7. Rehabilitation Quality Assurance Process

The following section details the rehabilitation quality assurance process for the Mine in accordance with *Guideline 3: Rehabilitation Controls (July 2021)*. The rehabilitation quality assurance checklist included in this section is intended to be used as an indicative guide for rehabilitation operation managers and practitioners responsible for the rehabilitation of the Mine Site.

As the Mine is currently operational, many of the pre-disturbance risk controls outlined in *Guideline 3* (e.g. baseline assessments and monitoring) have either been completed or form part of ongoing investigations to be undertaken during rehabilitation planning. As such, **Appendix 8a** presents a condensed risk control checklist containing items applicable to the remaining active mining and planned rehabilitation phases of the Mine Site.

It is anticipated that rehabilitation operations within the Mine Site will occur on a progressive basis as areas are no longer required for operational purposes. Consequently, it is noted that rehabilitation progress through the planned rehabilitation phases will not occur concurrently across all mining domains identified in **Figure 7**.

In addition to the above, the Company has prepared a detailed Rehabilitation Quality Assurance and Quality Control Template to be applied to relatively higher-risk landforms/domains within the Mine Site. The Rehabilitation Quality Assurance and Quality Control Template identifies the key actions and/or processes required for rehabilitation and includes a responsibility assignment matrix in the form of a standard RACI (Responsible, Accountable, Consulted, Informed) model to delineate the key roles for each action/process. A copy of the Rehabilitation Quality Assurance and Quality Control Template is presented as **Appendix 8b**.

As part of the rehabilitation quality assurance process, relevant records and documentation will be recorded in a Rehabilitation Quality Assurance Register and reported as part of the Annual Rehabilitation Report. The Rehabilitation Quality Assurance Register will, as a minimum, include a copy of the checklists presented in **Appendix 8a** as well as a compliance register used to assess the status of compliance with requirements under relevant development consents, leases and licences. The Rehabilitation Quality Assurance Register will be maintained, reviewed and refined by the Environment Superintendent to ensure that it is reflective of current rehabilitation progress, risk controls implemented at the Mine Site and the outcomes of any updated rehabilitation risk assessments.

Table 20 summarises the key responsibilities outlined in **Appendix 8** for the Company and Mine personnel with regards to rehabilitation operations.

Table 20
Key Roles and Responsibilities

Role	Responsibility
Mine Operator	• Comply with applicable laws, regulations, licences and approvals. • Ensure all contractors, sub-contractors and service personnel are appropriately qualified and/or licenced to undertake the required work. • Ensure that appropriate resources are available to site management and personnel to enable the implementation of this Plan.
Environmental Superintendent / Site Supervisor	• Ensure that the Rehabilitation Quality Assurance register is maintained and up to date based on site activities. • Ensure that relevant personnel and workforce participants are aware of relevant development and rehabilitation risks and management and mitigation measures, including any additional corrective and/or preventative measures. • Ensure that the rehabilitation quality assurance process outlined in Section 7 is implemented as required.
Environmental Superintendent / Site Supervisor (Cont'd)	• Ensure that the documentation and recording of rehabilitation risk controls occurs within a suitable timeframe as reasonably practicable. • Ensure that specialist contractors adhere to the guidelines and methodologies outlined in this RMP where required, or that the guidelines and methodologies in this Plan are updated to reflect those employed at the Mine Site.
All Mine Personnel	• Follow direction provided by the Environmental Superintendent / Site Supervisor. • Notify the relevant supervisor in the event that uncontrolled rehabilitation risks are identified.

8. Rehabilitation Monitoring Program

The rehabilitation monitoring program for the Mine Site has been developed to monitor the progress of rehabilitation toward meeting the requirements for the final land use by comparing rehabilitated landforms and areas within the Mine Site to unmined areas of remnant vegetation, or analogue sites (**Figure 10**). Rehabilitation monitoring will focus upon determining whether progress towards achieving the relevant performance indicators and completion criteria presented in **Table 11** are being achieved. **Table 11** also presents the proposed rehabilitation monitoring methodology and frequency for each indicator and criteria identified.

8.1 Analogue Site Baseline Monitoring

Establishment of Analogue Sites

Six analogue monitoring sites have been established throughout the Tritton Copper Operations, as shown on **Figure XX** and described in **Table 21**.

