGENCY MEASURES

Table 8 outlines proposed performance measures, success criteria and contingency measures for the benchmarks listed in Table 7. The success criteria will be used to establish whether functional equivalence has been achieved for rehabilitation for each listed species. The responsible role for monitoring performance indicators and completing corrective actions is listed against each item.

Table 8: Performance measures, Success criteria and Contingency Measures

Benchmarks	Performance Indicators	Success criteria	Contingency measures and corrective action
Red Goshawk			
A similar variety of prey species occupy mine rehabilitation compared to the pre-disturbance forest	**1: Fauna monitoring indicates diversity of potential Red Goshawk prey species in mine rehabilitation are at least 75% of the diversity of Red Goshawk prey in analogue pre-disturbance forest.** **Method:** Targeted potential prey species surveys at rehabilitation monitoring sites and analogue pre-disturbance forest sites using both visual sighting and call identification. Bird observations (prey monitoring) in rehabilitation and analogue pre-disturbance forest will be made at the time of the rehabilitation monitoring events at ages 5, 10, 18 and 20 years. **Responsible Role:** Superintendent, Land & Rehabilitation – Weipa Operations	Prey species monitoring in representative rehabilitation and pre-disturbance forest meets performance indicator at year 20. [g]	**Contingency measures:** Should fauna monitoring indicate the performance measures are unlikely to be met an investigation into the root cause of the problem will be commenced. This may involve more intensive monitoring and analysis or further analysis of the existing monitoring data. Once the root cause is understood corrective action will be taken. **Potential corrective actions:** **Insufficient food plants for prey:** Enrichment planting with selected species **Vegetation density too great for prey species:** Selective thinning of unwanted vegetation **Dense weed cover impedes movement**: Spot spray problem areas; scalp topsoil layer where supporting significant soil stored seedbank **Insufficient plant diversity:** Enrichment planting with tubestock of desirable species; modify seed mix for new rehabilitation areas **Insufficient cover:** Enrichment planting with tubestock of desirable cover species **Responsible Role:** Superintendent, Land & Rehabilitation – Weipa Operations

[g] To achieve functional equivalence for foraging, the rehabilitation will need to develop into a closed forest with an open understorey. Rehabilitation monitoring at Weipa and Andoom indicates that a 10-year timeframe is too early for widespread forest closure of the rehabilitation. Twenty years is proposed as a more appropriate timeframe for confirmation of a development trajectory trending towards a closed forest with open understorey.

Benchmarks	Performance Indicators	Success criteria	Contingency measures and corrective action

Rehabilitated sites develop a similar forest structure to the pre-disturbance forest habitat to support foraging/hunting activities.	**2: Forest structural development / condition measures indicate rehabilitation is developing a similar forest structure to pre-disturbance forest analogues.**
	• Crown cover: >50% to <200% of analogue pre-disturbance percentage cover
	• The dominant and subdominant rehabilitated forest canopy is comprised of framework species found in the analogue pre-disturbance forest.
	  ○ Dry woodland rehabilitation: ≥200 stems per ha of dry woodland framework species at least 2m in height.
	  ○ Wet woodland rehabilitation: >140 stems per ha of wetland framework species at least 2m in height
	• Ground cover comprising leaf litter, grasses, or cryptograms to comprise
	  ○ Dry woodland rehabilitation: 80% of intercepts for an assessment plot.
	  ○ Wet woodland rehabilitation: 65% of intercepts for an assessment plot.
	• Weed species abundance (either individually or in aggregate), does not, and is unlikely to prevent any other criterion being achieved or sustained. Ecosystem transformer weeds must be absent. If a site is treated to remove ecosystem transformer weeds, monitoring in the subsequent year must establish that the treatment has been successful.
	Method: Line intersect transect method at rehabilitation ages 2, 5, 10, 18 and 20 years. Analogue pre-disturbance forest structure to be assessed within the first year of implementation of this strategy.
	Responsible Role:
	Superintendent, Land & Rehabilitation – Weipa Operations
		Structural monitoring of rehabilitation meets performance indicator at year 20.	**Contingency measures:**
			Should rehabilitation monitoring indicate the performance measures are unlikely to be met an investigation into the root cause of the problem will be commenced. This may involve more intensive monitoring and analysis or further analysis of the existing monitoring data. Once the root cause is understood corrective action will be taken.
			Potential corrective actions:
			Insufficient Framework Species: Enrichment planting with selected species
			Slow growth of framework species: Thin dense stands, fertilise for nutrient deficiencies
			Weed outbreak: Spot spray problem areas; scalp topsoil layer where supporting significant soil stored seedbank
			Establishment failure: Scarify and reseed in more favourable season
			Insufficient plant diversity: Enrichment planting with tubestock; modify seed mix for new rehabilitation areas
			Responsible Role:
			Superintendent, Land & Rehabilitation – Weipa Operations

Masked Owl			
A similar variety of prey species occupy mine rehabilitation compared to the pre-disturbance forest	**1: Fauna monitoring indicates diversity of potential Masked owl prey species in mine rehabilitation are at least 75% of the diversity of Masked owl prey in analogue pre-disturbance forest.** **Method:** Camera and cage trapping **Duration:** 8 nights camera traps (at up to 300 m spacing) and 4 nights cage trapping across a selection of sites for the target rehabilitation year/s (paired sites in both rehabilitation / analogue pre-disturbance forest to capture seasonal patterns).	Prey species monitoring indicates performance indicator met at 10 years.	**Contingency measures:** Should fauna monitoring indicate the performance measures are unlikely to be met an investigation into the root cause of the problem will be commenced. This may involve more intensive monitoring and analysis or further analysis of the existing monitoring data. Once the root cause is understood corrective action will be taken. **Potential corrective actions:** **Insufficient food plants for prey:** Enrichment planting with selected species **Vegetation density too great for prey species:** Selective thinning of unwanted vegetation

Benchmarks	Performance Indicators	Success criteria	Contingency measures and corrective action
	Prey monitoring in rehabilitation and analogue pre-disturbance forest will be made at the time of the rehabilitation monitoring events at ages 5, 8 and 10 years. **Responsible Role:** Superintendent, Land & Rehabilitation – Weipa Operations		**Dense weed cover impedes movement**: Spot spray problem areas; scalp topsoil layer where supporting significant soil stored seedbank **Insufficient plant diversity:** Enrichment planting with tubestock of desirable species; modify seed mix for new rehabilitation areas **Insufficient cover:** Enrichment planting with tubestock of desirable cover species **Responsible Role:** Superintendent, Land & Rehabilitation – Weipa Operations

Rehabilitated sites develop a similar forest structure to the pre-disturbance forest habitat to support foraging activities.	**2: Forest structural development / condition measures indicate rehabilitation is on a trajectory to a similar forest structure to pre-disturbance forest analogues.**
	• Crown cover: >30% of analogue pre-disturbance percentage cover
	• The dominant and subdominant rehabilitated forest canopy is comprised of framework species found in the analogue pre-disturbance forest.
	  ○ Dry woodland rehabilitation: ≥200 stems per ha of dry woodland framework species at least 2m in height.
	  ○ Wet woodland rehabilitation: >140 stems per ha of wetland framework species at least 2m in height
	• Ground cover comprising leaf litter, grasses, or cryptograms to comprise
	  ○ Dry woodland rehabilitation: 80% of intercepts for an assessment plot.
	  ○ Wet woodland rehabilitation: 65% of intercepts for an assessment plot.
	• Weed species abundance (either individually or in aggregate), does not, and is unlikely to prevent any other criterion being achieved or sustained. Ecosystem transformer weeds must be absent. If a site is treated to remove ecosystem transformer weeds, monitoring in the subsequent year must establish that the treatment has been successful.
	
	Method: Line intersect transect method at ages 2, 5 and 10 years. Analogue pre-disturbance forest structure to be assessed within the first year of implementation of this strategy.
	Responsible Role:
	Superintendent, Land & Rehabilitation – Weipa Operations
		Structural monitoring of rehabilitation meets performance indicator at 10 years.	**Contingency measures:**
			Should rehabilitation monitoring indicate the performance measures are unlikely to be met an investigation into the root cause of the problem will be commenced. This may involve more intensive monitoring and analysis or further analysis of the existing monitoring data. Once the root cause is understood corrective action will be taken.
			Potential corrective actions:
			Insufficient Framework Species: Enrichment planting with selected species
			Slow growth of framework species: Thin dense stands, apply fertiliser when nutrient deficiencies are detected
			Vegetation density too great for hunting: Selective thinning of unwanted vegetation
			Weed outbreak: Spot spray problem areas; scalp topsoil layer where supporting significant soil stored seedbank
			Establishment failure: Scarify and reseed in more favourable season
			Insufficient plant diversity: Enrichment planting with tubestock; modify seed mix for new rehabilitation areas
			Responsible Role:
			Superintendent, Land & Rehabilitation – Weipa Operations

Benchmarks	Performance Indicators	Success criteria	Contingency measures and corrective action
Barn Swallow			
Foraging behaviour of Welcome Swallows over rehabilitation is comparable to the level of foraging over the pre-disturbance forest habitat.	**Relative abundance of foraging Welcome Swallows hunting above rehabilitation compared to analogue pre-disturbance forest habitat at least 75%.** **Method:** Targeted bird surveys at rehabilitation monitoring sites and analogue pre-disturbance forest sites using both visual sighting and call identification. Bird observations to be made during rehabilitation monitoring events at ages 2, 5 and 10 years. **Responsible Role:** Superintendent, Land & Rehabilitation – Weipa Operations	Targeted search for Welcome Swallow in or over representative sample of rehabilitated and undisturbed forest analogues meets performance indicator at year 10.	**Contingency measures:** Should fauna monitoring indicate the performance measures are unlikely to be met an investigation into the root cause of the problem will be commenced. This may involve more intensive monitoring and analysis or further analysis of the existing monitoring data. Once the root cause is understood corrective action will be taken. **Potential corrective actions:** **Insufficient plant diversity:** Enrichment planting with tubestock of desirable species C**rown density significantly greater than in analogue forest of similar regrowth age:** Selective thinning of unwanted vegetation **Responsible Role:** Superintendent, Land & Rehabilitation – Weipa Operations

The Rehabilitation monitoring described in Section 3.9 and the functional equivalence monitoring summarised in Table 8 will generate data suitable for GIS analysis capable of being used to target control measures for maximum effectiveness. For example, although initial plans are to monitor rehabilitation forest structure for Red Goshawk at 2, 5, 10, 18 and 20 years and for Masked Owl at 5, 8 and 10 years, this may be varied once better information and more effective monitoring time frames become available (such as when a transition model is developed).

The survey data relevant to listed species shall be published in accordance Condition 57 and reported to DCCEEW in accordance with Condition 56 of EPBC 2010/5642.

6 REPORTING

All reports and related analysis of survey data required by this Strategy will be published on the RTAW website in accordance with approval Condition 57. Relevant survey data will also be provided to the Department on request in accordance with Condition 56.

A progress report will be published at year 10, outlining progress of the rehabilitation towards meeting the performance criteria for the Red Goshawk and attainment of the rehabilitation performance criteria for the Masked Owl and the Barn Swallow.

The Strategy and any subsequent revisions will be published on the RTAW website in accordance with Condition 59. The RTAW website address is:

http://www.riotinto.com/australia/reports-and-publications-16120.aspx

Compliance with the implementation of this Rehabilitation Strategy will be reported within the compliance report published and submitted to DCCEEW in accordance with Condition 68.

7 REVIEW

In accordance with Condition 37, unless otherwise agreed to by the Minister in writing, every five (5) years from the first anniversary of the approval of the Rehabilitation Strategy at condition 33, a reviewed Rehabilitation Strategy must be submitted to the Minister. The approved Rehabilitation Strategy must be implemented.

8 ADAPTIVE MANAGEMENT

The Rehabilitation monitoring described in Section 3.9 and the functional equivalence monitoring summarised in Table 8 shall be a key input into adaptive management strategies.

The rehabilitation at Amrun will be subject to an ongoing process of monitoring and review. Should monitoring demonstrate that rehabilitation targets will not be met, investigation into the rehabilitation performance will commence and appropriate actions will be taken (eg: adjustment to revegetation species mix, seeding rate (to manage plant density), fertilizer rate, substrate cultivation technique, time of sowing, etc). The 10-year Progress Report (Section 6) will be an important reporting milestone for the Red Goshawk, when progress towards meeting the performance criteria will be reported and corrective action initiated, should insufficient progress be made.

If the functional equivalence performance indicators are not met within 18 years of rehabilitation commencement for the Red Goshawk or within 8 years for the Masked Owl and Barn Swallow, RTAW will:

1. Take corrective action to restore functional equivalence

   In consultation with DCCEEW, a corrective action program will be commenced, comprising the following steps.

   - Use existing data, or initiate a research program to collect the required data, to identify functions provided by the pre-disturbance land units that are not provided by rehabilitated areas
   - Develop an action plan to establish similar functions in rehabilitation areas
   - Implement the action plan

   This option may be appropriate in circumstances where young rehabilitation is destroyed by wildfire or where a poor wet season leads to an unusually high seedling mortality in recently rehabilitated areas. In these situations, the best course of action may be to retreat the area. Under such circumstances RTA would consult with DCCEEW to agree on a revised timeframe for the corrective actions to take effect.

2. If step 1 is not successful, an offset strategy will be developed in accordance with Conditions 38 and 39 of the SoE Project approval:

   The following steps shall be taken within 20 years of rehabilitation commencement for the Red Goshawk and within 10 years of rehabilitation commencement for the Masked Owl and Barn Swallow.

   - Consistent with condition 38, the Minister will be notified in writing within 20 business days of the area (hectares) over which the rehabilitation objectives and success criteria were not met;
   - Consistent with condition 39, within six (6) months of notifying the Minister at condition 38, the Offset Strategy for those listed MNES species which do not meet the nominated performance indicators will be submitted to the Minister for approval . The proposed offset will be in accordance with the most current version of the EPBC Act Environmental Offset Policy;
   - The approved Offset Strategy for the nominated MNES species will be implemented.

9 TRADITIONAL OWNER CONSULTATION

Traditional Owners were consulted in accordance with the process under the Indigenous Land Use Agreement during the preparation of this Strategy. This consultation involves the following:

- Brief outline of the Amrun Rehabilitation Strategy presented to the Western Cape Communities Coexistence Agreement (WCCCA) Environment and Heritage (E&H) Sub-Committee on the 5th May 2021
- The Strategy was submitted to WCCCA Implementation Team and WCCCA E&H Sub-Committee via Dropbox for review and comment on the 21st July 2021
- The Strategy overview, including approval timeline, content, and approval conditions was presented to the WCCCA E&H Sub-Committee on the 4th August 2021

- The delay in Strategy submission discussed with WCCCA E&H Sub-Committee, to incorporate received comments and elaborate on association with the Rehabilitation Management Plan, on the 3rd November 2021
- Agreement to hold a special workshop focussing on the Strategy was discussed and endorsed with WCCCA E&H Sub-Committee on the 2nd February 2022

Final Draft Strategy was submitted to the WCCCA E&H Sub-Committee for review and comment on the 3rd August 2022. A log of responses are listed in Appendix C. Traditional Owners have been part of the rehabilitation planning process for a number of years with the ILUA (WCCCA Agreement) being the mechanism to achieve these outcomes. A number of key milestones that have been achieved include:

- The development of completion criteria as required under the Rehabilitation Management Plan (per Environmental Authority),
- Deriving cultural values workshop. An exercise where RTA consulted with traditional owners on the species that they wish to be returned to country as part of the rehabilitation process. Species include those utilised in traditional practices such as tool making and bush tucker.
- Annual rehabilitation reporting and tours to share successes and learnings. These represent opportunities to see how the rehabilitation process is undertaken, experience rehabilitation at various ages and development towards meeting criteria.
- Annual update to E&H Sub-committee on changes to rehabilitation creation and remediation, as well as annual targets/totals for completed rehabilitation

As part of the engagement strategy with the WCCCA, threatened species are a key area of interest, with all findings and learnings shared through the Environment and Heritage Sub-committee. The research that has taken place as part of the development of this strategy has been shared with the Traditional Owners, acknowledging that they hold both ecological and cultural significance.

10 TRADITIONAL OWNER EMPLOYMENT OPPORTUNITIES

RTAW has committed to working collaboratively with Traditional Owners, through the relevant Western Cape Communities Co-existence Agreement (WCCCA) Sub-Committees and the WCCCA Coordinating Committee to further increase representation of local Aboriginal people, and in particular, the Wik and Wik Waya Traditional Owners across the workforce. Traditional Owner employment opportunities associated with the implementation of the Strategy will be reported quarterly to the Employment and Training Sub-committee of the WCCCA.

Traditional Owner employment opportunities associated with land management are available in the Land and Sea Management Programmes, which are part of the Communities, Heritage and Environmental Management Plan (RTAW, 2014). Specific opportunities related to the Rehabilitation Strategy include, but are not limited to:

- Rehabilitation Activities
- Weed Management Program;
- Cultural Heritage Activities
- Fire Management Program; and
- Seed collection associated with rehabilitation.

The Land & Sea Program operates under the RTW framework and has been developed in consultation with Traditional Owners to enable opportunities to work on country as part of the land restoration process. Training and sharing of cultural knowledge are key components of the process and have been integral to the success of the site rehabilitation programs to date. RTAW commits to maintain the Land & Sea Programme engagement framework to maintain employment of Wik and Wik Waya Traditional Owners to execute the establishment and ongoing management of Amrun Rehabilitation Strategy goals.

In addition, through the existing Indigenous Land Use Agreement, opportunities for employment of Traditional Owners are identified through an employment and training plan. This plan identifies work opportunities and roles within these work opportunities that may be filled by Traditional Owners. Traditional Owners that may be capable of filling these roles are then identified with RTAW supporting identified candidates to become appropriately skilled to fill the identified roles. RTAW supports the employment of Traditional Owners in all areas of the business if they are appropriately skilled and qualified.

As a part of the reporting obligations under the Indigenous Land Use Agreement, quarterly review reports are provided to the WCCCA Coordinating Committee on RTAW's Traditional Owner employment and training obligations through the Employment and Training Sub-committee, including numbers engaged in Land and Sea Management Programmes for land management and rehabilitation activities. Direct employment or contracting opportunities shall exist during the implementation of the Strategy, particularly with seed collection associated with rehabilitation, direct seeding and planting, weed management and fire management. The extent of opportunities shall depend on the final management techniques adopted.

11 INDEPENDENT PEER REVIEW

In compliance with Condition 60 of the approval for EPBC Act 2010/5642, RTAW sought approval from the Department of an independent peer reviewer and peer review criteria which was subsequently approved by the Department on 09 June 2021 and 11 June 2021 respectively. The independent peer review of the Draft Rehabilitation Strategy (RTAW, June 2021) using approved criteria was completed 07 July 2021 (Dique, 2021). Following submission of this peer review RTAW made updates to the Strategy in accordance with the amended Draft Rehabilitation Strategy provided back to the peer reviewer for review. On 09 December 2022 the peer reviewer confirmed the Strategy adequately responds to recommendations made and suitable to finalise (refer Appendix D).

Post submission of the Strategy to the Department for review[8] RTAW received comments from the Department on 30 August 2024. RTAW requested Energy Resources Management Australia Pty Ltd (ERM) to review these comments in a technical note (ERM, 2025) (refer Appendix E). This review by ERM informed an update to the Draft Rehabilitation Strategy dated March 2025. RTAW engaged the approved independent peer reviewer to review this version (Dique, 2025) (refer Appendix F).

[8] The Draft Rehabilitation Strategy was submitted to the Department of Climate Change Energy and Water on 12 December 2022.

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13 GLOSSARY

Amrun Mine – Name of bauxite mine developed under the South of Embley Project

Commencement of the action / commenced the action – any works that are required to be undertaken for **construction** (except exploration, site investigation and preliminary works).

Completion Criteria - These are the standards that are to be met by successful rehabilitation. They will generally be in the form of numerical values that can be verified by measurement of the indicators selected for the rehabilitation objectives. They may include an element based on time, e.g. the criterion has been achieved for 7 consecutive years for 95 percent of the area. (DES, 2018)

Construction – any works that are required to be undertaken for the project including the beneficiation plant (including tailings storage facility); Boyd Port facility, and Hey and Embley River facilitates; dam construction; clearing of vegetation; and infrastructure facilities (including power station, roads, and fuels storage).

Department – Commonwealth Department of Agriculture, Water and the Environment

Final Environmental Impact Statement – comprises the South of Embley Project Final Environmental Impact Statement (March 2013).

Impacts/impacted – as defined in section 527E of the EPBC Act.

Infrastructure – Proposed or installed infrastructure associated with the construction, operation maintenance and eventual decommissioning of the Amrun Mine

Matter of national environmental significance – those matters protected under the EPBC Act: World Heritage properties, National Heritage places, wetlands of international importance (Ramsar wetlands), listed threatened species and communities, listed migratory species, Commonwealth marine areas, Great Barrier Reef Marine Park, the environment where nuclear actions are involved (including uranium mines).

Mining Areas – Areas of the RTAW lease disturbed for the purposes of the extraction of bauxite from the Amrun bauxite mine

Minister – the **Minister** administering the *Environment Protection and Biodiversity Conservation Act 1999* and includes a delegate of the **Minister**.

Project Area – the construction and operational area associated with the Amrun Project works at Boyd Point on the western side of Cape York Peninsula

RTAW – RTA Weipa Pty Ltd

Survey Data – data collected during scientific surveys within the Amrun mining lease (particularly flora and fauna data

Transformer Weed - highly invasive taxa with the potential to seriously alter the structure and function of the ecological community

Appendix A: Impact Avoidance Measures

The species listed in Condition 33 benefit from a number of impact avoidance measures outlined in the Final EIS and these are described below. All impact avoidance measures have been implemented.

1. Planning

The bauxite-bearing Weipa plateau supports *Eucalyptus tetrodonta, Corymbia nesophila* tall woodland (Darwin Stringybark woodland) on deeply weathered plateaus (Regional Ecosystem (RE) 3.5.2). Of the vegetation that will be disturbed over the 40-year life of the Project, 99% is Darwin Stringybark woodland. The majority of the listed threatened terrestrial flora and fauna species which possibly occur in the Project area occur in non-Darwin Stringybark vegetation communities, mainly the riparian gallery forest, and coastal and non-coastal vine thicket communities. All mining is proposed to occur within the Darwin Stringybark woodland and the siting of infrastructure has minimised impact on non-Darwin Stringybark vegetation communities. These communities were only cleared in the footprint of Arraw Dam, shoreline and watercourse crossings for access and infrastructure corridors, and at the Port.