Table 21
Analogue Reference Sites

Relevant Final Land Use Domain	Site	LFA Start	LFA Finish	LFA Slope°	LFA Bearing°	Veg Transect Start	Veg Transect Finish	Veg Transect Bearing°
Native Grassland								
Native Ecosystem Area – Grassland	Grass01	55486757 6544987	55486760 6545006	0	3	55486759 6544996	55486906 6544986	95
	Grass02	55486862 6544876	55486882 6544876	2	88	55486873 6544877	55486867 6544827	181
	Grass03	55486509 6544648	55486490 6544637	3	235	55486500 6544640	55486481 6544688	326
Poplar Box Grassy Woodland								
Agricultural – Grazing	GPBox01	55485732 6545004	55485726 6544988	3	188	55485728 6544995	5548683 6545007	276
	GPBox02	55487026 6544541	55487010 6544526	1	212	55487020 6544533	55486983 6544565	302
	GPBox03	55487491 6543242	55487476 6543231	2	227	55487483 6543235	55487456 6543276	318

The Poplar Box Grassy Woodland sites (the "Woodland Reference Sites") were established in 2017 to primarily provide reference sites for rehabilitation of the Murrawombie Waste Rock Emplacements located within the Murrawombie and North East Mine Sites (see **Figure 2**). The Woodland Reference Sites consist of degraded remnant vegetation within the MLs that is broadly consistent with the definitions for Benson 103 and 105 plant communities. In addition, these sites are considered to be representative of the surrounding vegetation and plant communities subject to a long history of impact from agricultural and historic mining activity.