2. Environmental Buffers

The disturbance of sensitive environmental areas by mining is avoided by the SoE environmental buffer system. The buffer system comprises a methodology for determining set-back distances from sensitive vegetation types, rather than banks of watercourses and wetlands, and the preclusion of mining from within the designated buffers. The sensitive vegetation that is buffered by Darwin Stringybark woodland comprises the following vegetation types: riparian, wetland, estuarine, vine forest and coastal vegetation on sand.

A variable buffer system has been implemented and takes into account factors such as sensitive vegetation type, important locations of threatened flora and fauna, stream order and hydrology when determining buffer distances. The buffer distances have been included in Condition of approval EPBC 2010/5642.

Typically, a buffer distance up to 200m is adopted for vine forest, wetlands, estuaries, coastal vegetation on sand and riparian vegetation along watercourses of stream order three and above. Narrower buffer distances to a minimum of about 100m are sometimes adopted for riparian vegetation along watercourses of stream order one and two, or where significant ecological attributes are absent and physical characteristics are such that a narrower buffer still provides edge effect protection and filtering of surface runoff flows from disturbed areas.

The environmental buffer system benefits the listed species in Condition 33 in a number of concrete ways. The system protects a significant area of preferred habitat including preferred nesting, roosting and foraging habitat for the Red Goshawk and Masked Owl. This area is also important habitat for the remaining Condition 33 species. When combined with the area outside the buffers that will remain unmined, the vast majority of the habitat within 1km of permanent water will remain unmined, effectively preserving most potential nesting habitat for the Red Goshawk and Masked Owl.

3. Pre-disturbance surveys

Pre-disturbance surveys include specific measures to protect nesting Red Goshawks, and Masked Owls.

Pre-disturbance surveys for Red Goshawk nests are undertaken within those parts of the mine and infrastructure areas located within 1km of permanent water supporting riparian gallery forest or, paperbark wetland; seasonally inundated coastal wetlands and seasonal water courses supporting riparian gallery forest; or an estuary (based on their preferred nesting habitat - (Aumann & Baker-Gabb, 1991; Czechura, et al., 2010; DEWHA, 2009)). If active Red Goshawk nests are found within these disturbance areas, a 200m buffer around the nesting tree will be excised from the mine plan and the nest monitored until completion of the breeding season, after which vegetation clearing activities will resume. This buffer distance agrees with the minimum buffer distance recommended by the EPA (Queensland EPA, 2006).

Pre-disturbance surveys for the Masked Owl include dusk stag-watching and call-playback surveys. Surveys are conducted prior to undertaking any significant disturbance to land located within 200m of permanent water supporting riparian gallery forest of paperbark wetland, seasonally inundated Paperbark wetlands, seasonal watercourses supporting riparian gallery forest or an estuary. Large hollow trees are targeted. If any active Masked Owl nests were to be found within mining areas within the 200m limit, a 200m buffer around the nesting tree will be excised from the mine plan until the end of the breeding season. Any active Masked Owl nesting site identified within the mining path will be monitored until the nesting cycle has been completed, after which clearing activities would resume. Survey records and pertinent ecological records are documented. As at the publication date of this Strategy, no evidence of Masked Owls has been found on the SoE Project Area.

4. Fire Management Program

A fire management program has been developed in cooperation with Traditional Owners and the relevant WCCCC sub-committee to address the adverse aspects of the historic fire regime within the Project area as part of the Communities, Heritage and Environment Management Plan. The fire management program aims to conserve fire-sensitive flora and vegetation communities and promote overall vegetation diversity by reducing fire intensity and frequency and promoting a regime of early to mid-dry season lower intensity burns with a lower frequency.

The fire management program will help promote a similar understorey structure to the pre-disturbance forest, supporting habitat suitable for Red Goshawk prey species and a structure suitable for Red Goshawk hunting techniques. Fire management is the key management measure proposed for the Masked Owl in the 2010 Action Plan for Australian Birds (Garnett, et al., 2011).

The Terrestrial Management Plan (RTAW, 2020) includes further details on the Fire Management Program.

5. Weed Management Program

A weed management program (RTAW, 2020) comprising monitoring and control components has been developed to prevent impacts on undisturbed vegetation. The main focus of the weed management program is early detection and early control of any weed invasions. Special attention is devoted to weed quarantine controls and the rapid response to weed outbreaks. The

weed management program will help prevent vegetation thickening caused by problem weeds and promote an understorey structure and floristics capable of supporting the listed Condition 33 species.

6. Feral Pig Control Program

A Feral Pig Control Program (RTAW, 2016) has been developed in consultation with DES and the Traditional Owners. The program focuses on reducing feral pig numbers and reducing pig damage to riparian and wetlands areas within the management zone. This may lead to an improvement in the quality of these potential habitats and provide greater numbers of prey in these habitats for the Red Goshawk and Masked Owl. This program also greatly benefits nesting marine turtles along the Amrun foreshore by drastically reducing nest predation.

7. Progressive Rehabilitation

The impacts of habitat loss will be minimised by the progressive rehabilitation program (Section 3). Sequential re-establishment of habitat on rehabilitation areas will reinstate potential foraging habitat and facilitate re-colonisation of prey fauna while mining continues in other areas.

Appendix B: Amrun Completion Criteria

(Source: Rehabilitation Management Plan (RTAW, 2022))

Table B 1: Amrun Completion Criteria - Mined Area Domain

Rehabilitation Goal	Rehabilitation Objective/s	Indicators	Completion Criteria	Rationale, Notes
Stable landform	Landform design achieves appropriate erosion rates.	Absence of soil erosion or present only at acceptable levels.	No unacceptable soil erosion. Unacceptable erosion is defined as that which: • Appears likely to cause instability or degradation of the landform • Has the potential to compromise land use/objectives • Has the potential to deposit substantial alluvial sediment into receiving waters;	Erosion is rarely observed to a degree likely to inhibit successful rehabilitation, given the internally draining, and low-relief landforms characterising Weipa's mine pits. Currently measured through Interim Assessment and Performance monitoring programs for: • Type (Gully, Rill, Sheet, None), • Extent (Minor, Moderate, Severe) and • Status (Active /Non-Active). Unacceptable is defined as: • Active, Moderate to Severe Erosion into receiving waters, or • Active, Severe Erosion onto rehabilitation.
Self-sustaining native dry woodland vegetation dominated by framework species that meets criteria derived from dry	Soil Health	Development of soil A horizon and presence of leaf litter.	Development of soil A horizon and presence of leaf litter.	Soil properties evidenced by excavations at 75% of 4, 25m intercepts along transect where excavations are undertaken to 300mm. The assessing ecologist will note the presence and breakdown of organics and formation of A horizon. Termitaria presence should be recorded in transect.

Rehabilitation Goal	Rehabilitation Objective/s	Indicators	Completion Criteria	Rationale, Notes
woodland reference sites and trials.		Soil formation processes underway	Presence of termitaria and breakdown of organic matter in soil horizon.	Evidenced by excavations at 75% of 4, 25m intercepts along transect where excavations are undertaken to 300mm. The assessing ecologist will note the presence and breakdown of organics and formation of A horizon. Termitaria presence should be recorded.
Self-sustaining native dry woodland vegetation dominated by Eucalypts, Corymbias, Erythrophleum and other framework species that meets criteria derived from dry woodland reference sites and trials.	Self-sustaining dry woodland vegetation and fauna habitat established; management requirements comparable to those of unmined dry woodland	Ground Cover and leaf litter	Ground cover comprising leaf litter, grasses, or cryptograms to comprise 80% of intercepts for an assessment plot.	Currently measured through Performance Monitoring and Interim Assessment intercept component.
		Tree density -total framework species >2m	200 stems per ha of Dry Woodland framework species >2m.	Key metric measured through Performance and Interim Assessment monitoring.
		Diversity	Reciprocal Simpson's index scores for the site ≥ 3.	Data collected measured through Performance Monitoring and Interim Assessment intercept component.
		Presence of weeds	Weed species abundance (either individually or in aggregate), does not, and is unlikely to prevent any other criterion being achieved or sustained. Transformer weeds[1] (e.g.: Gamba grass) must be absent. If a site is treated to remove transformer weeds, monitoring in the subsequent year must establish that the treatment has been successful.	Weed presence and relative density is recorded during interim assessment/performance monitoring methodology.

[1] Transformer weeds are highly invasive taxa with the potential to seriously alter the structure and function of the ecological community (TSSC, 2010)

Rehabilitation Goal	Rehabilitation Objective/s	Indicators	Completion Criteria	Rationale, Notes
		Resilience to fire	Following a recent fire (within the previous five years), all other completion criteria must be shown to have been met, demonstrating recovery. If site is long unburnt or has never been never burnt, monitoring of structurally and floristically similar rehabilitation must demonstrate that attributes relevant to other completion criteria could be expected to recover following a wildfire.	Reformulate this criterion, if necessary, after fire research is complete, or, integrate the findings of the fire research into all other relevant criteria, and omit this 'resilience to fire' criterion.
Self-sustaining native dry woodland vegetation dominated by Eucalypts, Corymbias, Erythrophleum and other framework species that meets criteria derived from dry woodland reference sites and trials	Self-sustaining dry woodland vegetation and fauna habitat established; management requirements comparable to those of unmined dry woodland	Development of habitat suitable for native fauna species that utilise dry woodland vegetation types in the area	The following habitat features must be present: One of more woody sub-canopy layers; Course woody debris (>1m), whether introduced or naturally-occurring; and an herbaceous layer dominated by local perennial grasses.	Currently measured through Performance Monitoring and Interim Assessment intercept component.
	Local native mammals, birds, reptiles, amphibians & invertebrates using the site (or likely to)	An effective termite decomposer fauna has developed	Recent termite constructs (mounds, arboreal nests, earthen workings in litter, on wood and on tree stems) are present, and there is evidence of termite-mediated decomposition of woody and other plant materials.	Currently measured through Performance Monitoring and Interim Assessment intercept component.
		Development of habitat suitable for native fauna species that utilise dry woodland vegetation types in the area	The following habitat features must be present: One or more woody sub-canopy layers; Course woody debris (10 cm in diameter); and an herbaceous layer dominated by local perennial grasses.	Course woody debris can originate from the topsoil source, the rehabilitation itself, or be intentionally emplaced.
		Native fauna recolonization	Evidence of colonisation by fauna characteristic of Benchmark Domain Dry Woodland, as demonstrated by	Targeted fauna surveys, carried out as part of Rio Tinto's monitoring program are essential to confirm the success of recolonization by fauna.