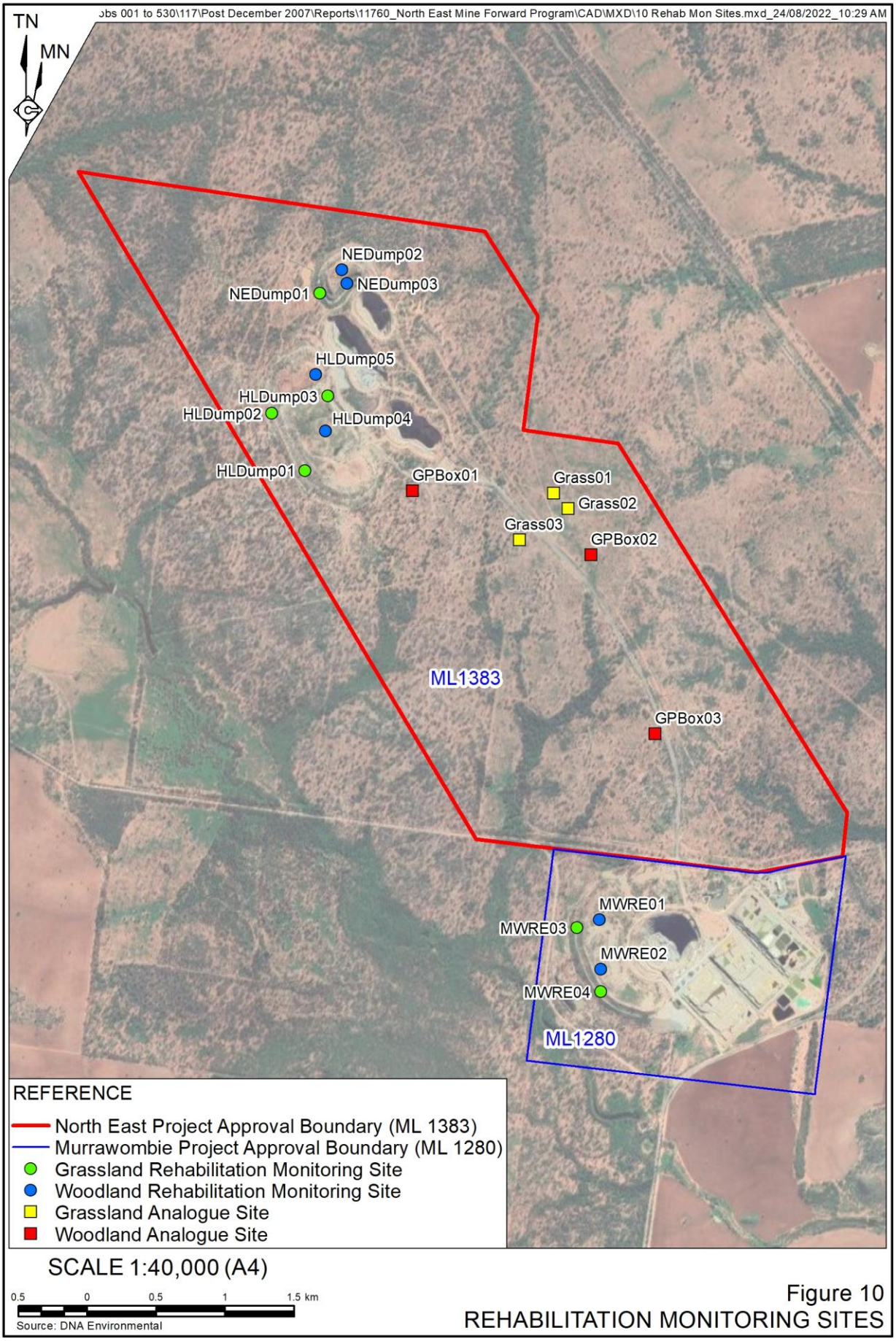

Figure 10
REHABILITATION MONITORING SITES

Generally, the Woodland Reference Sites are gently sloped with mixed open grassy woodland plant communities of moderate to very high levels of diversity. Grazing pressure ranges from light to heavy. Based on the above, the Woodland Reference Sites are considered appropriate for the establishment of rehabilitation completion criteria for areas designated as Agricultural – Grazing final land use domains (see **Plan 1**).

The Native Grassland sites (the "Grassland Reference Sites") were established during 2020 to primarily provide reference sites for rehabilitation of the upper surfaces of the Murrawombie Waste Rock Emplacements of the Murrawombie and North East Mine Sites and the Tailings Storage Facility within the (Tritton) Mine Site. In general, existing native grassland communities in the vicinity of the Tritton Copper Operations are heavily degraded and have been heavily impacted from long-term impacts including clearing, over grazing, erosion, and 'woody weed invasion'. In fact, the delay in establishment between Woodland Reference Sites and Grassland Reference Sites was largely to do with the significant impacts that previous drought conditions and consequent overgrazing had on these systems. Notwithstanding the above, the Grassland Reference Sites are considered to be representative of the surrounding grassland communities that are subject to regular levels of grazing pressure and disturbances associated with feral fauna. Therefore, the Grassland Reference Sites are considered appropriate for the establishment of rehabilitation completion criteria for areas designated as Native Ecosystem – Grasslands final land use domains (see **Plan 1**).

Most analogue sites will continue to be subject to "normal" grazing pressure and disturbance associated with feral goats, sheep, rabbits, macropods and pigs. One site (GPBox01) however occurs within the exclusion fence at the Mine, which was completed in October 2014. While animals can continue to graze within the area, it is subjected to a slightly lower degree of grazing pressure.

Establishment of Rehabilitation Completion Criteria

Due to the relatively young age of the analogue reference sites and the low number of rehabilitation monitoring events that have occurred following establishment, the intention of the current proposed rehabilitation completion criteria presented in **Table 12** is to provide a general baseline criteria for rehabilitation. The Company anticipates that the proposed rehabilitation completion criteria will continue to be developed and refined over the life of the Mine once a more comprehensive and representative data set has been established.

8.2 Rehabilitation Establishment Monitoring

Inspection Regime

The inspection regime for rehabilitation establishment monitoring will consist of the following.

- Regular visual inspections of general landform, vegetation cover, and infrastructure components as part of ongoing site monitoring and maintenance. These inspections are intended for identification of significant actual or potential risks relating to operations, including rehabilitation.

  Results from regular site monitoring inspections will be used to identify and action key management and maintenance activities, including the potential for increased monitoring frequency and/or scope. Information collected during these events will likely be reported as per standard site reporting and may include photographs, where relevant.

- Campaigned based, targeted inspections for key rehabilitation activities such as:
  - landform and growth medium establishment of minor landforms with relatively lower risks (e.g. general shaping); and
  - vegetation establishment during low-risk periods (e.g. during relatively expected climate conditions), or during/following high-risk events such as bush fire, drought, high rainfall, etc.