Rehabilitation Goal	Rehabilitation Objective/s	Indicators	Completion Criteria	Rationale, Notes
			fauna monitoring of representative Transitional Domain Dry Woodland rehabilitation	
Self-sustaining wetland vegetation community that includes Melaleucas, Lophostemon and wetland gums native plant species and supports native fauna	Self-sustaining wetland vegetation community that includes Melaleucas and other native plant species and supports native fauna.	Framework species density	>140 stems per ha ofPost-2008 Wetland framework species >2m.	Currently measured through Performance Monitoring and Interim Assessment intercept component.
		Diversity	Reciprocal Simpsons Index returns a value of >1.2.	See diversity rationale for wetland sites.
		Ground cover	Ground Cover and leaf litter Ground cover comprising leaf litter, grasses, or cryptogram to comprise 65% of intercepts for an assessment plot.	
		Vegetation Health	The proportion of plants with significant health problems should not prevent any other criterion from being achieved and sustained. A significant health problem is one which is likely to substantially curtail the normal lifespan of the affected individual.	See comments for pre-2008 (Legacy Domain), Dry Woodlands.
		Presence of weeds	Weed species abundance (either individually or in aggregate), does not, and is unlikely to prevent any other criterion being achieved or sustained. Ecosystem transformer weeds must be absent. If a site is treated to remove ecosystem transformer weeds, monitoring in the subsequent year must establish that the treatment has been successful.	See comments for pre-2008 (Legacy Domain), Dry Woodlands.
		Local native mammals, birds, reptiles, amphibians & invertebrates using the site (or likely to).	Development of habitat suitable for native fauna species that utilise wetland vegetation types in the area.	Vegetation monitoring shows wetland fauna habitat is developing including: • Surface water in some sites; • Suitable vegetation strata (overstory and/or shrubs and/or rushes and sedges); • Local native plant species.

Table B 2: Amrun Completion Criteria – Tailings and Infrastructure Domains

	Rehabilitation Goal	Rehabilitation Objective/s	Indicators	Completion Criteria
Tailings Storage Facilities	Long-term safety	The site is safe for humans and fauna, now and in the foreseeable future	Tailings storage facilities are geotechnically stable	Evidence that storage facilities are physically stable
	Non-polluting	Surface water remain uncontaminated	Surface water monitoring	Evidence that surface water leaving rehabilitated site meets REMP requirements
		Dust levels at sensitive human receptors meet EA conditions	Dust monitoring in sensitive receptor areas	Evidence that dust levels do not exceed EA limits.
	Stable landform	Landform design achieve appropriate erosion rates	Soil erosion is acceptable	No unacceptable soil erosion. Unacceptable erosion is that which: • Causes instability or degradation of the landform • Will compromise land use/objectives
			Engineered structures to control water flow off outer batters	Evidence that required sustainable engineered structures are in place and functioning
		Slopes	Slope angles acceptable	Maximum overall slope angle of 35°
		Vegetation cover to minimise erosion	Vegetation type and density	Evidence that vegetation is resilient, self-sustaining and appropriate to control erosion on the landform
		Very low probability of slope slippage with serious consequence in regard to environmental harm	Geotechnical and geochemical studies of existing structures	Evidence the appropriate risk assessment has been undertaken, and the level of risk is acceptable
	Sustainable land use	Establish specified self-sustaining natural vegetation	Presence of framework species	Minimum of two Dry Woodland framework species >2m present
			Presence of weed species	Weeds will be managed in accordance with the Biosecurity Act QLD 2014.
			Vegetation health	Evidence of good health (plants healthy, no significant disease or nutrient deficiency problems)
			Resilience of vegetation	Monitoring and/or research has shown that they regenerate after fire and meet presence of framework species criteria following a burn.

	Rehabilitation Goal	Rehabilitation Objective/s	Indicators	Completion Criteria
Infrastructure - Water	Water infrastructure, such as the water supply dams, may be left in place.	Subject to agreement with regulators and Traditional Owners some facilities may be left in place. Otherwise, RTAW commitment is to remove structures at closure and rehabilitate as per Infrastructure – Water (rehabilitated)	NA	NA
	Long-term safety	The site is safe for humans and fauna, now and in the foreseeable future	Safety assessment of contoured ground level	Fill material intact with acceptable settling and weathering
	Non-polluting	Surface water remains uncontaminated	Surface water monitoring	Reports confirm that surface water leaving rehabilitated site does not contain contaminant levels above relevant guidelines
		Soil remains uncontaminated	Soil quality monitoring	Reports confirm that soil in filled in areas does not contain contaminants above relevant guidelines
		Dust levels at sensitive human receptors meet EA conditions	Dust monitoring in sensitive receptor areas	Evidence that dust levels do not exceed EA limits.
	Stable landform	Landform design achieves appropriate erosion rates	Soil erosion is acceptable	No unacceptable soil erosion. Unacceptable erosion is that which: • Causes instability or degradation of the landform • Will compromise land use/objectives
	Sustainable land use	As per Tailings Storage Facilities	As per Tailings Storage Facilities	As per Tailings Storage Facilities
Infrastructure – Plant	Some plant infrastructure may be left in place, otherwise rehabilitated as per Mined area domain.	Subject to agreement with regulators and Traditional Owners some facilities may be left in place. Otherwise RTAW commitment is to remove structures at closure and rehabilitate	NA	NA
Infrastructure – Transport	Some transport infrastructure is likely to be left in place, otherwise rehabilitate as per Mined area domain.	Subject to agreement with regulators and Traditional Owners some facilities will be left in place.	NA	NA

Appendix C: Register of Responses from WCCCA

Name of Agreement: Western Cape Communities Coexistence Agreement
Current as at: 07/12/2022

Relevant Clause (General Condition/Special Conditions) (Insert clause ref. or whole clause)	**WCCCA Concern**	**Rio Tinto's Response**
Condition 35 of the EPBC *…. The Rehabilitation Strategy must provide information detailing Traditional Owner employment opportunities, and mechanisms for reporting the number of local indigenous person/s actually employed in the implementation of this Strategy (consistent with condition 42)*	WCCCA Letter response to draft Amrun Rehabilitation Strategy and draft Rehabilitation Management Plan dated 28 Oct 2022 to Janine Schleich, Manager CSP. Section 10 of Amrun Rehab strategy does not include a specific KPI that tracks the number of local indigenous person/s employed in the implementation of the Rehabilitation strategy	Included specific KPI in the Amrun Rehabilitation Strategy (Section 10) as below: *RTAW commits to maintain the Land & Sea Programme engagement framework to maintain employment of Wik and Wik Waya Traditional Owners to execute the establishment and ongoing management of Amrun Rehabilitation Strategy goals.* Included metrics to measure the above KPI in WCCCA Environment and Heritage strategy 2022-2024 V_10
N/A	Dates (stated below) reported in draft Amrun Rehabilitation Strategy Section 9 are incorrect. *Overview of the Amrun Rehabilitation Strategy, including initial approval timeline presented to the Western Cape Communities Coexistence Agreement (WCCCA) Environment and Heritage (E&H) Sub-Committee on the 5th May 2021* *The Strategy was lodged to WCCCA Implementation Team and WCCCA E&H Sub-Committee for review and comment on the 14th July 2021* *The Strategy to be presented to WCCCA E&H Sub-Committee in a Special /Workshop in Q2 2022, prior to standard E&H Sub-Committee meeting on 4th May 2022* *Final Strategy will be forwarded to the WCCCA Coordinating Committee for endorsement , 8th June 2022*	Dates are amended as below. *Brief outline of the Amrun Rehabilitation Strategy presented to the Western Cape Communities Coexistence Agreement (WCCCA) Environment and Heritage (E&H) Sub-Committee on the 5th May 2021* *The Strategy was submitted to WCCCA Implementation Team and WCCCA E&H Sub-Committee via Dropbox for review and comment on the 21st July 2021* *Final Draft Strategy was submitted to the WCCCA E&H Sub-Committee for review and comment on the 3rd August 2022*

Rio Tinto Alcan

Appendix D: Amrun Rehabilitation Strategy – Independent Peer Review (2021)

ERM

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Date	09 December 2022
Client	Principal Advisor – Environment Aluminium Pacific Operations Rio Tinto Aluminium Weipa Pty Ltd 155 Charlotte Street, Brisbane QLD 4000 Australia
Reference	0604583
Subject	**Amrun Rehabilitation Strategy Independent Peer Review**

Dear Jayden,

As a Principal Ecologist and Partner at Environmental Resource Management Australia Pty Ltd (ERM), I was commissioned by Rio Tinto Aluminium Weipa Pty Ltd (RTAW) to perform an Independent Peer Review of the Draft Rehabilitation Strategy (RTAW, June 2021) (the Strategy) for the Amrun Project, previously known as the South of Embley Project.

The outcome of this Independent Peer Review is attached in: Amrun Rehabilitation Strategy Independent Peer Review, dated 7th of July 2021.

Following submission of this review, RTAW made updates to the Strategy in accordance with my recommendations and provided the updated version of the Strategy to the Western Cape Communities Coordinating Committee (WCCCA) for consultation, resulting in additional changes and minor adjustments.

Upon final review, I can confirm that the final version of the Strategy, provided to me on the 8th of December 2022, adequately responds to my review and is suitable to finalise.

Yours sincerely,

Dr. David Dique
Partner
9/12/2022

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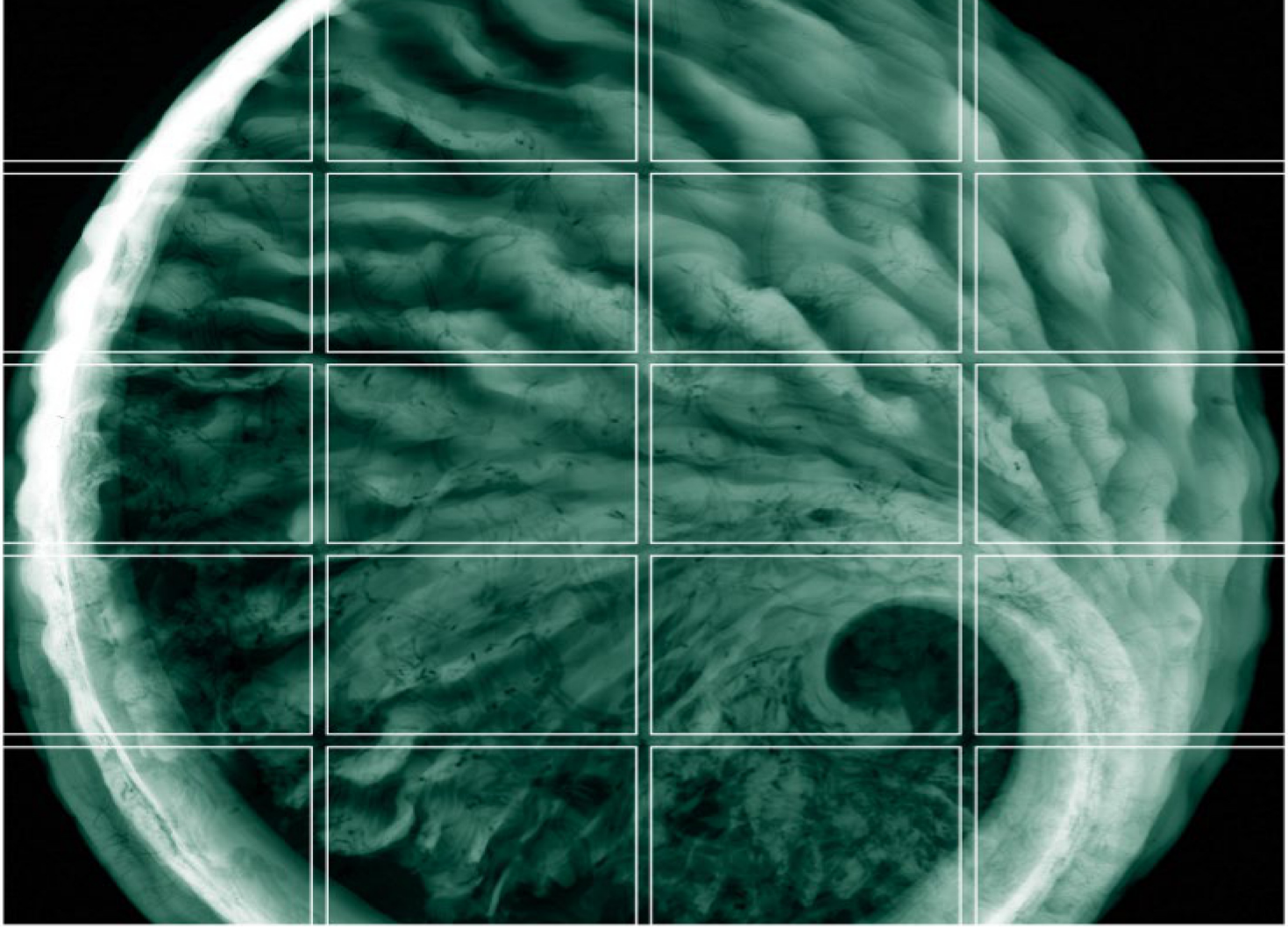