  Results of targeted inspections will be used to assess condition and performance of rehabilitated areas and, where relevant, to identify potential or actual incidence/risk of rehabilitation failure and associated remedial actions if required. Information collected during these events will be presented in follow up reports and may include photographs, where relevant.
- Regular monitoring for pest and weed species presence/abundance in accordance with existing environmental management, monitoring, and reporting procedures.
- Regular ecological rehabilitation monitoring in accordance with existing monitoring procedures, as identified by DnA Environmental as generally as presented in **Appendix XX**.

Rehabilitation establishment monitoring methods for areas to be revegetated will generally be consistent with existing monitoring methods, namely the establishment of permanent monitoring quadrats located within the remaining areas to be rehabilitated.

The location and density of any additional permanent monitoring quadrats will be determined by or under the guidance of a suitably qualified person(s). It is anticipated that the establishment of permanent monitoring locations within each area to be rehabilitated will occur within 1 year of the completion of ecosystem establishment activities.

As each permanent monitoring location is established, information on target vegetation types, species mix used, sowing/planting densities, and soil amelioration including fertiliser applications will be recorded. Each site will be added to the formal rehabilitation monitoring regime at the time of the next site-wide monitoring event. Incorporation and management of permanent monitoring locations will be undertaken by or under the supervision of suitably qualified persons.

Prior to the initial formal survey, establishment monitoring will consist of the following.

- Photo monitoring of rehabilitated areas, including photos prior to seeding, immediately following seeding and at least quarterly until first formal survey is undertaken. Additional photo monitoring may be undertaken on an opportunistic basis or as directed by rehabilitation experts.
- Visual inspections, including photographs, following significant rainfall events to identify any signs of erosion and detail any follow up actions required (e.g. repairs, installation of additional erosion and sediment controls).
- Recording of all monitoring and inspection events, including the results of monitoring and any follow up activities, in accordance with the Rehabilitation Quality Assurance Register.

As indicated in **Table 12**, ecological monitoring frequency will be determined in consultation with a suitably qualified person(s) (i.e. an ecologist/rehabilitation specialist). The Company anticipates that monitoring frequency will largely reflect rehabilitation age, and monitoring frequency is likely to vary across the Mine Site depending on observed rehabilitation progress.

The results of any rehabilitation establishment monitoring will be detailed in the respective *Annual Rehabilitation Report* together with a record of any specific management actions (i.e. reviews) that have been undertaken. Any corrective actions identified as being required to be undertaken will be included as part of the *Forward Program*, as required.

Overview of Ecosystem Establishment Monitoring Methodology

The following presents an overview of the methodology identified by DnA Environmental for rehabilitation monitoring across the Tritton Copper Operations. As discussed in Section 8.1, rehabilitation completion criteria are expected to be further developed and refined over the life of the Mine as the results of successive monitoring events are reviewed and clearer rehabilitation targets are identified. Based on the above, the exact monitoring methodologies may be adapted to respond to revised completion criteria.

In summary, DnA have adopted a standard monitoring methodology that incorporates Landscape Function Analysis (LFA) and accredited soil analysis and various measurements of ecosystem diversity and habitat values.

Rehabilitation monitoring is conducted using a 20m x 50m plot that is positioned such that the base line faces down slope to form the basis for the LFA transect. Vegetation monitoring occurs along the 50m transect situated at the 10m interval that runs perpendicular to the 20m LFA transect, however in some situations the same transect may be used. Four marker pegs are used to establish a permanent transect position. GPS readings are taken to ensure that the quadrats can be relocated over time and permanent photo-points are used to record changes in attributes over time. Soil samples are obtained using standard soil sampling techniques within the monitoring quadrat. At least 12 random samples are taken at each site and bulked together. Soil samples are sent to Southern Cross University at their National Association of Testing Authorities (NATA) accredited laboratory for analysis. A detailed description of LFA is provided in Section 3.2 of DnA (2021).