Amrun Rehabilitation Strategy

Independent Peer Review

7 July 2021

Project No.: 0604583

Document details	
Document title	Amrun Rehabilitation Strategy
Document subtitle	Independent Peer Review
Project No.	0604583
Date	7 July 2021
Version	1.0
Author	Dr David Dique
Client Name	Rio Tinto Aluminium Weipa Pty Ltd

Document history

				ERM approval to issue		
Version	Revision	Author	Reviewed by	Name	Date	Comments
Draft	A	David Dique		David Dique	07/07/2021	Client Submission

Signature Page

7 July 2021

Amrun Rehabilitation Strategy

Independent Peer Review

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CONTENTS

List of Tables

Acronyms and Abbreviations

Name	Description
DAWE	Department of Agriculture Water and the Environment
EPBC	*Environmental Protection and Biodiversity Conservation Act 1999*

1. INTRODUCTION AND OBJECTIVES

1.1 Project Background

Dr David Dique, a Partner of Environmental Resources Management Australia Pty Ltd (ERM), was commissioned by Rio Tinto Aluminium Weipa Pty Ltd (RTAW) to perform an Independent Peer Review of the *Draft Rehabilitation Strategy (RTAW, June 2021)* (the Strategy) for the Amrun Project (the Project), previously known as the South of Embley Project.

The Project commenced operations of a bauxite mine and associated processing and Port facilities on Western Cape York, south of existing operations at Weipa in December 2018.

Over a 40 year mine life, the Project proposes to disturb up to 28,880 hectares of remnant vegetation. As part of the approval obtained under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) EPBC 2010/5642, an approved Rehabilitation Strategy is required to ensure the rehabilitated areas are functionally equivalent to pre-disturbed habitat. Specific to Condition 36 of EPBC 2010/5642, a Rehabilitation Strategy is to be provided to the Minister for approval within three years of the commencement of operations once it has been independently peer reviewed by a reviewer approved by the Minister, as per Condition 60 of EPBC2010/5642.

1.2 Peer Review Objectives

The purpose of this Independent Peer Review is to satisfy Condition 60 of EPBC2010/5642 which stipulates

> *Unless otherwise agreed in writing by the department, each/all program/s, plan/s, or strategies specified in the conditions must be independently peer reviewed prior to submission to the Minister for approval. The approval holder must nominate an Independent Peer Reviewer to the Minister. The person/organisation/technical committee conducting the independent peer review must be approved by the Minister, prior to the commencement of the review. The independent peer review criteria must be agreed to by the Minister and any reviews undertaken must address the criteria to the satisfaction of the Minister.*

This Independent Peer Review of the Strategy aims to meet the requirement of Condition 60.

2. PEER REVIEW SCOPE AND METHODOLOGY

2.1 Peer Review Scope and Criteria

ERM has developed this Independent Peer Review in accordance with the request of RTAW, dated 26th February 2021. The request included the following:

- Desktop Independent Peer Review of the Draft Rehabilitation Strategy based on the Peer Review Criteria provided by RTAW; and
- Preparation of an Independent Peer Review report that outlines the findings from the Independent Peer Review with specific reference to each of the approved Peer Review Criteria.

In accordance with the DAWE approved Peer Review Criteria provided by RTAW, this Independent Peer Review was conducted by Dr David Dique, a Principal Ecologist with 25 years experience,. The Peer Review Criteria is provided in **Table 1**.

Outcomes of the Independent Review for each criterion is provided in **Table 1** as either Met, Partially Met, Not Met.

2.2 Limitations and Qualifications

This disclaimer, together with any limitations specified in the report, applies to this report and its use.

This report was prepared in accordance with the contracted scope of works between ERM and RTAW for the specific purpose stated above and subject to the applicable cost, time, and other constraints set out in the scope of services or otherwise identified within the report. As such ERM has not considered any questions, nor provided any information, beyond ERM's contracted scope of service.

In the preparation of this report, ERM relied upon:

a. Client/third party information which was not verified by ERM except to the extent required to undertake the independent peer review as set out in ERM's scope of services using the professional judgement expected on an independent peer reviewer in similar circumstances, and ERM does not accept responsibility for omissions or inaccuracies in the client/third party information that has not been verified by ERM; and

b. Information taken at or under the particular times and conditions specified, and ERM does not accept responsibility for any subsequent changes in las, factual circumstances, applicable regulatory instruments or any other future matter.

This report has been prepared solely for use by RTAW and ERM accepts no responsibility for its use by other persons.

This report should be read in full and no excerpts are to be taken as representative of the whole report. To ensure its contextual integrity, the report is not to be copied, distributed or referred to in part only. No responsibility or liability is accepted by ERM for its use of any part of this report in any other context.

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3. INDEPENDENT PEER REVIEW FINDINGS

3.1 Summary of Findings and Comments

The Strategy sets out the relevant matters in Section 1.1, stating that the Strategy *"has been prepared to ensure the rehabilitated areas are functionally equivalent to the pre-disturbance habitat, to enable similar land use to that of the pre-disturbance habitat, by the following species listed in Condition 33:*

- *Red Goshawk (Erythrotriorchis radiatus) [vulnerable];*
- *Masked Owl (Tyto novaehollandiae kimberli) [vulnerable];*
- *Barn Swallow (Hirundo rustica) [migratory].*

In Section 1.2 of the Strategy, exclusion of the Bare-rumped Sheath-tailed Bat (*Saccolaimus saccolaimus nudicluniatus*) has been documented and clearly defined, with reference to Conditions 31, 32 and 33 as set-out in EPBC 2010/5642. The context and justification for exclusion is based on the outcomes of targeted surveys, in accordance with the Commonwealth's *Survey Guidelines for Australia's Threatened Bats* (DEWHA 2010), as reported in *Targeted survey for the bare-rumped sheath-tailed bat in the South of Embley Project area, near Weipa, Queensland* (Specialised Zoological, 2013). The report concludes that the species was not detected despite substantial survey effort. Having reviewed this report, there is no evidence to suggest that the Bare-rumped Sheath-tailed Bat should be considered in the development of the Strategy.

The Strategy defines benchmarks, performance measures and success criteria for functional equivalence for rehabilitation for foraging habitat only, on the basis that nesting habitat for the relevant matters is likely to occur within/or near riparian areas, of which will be adequately protected through the proposed buffers and environmental areas protected from mining activities within the Project area. This is adequately justified with support from published literature and (a paucity of) database records in the region, targeted and ongoing Red Goshawk monitoring in the region and the observed red goshawk nest in the Project area (which is near the boundary of the environmental buffer area), and field surveys. It should be noted that attainment of functional equivalency for 10 years has not been proposed for the Red Goshawk (but rather 20 years) on the basis that it may take more time to document functional equivalence. The proposed 20 year timeframe appears appropriate, noting that it is based on data obtained from monitoring of rehabilitation at Weipa and Andoom, as referenced in the Strategy

Importantly, Section 4 of the Strategy includes relevant ecological information from desktop review and field surveys for the Red Goshawk, Masked Owl and Barn Swallow, supporting adequate descriptions of habitat requirements in the Cape York region and Project Area. Section 4 details for each of the three species, the type, extent, condition and quality specific habitat attributes relevant to the Project Area, and therefore setting the baseline against which specific performance indicators can be set for achievement of rehabilitation outcomes. Indeed, Section 5 defines quantitative performance indicators against which to measure rehabilitation success, including structure of prey availability and forest structure and condition, through a variety of habitat and species specific attributes with proposed measures against analogue/pre-disturbance forest and woodlands. The approach is robust, appropriate, and consistent with rehabilitation principles.

The specific rehabilitation requirements following mining (the "Mining Domain"), and associated timeframes for commencing rehabilitation works after mining has been provided in Section 8 of the Strategy. However, detail associated with the "Other Domain", which includes related mine infrastructure has not been provided. Specific timeframes for rehabilitation activities following decommissioning of infrastructure will need to be provided, where agreements have not been reached with indigenous groups to retain infrastructure.

Section 10 details Traditional Owner employment opportunities, largely via the Western Cape Communities Co-existence Agreement (WCCCA) Sub-Committees and the WCCCA Coordinating Committee to further increase representation of the Wik and Wik Waya Traditional Owners, as well as

through the Indigenous Land Use Agreement commitments. Reporting is quarterly, as required by the Indigenous Land Use Agreement, and is proposed as the mechanism for reporting on indigenous persons employed in the implementation of the Strategy.

Table 1 presents a summary of the findings of the outcomes of the Independent Peer Review.

Specific recommendations for those items that are Partially Met include:

- Section 6 (and referenced in Section 8) to be updated to commit RTAW to 10 year reporting on the progression of rehabilitation in meeting performance criteria for the Red Goshawk, together with the reports on attainment of rehabilitation for the Masked Owl and Barn Owl at 10 years;
- Section 3.8, under the subheading Other Domain, be updated to include a reference to timeframes for rehabilitation works; and
- Section 10 to be updated to include specific reference to reporting on the benefits to local indigenous employment as a result of implementation of the Strategy.

Table 1: Peer Review Finding Summary

Peer Review Criteria	Location within Strategy	Observations
1.1 Commit RTA Weipa to mine-site rehabilitation that is, for the Red Goshawk (*Erythrotriorchis radiatus*), Masked Owl (*Tyto novaehollandiae kimberli*) and Barn Swallow (*Hirundo rustica*), functionally equivalent to the pre-disturbance habitat (the desired outcomes), to be attained within 10 years of commencement of respective rehabilitation activities, or as otherwise agreed in the approved Rehabilitation Strategy	Section 4.1, 4.2, 4.3 Section 5.1 Table 7 & Section 5.2 Table 8	**Partially Met** Section 4.1, 4.2, 4.3 contains the following commitment for each species: *Section 5 of this Rehabilitation Strategy (see page 35) outlines outcomes, benchmarks, performance measures and success criteria to guide the development of functional equivalence of rehabilitation and the pre-disturbance forest for the…* (reference to each species). Section 5.1, Table 7 details desired outcomes and benchmarks for each species for foraging habitat. Section 5.2 and Table 8 details performance measures and success criteria for each species, with the target of 20 years for Red Goshawk, and 10 years for the Masked Owl and Barn Swallow. The 20 years proposed for the Red Goshawk does not meet the 10 year requirement of the Condition, but appears appropriately justified, based on monitoring outcomes/observations delivered by RTAW at Weipa and Andoom. **Recommendation: Section 6 (and referenced in Section 8) to be updated to commit RTAW to 10 year reporting on the progression of rehabilitation in meeting performance criteria for the Red Goshawk, together with the reports on attainment of rehabilitation for the Masked Owl and Barn Owl at 10 years.**
1.2 Commit RTA Weipa to rehabilitating, during the life of the project (i.e. by 21 May 2063), a total area of no less than 28,880 hectares	Section 3.9 (c)	**Met** Section 3.9 c) states: *Condition 34 states "The land area to be progressively rehabilitated over the life of the project must be no less than 28,880 hectares". Rehabilitation areas will be reported annually and the total progressive rehabilitation area will be tracked to ensure compliance with Condition 34 by the end of the Project'*
1.3 Include benchmarks (success criteria) which, if attained, demonstrate establishment of the desired outcomes. As a minimum, the benchmarks must characterise the type, extent and condition/quality of relevant ecological attributes of the pre-disturbance habitat (e.g., nesting hollows) that support the life-cycle requirements (e.g., breeding) of the three species	Section 5.1 Table 7 & Section 5.2 Table 8	**Met** Section 5.1 and Section 5.2 appropriately define benchmarks and performance criteria in Table 7 and Table 8 for foraging habitat. Indeed, the tables define quantitative performance indicators against which to measure rehabilitation success including structure of prey availability and forest structure and condition, through a variety of habitat and species specific attributes with proposed measures against analogue/pre-disturbance forest and woodlands.

1.4 Contain rehabilitation activities, for construction and operation phases, that if implemented, are effective in achieving the desired outcomes. These activities must include measures outlined in the Final Environmental Impact Statement	Section 3 (3.1-3.10) Appendix B	**Met** Section 3 outlines relevant rehabilitation activities from Sections 3.1-3.10. In the opening paragraphs of Section 3, reference is made to the consistency of the measures in the Strategy with those documented in the SoE Final EIS in Section 3.10.
1.5 Specify timeframes for rehabilitation works so as to ensure the desired outcomes are achieved: i. following mining in the area/s where mining has been completed; or, ii. following decommissioning and removal of infrastructure, in each mining area where that infrastructure will not be retained at the end of the project.	Section 3.8	**Partially Met** i) Section 3.8 under a subheading Mining Domain states *Progressive rehabilitation is undertaken following the completion of mining* and defines the stages of rehabilitation, including Sections 3.8.1 Surface Preparation, 3.8.2 Plant Species Selection and 3.8.3 Direct Seeding that states direct seeding will typically *occur within 2 years of mining*. ii) Section 3.8 under a subheading Other Domains, which includes infrastructure as defined in Table B2, but does not contain a reference to timing of rehabilitation works following decommissioning of infrastructure. **Recommendation: Section 3.8, under the subheading Other Domain is updated to include a reference to timeframes for rehabilitation works.**
1.6 Describe monitoring strategies that ensure RTA Weipa is capable of: ■ characterising the type, extent and condition/quality of relevant ecological attributes of the pre-disturbance habitat (e.g., nesting hollows) that support the life-cycle requirements (e.g., breeding) of the three species; and ■ effectively monitoring, detecting and reporting, the actual or predicted achievement and maintenance of the desired outcomes	Section 5.2 Table 8 Appendix B	**Met** Section 5.2 Table 8 and Appendix B defines survey/monitoring strategies to characterise (baseline through analogue sites) and monitor (through 2, 5, 10, 18 and 20 years for Red Goshawk; 5, 8 and 10 years for Masked Owl; and 2, 5 and 10 years for Barn Swallow) relevant ecological attributes aligned with detecting and reporting actual/predicted achievement and maintenance of desired outcomes.
1.7 Include adaptive management strategies that enable RTA Weipa to attain and maintain the desired outcomes. To this end, the Strategy must specify: ■ performance indicators and goals, and associated timeframes, to attain the desired outcomes; ■ contingency measures that will be implemented to investigate the cause/s of failure to achieve performance indicators and goals, or the desired outcomes; ■ corrective actions that will be implemented if performance indicators and goals are not attained, or timeframes are not met. There must be substantiation that the proposed corrective actions are likely to achieve the desired outcomes;	Section 5.2 Table 8 Section 8 Section 6	**Met** Adaptive management strategies, timeframes, corrective actions are provided in Section 5.2 Table 8 and Section 8. Corrective actions are listed in Table 8, however substantiation of the actions are not included. The process and proposed timeframes for review of the Strategy and meetings its ecological equivalence objectives (18 years for the Red Goshawk, and 8 years for the Masked Owl and Barn Swallow) is provided in Section 8. Reporting commitments are provided in Section 6 and state: *All reports and related analysis of survey data required by this Strategy will be published on the RTAW website in accordance with approval Condition 57.*

■ rehabilitation and monitoring activities that are designed to ensure the desired outcomes are maintained for the period of approval; ■ the person/s and roles with responsibility for implementing activities and strategies proposed in the Strategy; and ■ the process, timeframes and methods for reviewing and reporting on the effectiveness of the Strategy, and for approval of the revised approved Strategy.		*Relevant survey data will also be provided to the Department on request in accordance with Condition 56. The Strategy and any subsequent revisions will be published on the RTAW website in accordance with Condition 59. The RTAW website address is: http://www.riotinto.com/australia/reports-and-publications-16120.aspx Compliance with the implementation of this Rehabilitation Strategy will be reported within the compliance report published and submitted to DAWE in accordance with Condition 68.*
1.8 Detail Traditional Owner employment opportunities, and mechanisms for reporting the number of local indigenous person/s employed in the implementation of the Strategy (as per EPBC Approval Condition 42)	Section 10	**Partially Met** Section 10 details Traditional Owner employment opportunities, largely via the Western Cape Communities Co-existence Agreement (WCCCA) Sub-Committees and the WCCCA Coordinating Committee to further increase representation of the Wik and Wik Waya Traditional Owners as well as through the Indigenous Land Use Agreement commitments. Reporting is quarterly, as required by the Indigenous Land Use Agreement, and is proposed as the mechanism for reporting on indigenous persons, however, specific reporting on benefits to local indigenous employment as a result of implementation of the Strategy is not provided. **Recommendation: Section 10 to be updated to include specific reference to reporting on the benefits to local indigenous employment as a result of implementation of the Strategy.**
1.9 Commit RTA Weipa to notifying the Minister in writing within 20 business days if the rehabilitation areas do not, after 10 years of rehabilitation commencing, or as otherwise agreed in the approved Strategy, meet the desired outcomes (success criteria) for the Red Goshawk, Masked Owl and/or the Barn Swallow	Section 8	**Met** Section 8 defines the commitment for notifying the *Minister within 20 business days of the area (hectares) over which the rehabilitation objectives and success criteria were not met.* This is for 20 years for the Red Goshawk, and 10 years for the Masked Owl and Barn Swallow. See comment in 1.1 above.
1.10 Detail the methodology that will be used by RTA Weipa to determine and delineate rehabilitation areas that meet, or do not meet, the desired outcomes for each of the three species	Section 5.2 Table 8 Appendix B Section 8	**Met** Section 5.2 and Appendix B defines the performance objectives, success criteria and methodology of monitoring, and Section 8 defines the commitment for reporting by notifying *the Minister in writing within 20 business days of the area (hectares) over which the rehabilitation objectives and success criteria were not met.*
1.11 Include commitments by RTA Weipa to address the publication requirements specified in EPBC approval 2010/5642 conditions 56, 57 and 59.	Section 6	**Met** Reporting commitments are provided in Section 6, see comment above at 1.7.

4. CONCLUSION AND RECOMMENDATIONS

An Independent Peer Review of the Draft Rehabilitation Strategy (RTAW, June 2021) for the Amrun Project, previously known as the South of Embley Project, has been completed by Dr David Dique of ERM.

Specific to Condition 36 of EPBC 2010/5642, a Rehabilitation Strategy is to be provided to the Minister for approval within three years of the commencement of operations once it has been independently peer reviewed by a reviewer approved by the Minister, as per Condition 60 of EPBC2010/5642. This Independent Peer Review of the Strategy meet the requirement of Condition 60.

The Strategy clearly sets out the relevant matters listed as*:*

- *Red Goshawk* (Erythrotriorchis radiatus) *[vulnerable];*
- *Masked Owl* (Tyto novaehollandiae kimberli) *[vulnerable];*
- *Barn Swallow* (Hirundo rustica) *[migratory].*

The Strategy defines benchmarks, performance measures and success criteria for functional equivalence for rehabilitation for foraging habit for the relevant matters, provides background detail on habitat requirements in Cape York for the relevant matters, and provides additional supporting information associated with the reporting requirements and indigenous agreements as required by relevant Conditions of EPBC 2010/5642.

The Independent Peer Review against the Peer Review Criteria, as provided by RTAW, has been undertaken and has confirmed that while the majority of the criteria has been met, three specific recommendations for items “Partially Met” have been identified and are:

- Section 6 (and referenced in Section 8) to be updated to commit RTAW to 10 year reporting on the progression of rehabilitation in meeting performance criteria for the Red Goshawk, together with the reports on attainment of rehabilitation for the Masked Owl and Barn Owl at 10 years;
- Section 3.8, under the subheading Other Domain, to be updated to include a reference to timeframes for rehabilitation works; and
- Section 10 to be updated to include specific reference to reporting on the benefits to local indigenous employment as a result of implementation of the Strategy.

RTAW are advised to make the recommended updates to the Strategy so as to meet the Peer Review Criteria.

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Appendix E: Response to DCCEEW Feedback

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TECHNICAL MEMORANDIUM

TO	Rio Tinto Aluminium Weipa Pty Ltd
FROM	Environmental Resources Management Australia Pty Ltd
DATE	27 March 2025
REFERENCE	0604583
SUBJECT	Amrun Rehabilitation Strategy – Response to DCCEEW Review (Condition 33 and 35) Technical Memorandum

1. INTRODUCTION

1.1 CONTEXT

Rio Tinto Aluminium Weipa Pty Ltd (RTAW) holds Approval (EPBC 2010/5642) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for the Amrun Project (the Project), previously known as the South of Embley (SoE) Project. The *Draft Rehabilitation Strategy* (RTAW, June 2021) (the Rehabilitation Strategy) was prepared to address Conditions 33 to 40 of the Approval. The Rehabilitation Strategy was submitted to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) (referred to as the Department) in December 2022 for review. The Department provided a response from their review against Approval Conditions, on the 30th of August 2024.

1.2 SCOPE

RTAW has requested ERM prepare this Technical Memorandum to provide a response to the Departments requested 'Required Actions' for Condition 33 and 35 (presented in Attachment A). Specifically, this Technical Memorandum aims to present evidence to substantiate the following:

1. A 75% target for prey species diversity is an appropriate performance measure; and
2. Listed species abundance is not an appropriate performance measure for the red goshawk (*Erythrotriorchis radiatus*), masked owl (*Tyto novaehollandiae*) and barn swallow (*Hirundo rustica*).