In addition to LFA, various other biodiversity assessments are undertaken to monitor rehabilitation, and to identify changes or management actions required. These include:

- Ground cover diversity and abundance in five repeated 1 x 1m sub-plots every 10m (50m transect) using Braun-Blanquet method;
- Ground cover composition and habitat characteristics including % cover in 10 repeated 1m lengths every 5m (50m transect) provided by:
  - dead leaf litter;
  - annual plants;
  - perennial plants;
  - cryptogams;
  - logs; and
  - rocks.

- Vegetation structure and projected foliage cover at 0 – 0.5 and increasing 2m height increments to >6.0m height in 10 repeated 1 m lengths every 5m (50m transect);
- Floristic diversity and growth forms in 20 x 50m quadrats;
- Shrub and juvenile tree density and diversity in 20 x 50m quadrat;
- Tree and mature shrub density, diversity and health condition in 20 x 50m quadrat; and
- Other habitat attributes such as the presence of hollows, fire scars, mistletoe and the production of buds, flowers and fruit in 20 x 50m quadrat.

The results of the monitoring program are presented in a Rehabilitation Monitoring Report and will be presented in the Annual Rehabilitation Report going forward.

8.3 Measuring Performance Against Rehabilitation Objectives and Rehabilitation Completion Criteria

Details of validation methods and indicators to be employed during monitoring in order to assess performance against the rehabilitation completion criteria for the Mine Site are provided in Section 4.1.

The Rehabilitation Quality Assurance Register will be used to record details of any additional management measures or risk controls implemented during the ecosystem development phase in response to the analysis of rehabilitation monitoring results.

An Annual Rehabilitation Report and Forward Program will be prepared for the Mine as required under the *Mining Amendment (Standard Conditions of Mining Leases – Rehabilitation) Regulation 2021*. As part of the Annual Rehabilitation Report and Forward Program, the Company will validate and certify that the security deposit covers the estimated cost of rehabilitation liabilities each year.

9. Rehabilitation Research and Trials

This section details current and future rehabilitation trials and research programs across the Tritton Copper Operations. It is considered that the results of rehabilitation trials and research undertaken at any one of these mines will generally be applicable to rehabilitation operations across all of the Company's mine sites as:

- the relative proximity of the three mine sites means that they are exposed to similar environmental conditions;
- the proposed final land uses, and therefore rehabilitation objectives and rehabilitation completion criteria, are similar across all three sites;
- the target vegetation community types are similar across all three sites and are based on analogue sites in the vicinity of Girilambone;
- all three sites likely contain similar contaminating and hazardous material types which will need to be addressed; and
- the same rehabilitation methodologies will be applied across all three sites, where practicable.

9.1 Current Rehabilitation Research and Trials

9.1.1 Heap Leach Pad – Store-Release Cover Trial

The Company has contributed to a national research project undertaken between 2008 and 2011 by the Australian Centre for Minerals Extension and Research and the University of Queensland, titled "*Designing Effective Store-Release Covers for the Long-Term Containment of Mine Waste – The Role of Vegetation (Stage 2)*". This project aimed to develop an improved understanding of cover systems through the development of representative models within in situ environments. The research will be used in planning the design of covers for the Heap Leach Pads at the Mine Site to minimise water contamination as far as practicable.

The research investigated the performance of two evapotranspiration cover trials constructed from benign waste rock. The water balance equation parameters and their variability were analysed over a period of three years. The following results of the research will be considered in the preparation of the covers for the Heap Leach Pads.

- The capacity of cover systems designed as evapotranspiration covers to hold and dispose of received rainfall is strongly dependant on materials used, local climate factors such as seasonality of rainfall and vegetation cover and water requirements.
- Cover function can be greatly affected by the particle size distribution of cover materials and as a result the level of runoff versus infiltration and the ability of cover materials to store moisture. The effectiveness of course waste rock may be limited, even in semi-arid and arid environments, and may be improved by application of topsoil.

- Vegetation has a major impact on the extraction of water from the cover but only in climatic settings where precipitation is sufficient to support the vegetation and relatively uniformly distributed so that a balance is formed between water stored or used and the successive rainfall events.

Due to the variability of rainfall at the Murrawombie Mine Site and the water holding capacity of evapotranspiration covers, further analysis through consideration of a water balance and modelling will be considered before determining the material to be used in these covers.