2. ERM'S RESPONSE

2.1 A 75% TARGET FOR PREY SPECIES DIVERSITY IS AN APPROPRIATE PERFORMANCE MEASURE

Using the percent of a benchmark is an accepted approach

The approach of quantifying a performance measure by a percentage of a benchmark value from a pre-disturbed or reference site is a widely used and generally accepted approach for

rehabilitation plans to demonstrate progress towards final rehabilitation criteria. This method is particularly common for vegetation and flora-based performance measures such as flora species richness, flora recruitment and foliage cover, as well as organic litter and course woody debris (RPS, 2011; QGC, 2020; APLNG, 2016).

For example, accepted performance criteria that can be found in publicly accessible rehabilitation plans and strategies for other EPBC Act approved Projects, include:

- Greater than or equal to 70% of native ground cover species richness (QGC, 2020);
- Greater than or equal to 50% of organic litter (QGC, 2020);
- Greater than or equal to 50% of total density of coarse woody material (QGC, 2020); and
- A minimum of 80% foliage cover of reference sites is maintained in the rehabilitated sites (APLNG, 2016).

A 75% target is an indication of positive trajectory towards Rehabilitation Strategy success

The objective of setting a performance criteria of 75% is to demonstrate progress towards restoration of habitat and its function, and as such, is not treated as reaching a finite number. It is known that following disturbance, post management and rehabilitation activities will take some time to restore habitat to a pre-disturbance state. To return an area to its full ecosystem function this can, in some instances, take considerable time, and often decades. The specific purpose of this 75% target is to demonstrate progress towards restoration of habitat function, providing opportunity for adaptive management where needed, and not focus on targeting complete restoration in the monitoring timeframe. Further, as stated in the information above, publicly accessible rehabilitation plans have used performance criteria of <100% to show a positive trajectory towards achieving rehabilitative success (RPS, 2011; QGC, 2020; APLNG, 2016).

A prey species diversity target of 75% is achievable

For the prey species diversity performance measure, it is important to understand the prey preference of the Matters of National Environmental Significance (MNES) and focus on returning habitat for prey species that make up the largest proportion of the species diet. Section 4 of the Rehabilitation Strategy provides detail on the prey preference for each MNES. This information will be used to develop an approach that considers how prey species diversity will be monitored, and how the 75% target will be achieved through the rehabilitation process.

For example, a recent study conducted between 2019 and 2023 across Western Australia, Northern Territory and Queensland, found that the prey selection of red goshawk appeared specialised and not proportional to the relative availability of birds within the environment. The results of this study found that 75.9% of the red goshawk diet (or dataset of the study) were made up of four key species:

- Rainbow/red-collard lorikeet (*Trichoglossus rubritorquis*);
- Blue winged kookaburra (*Dacelo leachii*);
- Sulphur-crested cockatoo (*Cacatua galerita*); and
- Laughing kookaburra (*Dacelo novaeguineae*) (MacColl, et al., 2024).

A 75% of prey species target is considered achievable in the context of this specific Rehabilitation Strategy, through utilising this prey preference information to develop a suitable monitoring methodology.

2.2 LISTED SPECIES ABUNDANCE IS NOT AN APPROPRIATE PERFORMANCE MEASURE

Barn Swallow and Masked Owl

There have been no direct sightings of the masked owl and barn swallow within the Project Area during field surveys. For this reason, measuring the abundance of the MNES species itself is not an effective performance measure of rehabilitation success due to the current pre-disturbance abundance being recorded at zero.

Red Goshawk

During field surveys conducted within the Project Area as part of the Environmental Impact Statement (EIS), no direct sightings of red goshawks were recorded; however, now operational, a total of four red goshawk nests were identified within the larger mining lease.. Although the detection of a nest is appropriate to confirm the presence/absence of the species, a performance measure based on nest abundance is considered problematic due to the species nest behaviour where the red goshawk utilises multiple alternative nests throughout a breeding pair's territory (DCCEEW, 2023). This results in nest abundance not providing an accurate representation of a baseline population size.

Additionally, it is considered unlikely that the rehabilitation timeframe of 20 years will successfully return suitable breeding habitat for the species (typically breeding in trees greater than 20 m tall or the largest in an area (DCCEEW, 2023)). As noted in the Rehabilitation Strategy, Table 8, twenty years is proposed as an appropriate timeframe for confirmation of a development trajectory trending towards a closed forest with open understorey.

Further to this, if breeding value was to return, it is considered unclear at what value this potential performance measure would yield as an indicator of rehabilitation success. Additionally, there is no evidence in the Conservation Advice for the species that supports using number of nests/nesting pairs as a representative measure of abundance in a given area (DCCEEW, 2023).

Moreover, if the species was to be observed, an abundance calculation would be constrained by the way the species occurs within the landscape. The most common quantification of species abundance (density in a given area) is not considered suitable for the red goshawk due to the species large home range (approximately 120 square kilometres (km^2) – 200 km^2) and rarity (1,340 mature individuals in the wild), resulting in there likely to be an overestimation of abundance (DCCEEW, 2023).

Therefore, due to the paucity of data, rehabilitation timeframe, nature of the species, conservation advice and that there are no accepted/defined survey techniques for estimating abundance for the species, measuring abundance of species/nests is not considered suitable as a performance measure of rehabilitation success for this Project.

3. SUMMARY

To summarise, ERM consider the 75% prey species diversity target to be an appropriate rehabilitation performance measure for the following reasons:

- Using the percent of a benchmark is a widely used and generally accepted approach for rehabilitation plans to demonstrate progress towards final rehabilitation criteria;
- A 75% target is an indication of positive trajectory towards Rehabilitation Strategy success rather than a target for full restoration in the monitoring timeframe, while allowing for adaptive management where needed; and
- The prey species diversity target of 75% is considered achievable by utilising prey preference research and finding of each MNES to develop an approach of monitoring prey species diversity and achieving the 75% target.

Additionally, ERM considers that listed species abundance is not an appropriate performance measure of rehabilitation success for the red goshawk and masked owl in this specific Rehabilitation Strategy, for the following reasons:

- There have been no direct or indirect sightings of the masked owl and barn swallow within the Project Area, thus leading to an abundance estimate not providing meaningful data; and
- The use of abundance of individuals/nests to determine rehabilitation success for the red goshawk is problematic due to the low likelihood of detection of species, their large home range, and the lack of accepted/defined survey techniques for estimating abundance for the species.

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ATTACHMENT A DEPARTMENTS REVIEW OF THE REHABILITATION STRATEGY IN MEETING CONDITION 33 AND 35

DEPARTMENT REVIEW OF THE REHABILITATION STRATEGY (CONDITIONS 33 AND 35)

Condition		Required Actions Requested from the Department
33	The approval holder must submit an adaptive Rehabilitation Strategy, covering the construction and operation of the project to ensure the rehabilitated areas are functionally equivalent to the pre-disturbance habitat to enable similar land use by the following matters of national environmental significance: Red Goshawk (*Erythrotriorchis radiates*); a) Masked Owl (*Tyto novaehollandiae kimberli*); b) Barn Swallow (*Hirundo rustica*); and, c) if identified as a result of implementing the requirements of conditions 31 and 32, the Bare-rumped Sheathtail Bat (*Saccolaimus saccolaimus nudicluniatus*).	**a) Required actions** The basis for the estimate of 75% of the relative abundance of diversity of potential prey species of the Red Goshawk compared to the baseline is unclear. Therefore, the Department requires justification to determine whether this number is sufficient to ensure that the rehabilitated areas are functionally equivalent to the pre-disturbance habitat. It is also unclear why the measurement of the abundance of this species is not considered a rehabilitation indicator.
		b) Required actions The basis for the estimate of 75% of the relative abundance of diversity of potential prey species of the Masked Owl compared to the baseline is unclear. Therefore, the Department requires justification to determine whether this number is sufficient to ensure that the rehabilitated areas are functionally equivalent to the pre-disturbance habitat. It is also unclear why the measurement of the abundance of this species is not considered a rehabilitation indicator.
		c) Required actions The basis for the estimate of 75% of the relative abundance of foraging Welcome Swallows compared to the baseline is unclear. Therefore, the Department requires justification to determine whether this number is

Condition		Required Actions Requested from the Department
		sufficient to ensure that the rehabilitated areas are functionally equivalent to the pre-disturbance habitat.
35	The Rehabilitation Strategy must include adaptive management strategies to benefit the species listed at condition 33. The Rehabilitation Strategy must include measures outlined in the **Final Environment Impact Statement** and address effective management strategies to identify desired outcomes, benchmarks, readily measurable performance indicators and goals, timeframes for reporting and implementation, corrective actions and contingency measures, and, specify the person/s roles with responsibility for implementing actions. The Rehabilitation Strategy must provide information detailing Traditional Owner employment opportunities, and mechanisms for reporting the number of local indigenous person/s actually employed in the implementation of this Strategy (consistent with condition 42).	**Required actions** As mentioned at Condition 33, the basis for the estimate of 75% of the relative abundance of foraging Welcome Swallows and the prey of Red Goshawk and the Masked Owl compared to the baseline is unclear. Therefore, the Department requires justification to determine whether this number is sufficient to ensure that the rehabilitated areas are functionally equivalent to the pre-disturbance habitat.

Rio Tinto Alcan

Appendix F: Amrun Rehabilitation Strategy – Independent Peer Review (2025) post update from DCCEEW feedback

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MEMO

TO	Rio Tinto Aluminium Weipa Pty Ltd
FROM	Dr David Dique, Environmental Resources Management Australia Pty Ltd
DATE	11 April 2025 and Final 19 May 2025
REFERENCE	0604583
SUBJECT	Independent Peer Review of the revised (March 2025) Amrun Rehabilitation Strategy (Draft)

1. BACKGROUND AND PURPOSE

Rio Tinto Aluminium Weipa Pty Ltd (RTAW) holds Approval (EPBC 2010/5642) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for the Amrun Project (the Project), previously known as the South of Embley (SoE) Project.

The original *Draft Rehabilitation Strategy* (RTAW, June 2021) (the Rehabilitation Strategy) was prepared to address Conditions 33 to 40 of the Approval. I, Dr David Dique, a Partner at Environmental Resources Management Australia Pty Ltd (ERM) undertook an Independent Peer Review (IPR) of the Rehabilitation Strategy in July 2021[1]

Following the IPR, a revised version of the Rehabilitation Strategy was submitted to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) (the Department) in December 2022 for review. The Department provided a response from their review against approval conditions on the 30th of August 2024.

On receipt of the Department's response, ERM undertook a review of the DCCEEW comments and provided recommendations to RTAW on how best to respond. Using these, RTAW prepared a further revised version of the Draft Rehabilitation Strategy dated March 2025.

RTAW has now requested that I provide a further IPR of the revised Rehabilitation Strategy prior to lodgement with the Department. In doing so, I have considered the following:

- The Revised (Amrun) Rehabilitation Strategy (RTAW – Dated March 2025); and
- The ERM Memorandum of Advice (ERM – Dated 18 February 2025).