9.1.2 Heap Leach Pad Rehabilitation Trial – Soda Ash Brine

Between 2017 and 2020, RGS Environmental Pty Ltd (RGS) completed geochemical assessment work on the Heap Leach Pad (Heap Leach Pads) material. RGS found that there is a wide range concentration and distribution of the metal(loids) and major ions, and in the forms and distribution of acidity in the Heap Leach Pads material. Soda Ash Brine (SAB), an alkaline concentrate, has been shown to have the potential to neutralise the acid of the Heap Leach Pads material and significantly improve the geochemistry of the heap leach material to achieve a geochemically viable final land use.

Laboratory scale tests have shown the Soda Ash Brine (SAB) to be suitable as an alkaline solution to flush the heap leach material and shut down the acid leach process. In August 2021, the Environment Protection Licence (EPL) 4501 was amended to allow for a large scale trial use of the SAB within the Heap Leach Pads. The trial commenced in November 2021 and is currently on hold pending further clarification with the NSW EPA. The results of this trial will be included in the relevant Annual Rehabilitation Report. In addition, this Plan will be revised upon completion of this trial.

9.2 Future Rehabilitation Research and Trials

9.2.1 Seed Balance and Procurement Strategy

Objective

Ensure adequate amounts of propagation material are available for use in rehabilitation.

Overview

As discussed in Section 6.2.5.2, the Company will undertake revegetation using a number of methods, principally through the use of seeds and seedlings/tubestock. To ensure that adequate seed/propagation material is available for revegetation activities, the Company will begin to develop a Seed Balance and Procurement Strategy prior to the cessation of mining, which will include a seed inventory and forecast, supported by a seed collection and procurement strategy. The Seed Balance and Procurement Strategy will be developed by or in consultation with suitably qualified persons.

The Company has already harvested seed from Acacias and Sennas (*Acacia decora, Acacia deanei, Senna artemisioides subsp artemisioides, Senna artemisioides subsp. Zygophylla*) and placed it directly around functional patch areas to increase patch sizes. These species are targeted as they are early colonisers, fast growing and will improve conditions for succession plants.

As discussed in Section 6.2.5.2, the Company will undertake revegetation using a number of seeding methods. To ensure that adequate seed is available for revegetation activities, the Company will begin to develop a Seed Balance Strategy at the end of 2022, which will include a seed inventory and forecast, supported by a seed collection and procurement strategy.

9.2.2 Post-Closure Water Management Strategy

Objectives

Ensure post-closure risks relating to or from surface and groundwater can be identified and managed effectively.

Identify post-closure water management infrastructure requirements.

Confirm post-closure water licencing requirements.

Overview

Preparation of a Post-Closure Water Management Strategy will commence in 2023 with a water balance model to gain understanding for the current water balance for the site. This will be the initial work to gather information the Post-Closure Water Management Strategy. It is expected that additional assessments will be undertaken to inform the Post-Closure Water Management Strategy including an assessment of expected groundwater behaviour and long-term rehabilitation risks associated with the Heap Leach Pads to determine the long-term strategy to rehabilitate this landform.

The Company will engage and suitably qualified person(s) to undertake groundwater modelling focused on the post-closure groundwater environment of the Mine Site and each mine within the Tritton Copper Operations. The scope of the groundwater modelling may include:

- identification of likely equilibrium water levels within final voids/underground workings;
- modelling of long-term groundwater behaviour from the Tailings Storage Facility (Tritton) and Heap Leach Pads; and
- identification/confirmation of post-closure water licencing requirements.

9.2.3 Land Contamination and Hazard Assessment

Objectives

Ensure land contamination and hazardous materials do not impact on final land use.

Overview

Contamination and hazardous materials assessments are identified as a key risk control within the rehabilitation risk assessment for the Mine Site. It is anticipated that the Land Contamination and Hazard Assessment will include a detailed risk assessment to:

- identify known potential and actual occurrences of all contaminated land and hazardous materials within the Mine Site; and
- determine the scope of targeted testing programs to confirm/identify the occurrence of potential and/or unknown incidences of contamination/hazardous materials.

9.2.4 Detailed Capping and Closure Designs

Objective

Ensure the final landform Mine Site does not significantly impact on final land use.