RTAW reviewed the findings of the IPR and provided a response and updated Revised (Amrun) Rehabilitation Strategy for my review.

[1] Dr David Digue as the Independent Peer Reviewer and the Independent Peer Review Criteria were approved by the Commonwealth Environmental Assessments and Post Approvals Branch, Environmental Approvals Division on 09 June and 11 June 2021 respectively.

2. IPR FINDINGS

Attachment A contains my findings of the IPR together with recommendations for RTAW. As a general comment, I suggest "DAWE" be updated to DCCEEW throughout.

Following further review from RTAW, a response to the IPR comments and recommendations was received on 30 April 2025.

I am satisfied that the RTAW Response (April 2025) in Attachment A addresses the IPR comments as well as the updates that have been made to the Revised (Amrun) Rehabilitation Strategy.

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ATTACHMENT A – IPR OF REVISED DRAFT REHABILITATION STRATEGY

Condition		Required Actions Requested from the Department	ERM Response (February 2025)	IPR Response (April 2025)	RTAW response (April 2025)
33	The approval holder must submit an adaptive Rehabilitation Strategy, covering the construction and operation of the project to ensure the rehabilitated areas are functionally equivalent to the pre-disturbance habitat to enable similar land use by the following matters of national environmental significance: a) Red Goshawk (*Erythrotriorchis radiates*); b) Masked Owl (*Tyto novaehollandiae kimberli*); c) Barn Swallow (*Hirundo rustica*); and, d) if identified as a result of implementing the requirements of conditions 31 and 32, the Bare-rumped Sheathtail Bat (*Saccolaimus saccolaimus nudicluniatus*).	**a) Required actions** The basis for the estimate of 75% of the relative abundance of diversity of potential prey species of the Red Goshawk compared to the baseline is unclear. Therefore, the Department requires justification to determine whether this number is sufficient to ensure that the rehabilitated areas are functionally equivalent to the pre-disturbance habitat. It is also unclear why the measurement of the abundance of this species is not considered a rehabilitation indicator.	The approach of quantifying a performance measure by a percent of a benchmark value from a pre-disturbed or reference site is a widely used, accepted approach for rehabilitation plans. Movement from near zero prey abundance and diversity post disturbance to 75% of the reference benchmark site, over the course of the rehabilitation timeframe (in this case 10-20 years), indicates that the rehabilitation is on an appropriate trajectory to achieve foraging functionality for the relevant MNES.	Section 4.1.1 contains new information on prey species for the Red Goshawk. It references a study that found 75.9% of the species diet was represented by 4 bird species. This additional information provides adequate support for the 75% relative abundance of potential prey species threshold. Additional information for the Masked Owl and Barn Swallow, if available would be useful. If it is not available, providing a reference to publicly available rehabilitation plans on the setting of benchmarks as further justification for the appropriateness of the 75% threshold is advised to be included in section	Of relevance to the departments query on 75% of the relative abundance of diversity of prey species as compared with baseline, additional information on publicly accessible rehabilitation plans and strategies approved under the EPBC Act have been cited in section 5 and updated in section 11 references. With regards to the departments query on why species abundance itself is not considered a rehabilitation indicator, this is noted in ERMs

Condition	Required Actions Requested from the Department	ERM Response (February 2025)	IPR Response (April 2025)	RTAW response (April 2025)
			5, prior to Tables 7 and 8. Consider using the information from the ERM Response (Feb 2025) as a base.	technical note (0604583)
	b) Required actions The basis for the estimate of 75% of the relative abundance of diversity of potential prey species of the Masked Owl compared to the baseline is unclear. Therefore, the Department requires justification to determine whether this number is sufficient to ensure that the rehabilitated areas are functionally equivalent to the pre-disturbance habitat. It is also unclear why the measurement of the abundance of this species is not considered a rehabilitation indicator.			
	c) Required actions The basis for the estimate of 75% of the relative abundance of foraging Welcome Swallows compared to the baseline is unclear. Therefore, the Department requires justification to determine whether this number is sufficient to ensure that the rehabilitated areas are			

Condition		Required Actions Requested from the Department	ERM Response (February 2025)	IPR Response (April 2025)	RTAW response (April 2025)
		functionally equivalent to the pre-disturbance habitat.			
34	The land area to be progressively rehabilitated over the life of the project must be no less than 28,880 hectares. Unless otherwise specified in the approved Rehabilitation Strategy at condition 33, rehabilitation works must commence within two (2) years: a) following mining in the area/s where it has been completed; or, b) following decommissioning and removal of any infrastructure, in each area where that infrastructure will not be retained at the end of the project.	**a) Required Actions** Remove the word "predominantly" as the rehabilitation works must start within (2) years following mining in the area/s where the mining has been completed.	RTAW could remove the word 'predominately' from page 14 which will allow the Rehabilitation Strategy to meet Condition 34. This will commit RTAW to commencing rehabilitation works within two years following mining in areas where the mining has been competed or following decommissioned areas.	The term 'predominately' has been removed from the relevant sections as noted by the Department. Compliance with Condition 34 is therefore considered to be achieved, however, it is noted that this commits RTAW to commencing rehabilitation works within two years following mining in areas where mining has been completed or following decommissioning of areas.	The term 'predominantly' has been reinstated as RTAW foresee a conflict with the 'Progressive Rehabilitation and Closure Plan' (PRCP) required under the Queensland *Environmental Protection Act 1994* (EP Act). The PRCP schedule states the year the area to be rehabilitated becomes available. Under the EP Act, area becomes available for rehabilitation if the land identified in the proposed PRCP schedule containing probable or proven ore reserve that is to be mined within 10 years after the land would otherwise become available for rehabilitation.

Condition		Required Actions Requested from the Department	ERM Response (February 2025)	IPR Response (April 2025)	RTAW response (April 2025)
					It is also noted that condition 34 states 'unless otherwise specified in the approved Rehabilitation Strategy at condition 33…'. As such the word 'predominantly' is not strictly in conflict with condition 34 once the Rehabilitation Strategy is approved.
		b) Required actions Remove the word "predominantly" as the rehabilitation works must start within (2) years following decommissioning and removal of any infrastructure that will not be retained at the end of the project.			
35	The Rehabilitation Strategy must include adaptive management strategies to benefit the species listed at condition 33. The Rehabilitation Strategy must include measures outlined in the **Final Environment Impact Statement** and address effective	**Required actions** As mentioned at Condition 33, the basis for the estimate of 75% of the relative abundance of foraging Welcome Swallows and the prey of Red Goshawk and the Masked	The approach of quantifying a performance measure by a percent of a benchmark value from a pre-disturbed or reference site is a widely used, accepted approach for rehabilitation plans.	See above comment	See above comment

Condition		Required Actions Requested from the Department	ERM Response (February 2025)	IPR Response (April 2025)	RTAW response (April 2025)
	management strategies to identify desired outcomes, benchmarks, readily measurable performance indicators and goals, timeframes for reporting and implementation, corrective actions and contingency measures, and, specify the person/s roles with responsibility for implementing actions. The Rehabilitation Strategy must provide information detailing Traditional Owner employment opportunities, and mechanisms for reporting the number of local indigenous person/s actually employed in the implementation of this Strategy (consistent with condition 42).	Owl compared to the baseline is unclear. Therefore, the Department requires justification to determine whether this number is sufficient to ensure that the rehabilitated areas are functionally equivalent to the pre-disturbance habitat.	Movement from near zero prey abundance and diversity post disturbance to 75% of the reference benchmark site, over the course of the rehabilitation timeframe (in this case 10-20 years), indicates that the rehabilitation is on an appropriate trajectory to achieve foraging functionality for the two relevant MNES.		
37	Unless otherwise agreed to by the **Minister** in writing, every five (5) years from the first anniversary of the approval of the Rehabilitation Strategy at condition 33 a reviewed Rehabilitation Strategy must be submitted to the **Minister**. The approved Rehabilitation Strategy must be implemented.	**Required actions** Specify that this reviewed strategy will be submitted to the Minister for approval.	RTAW could add a statement to Section 7 (page 42) that that the reviewed Rehabilitation Strategy will be submitted to the Minister for approval.	The wording in Section 7 confirms that the Rehabilitation Strategy will be reviewed every five years in accordance with approval Condition 37. For the avoidance of doubt and to meet the specific department request, it is recommended that the Condition 37 wording be provided verbatim in	As recommended, the wording verbatim has been added to section 7.

Condition		Required Actions Requested from the Department	ERM Response (February 2025)	IPR Response (April 2025)	RTAW response (April 2025)
				Section 7 referencing EPBC 2010/5642. (Note, add the word "with" prior to "Condition 57" in the last sentence of Section 5.2 after Table 8.)	
39	Within six (6) months of notifying the **Minister** at Condition 38, the approval holder must submit to the **Minister** for approval an Offset Strategy outlining the offset to be provided for the **matters of national environmental significance** identified at condition 33. The related offset must be in accordance with the *Environment Protection and Biodiversity Conservation Act 1999, Environmental Offset Policy (October 2012*), or its most current version.	**Required actions** Specify that the submission Offset Strategy will be within six (6) months of notifying the Minister as stated in the condition.	RTAW could add a statement to Section 8 (page 43) that an Offset Strategy will be prepared and submitted within six months of notifying the Minster of the area (hectares) over which the rehabilitation objectives and success criteria were not met.		Wording in item 2; Section 8 has been updated with RTAW confirming that the submission of the Offset Strategy will be within six (6) months of notifying the Minister as stated in condition 39.

Rio Tinto Alcan

Appendix G: Amrun Rehabilitation Strategy – Approval Letter

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

EPBC 2010/5642

Mr Sean Fagan
Senior Adviser Environment
Aluminium Pacific Operations
sean.fagan@riotinto.com
Weipa, Queensland, 4874

Approval of Rehabilitation Management Plan and revised Terrestrial Management Plan for South of Embley Bauxite Mine and Port Development, Cape York Queensland (EPBC Act referral 2010/5642)

Dear Mr Fagan

Thank you for your emails dated 12 December 2022 and 11 July 2025 to the Department of Climate Change, Energy, the Environment and Water (the department), seeking approval of the Rehabilitation Strategy and the Revised Terrestrial Management Plan respectively, in accordance with condition 33 and 30 of the above project under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Officers of the department have advised me on the Rehabilitation Strategy and the Revised Terrestrial Management Plan and the requirements of the conditions of the approval for this project. On this basis, and as a delegate of the Minister for the Environment and Water (the Minister), I have decided to approve the *RTA Weipa Pty Ltd Rehabilitation Strategy*, *version 1.2* dated 01 Oct 2025 and the revised *RTA Weipa Pty Ltd Terrestrial Management Plan – South of Embley Project - Amrun Version 3.1* dated 02 February 2025.

Now that these plans have been approved, they must be implemented. The approved plans must also be published in accordance with your conditions of approval.

As you are aware, the department has an active monitoring program which includes monitoring inspections, desk top document reviews and audits. Please ensure that you maintain accurate records of all activities associated with, or relevant to, the conditions of approval so that they can be made available to the department on request. Should you require any further information please contact Carlos Del Monaco Briceno by email to PostApproval@dcceew.gov.au.

Yours sincerely

Rachel Short
Branch Head
Environment Assessments (Vic and Tas) and Post Approvals Branch
Environment Regulation Division

19 December 2025