Overview

The Company will engage a suitably qualified person(s) to develop a detailed closure design and assessment for the Heap Leach Pads, building upon the conceptual design identified by O'Kane (2018). It is anticipated that the detailed closure design would be influenced by the results of existing assessments (see Section 9.1), as well as those to be undertaken prior to closure of the Mine Site such as the Post-Closure Water Management Strategy (Section 9.2.3). It is anticipated that the scope of the detailed closure designs would include the following.

- Design and construction methodology for the capping layers.
- Designs for all water management infrastructure required to support the function of the capping system, including drains, spillways, dams, and leachate control.
- Long-term performance of the capping, including consideration of potential consolidation/settlement of the landform, and potential impacts to groundwater.
- Recommendations for short- and long-term monitoring requirements (e.g. such as groundwater) to assess performance of capping layer.

In addition to the above, the Company anticipates that the assessments undertaken for the detailed closure design to be prepared for the Heap Leach Pads will also consider potential capping design requirements for other landforms within the Mine Site, such as areas of the Murrawombie Waste Rock Emplacement and/or decommissioned water management infrastructure. The inclusion of addition capping requirements in anticipated to be determined based on the outcomes of the land contamination and hazard assessments (see Section 9.2.4).

9.2.5 Landform Modelling

Objective

Improve understanding of long-term landform stability and erosion to identify key risks and opportunities for rehabilitation.

Overview

The Company will engage a suitably qualified person(s) to undertake landform evolution modelling (LEM) on the key landform elements of the Tritton Copper Operations to ensure that all final constructed landforms are sufficiently resilient to erosion. LEM will be conducted across all three sites to inform final design and construction of the final landforms. LEM will involve the following.

- A screening program to describe the capping materials and identify the materials that require detailed erodibility testing and modelling.
- Testing of bulk samples of soil and other materials selected to derive parameters for erosion modelling.
- Modelling to determine the relationship between erodibility testing, laboratory soil analysis, long term climate data and landform topographical parameters to inform details design of the landform.

Specific methodology and parameters will be defined upon engagement of a specialist consultant.

The Company anticipates that the outcomes of the LEM are likely to influence other research and design assessments to be undertaken for rehabilitation of the Mine Site. For example, LEM may be used to identify erosion and sediment controls such as water management infrastructure, and to assess potential long-term performance of capping for key landforms.

10. Intervention and Adaptive Management

10.1 Threats to Rehabilitation

Section 3 of this document presents an assessment of environmental risks associated with the Mine. Similarly, this subsection presents an analysis of the specific risks or threats to rehabilitation within the Mine Site. This analysis of threats to rehabilitation has been prepared broadly in accordance with the requirements of *Australian Standard AS/NZS ISO 31000:2009 Risk Management*.

In summary, threats to rehabilitation were identified based on the performance indicators and relinquishment criteria identified in **Table 12**. For each threat, potential adverse outcomes were identified and allocated a risk based on the potential consequences and likelihood of occurrence. Risks were determined based on implementation of industry standard mitigation measures and the Company's rehabilitation commitments (summarised in Section 4 and **Table 12**). Where risks were determined to be unacceptable, namely those risks classified as "moderate" or above, a Trigger Action Response Plan has been developed and is presented in Section 10.2.

Tables 6, **7, 8** and **9** present the consequence, likelihood, risk rating and residual risk rating used during this analysis. **Table 22** presents the results of the risk analysis.

10.2 Trigger Action Response Plan

Table 22 presents the Trigger Action Response Plan for each of the rehabilitation threats and potential adverse outcomes identified in **Table 10** as having a risk rating of moderate or above.

Table 22
Trigger Action Response Plan

Rehabilitation Risk	Potential Adverse Outcome	Trigger	Response
General			
Insufficient skills and experience of rehabilitation personnel.	Unable to complete rehabilitation - achieve rehabilitation objectives/mine closure criteria.	Unacceptable delay in rehabilitation schedule. Quality Assurance Program identified that work has not been completed to a satisfactory level.	Engagement of suitably qualified specialists. Training programs for internal staff.
Lack of clearly defined responsibilities.	Unable to complete/delays in completing rehabilitation - unable to achieve rehabilitation objectives/mine closure criteria.	Unacceptable delay in rehabilitation schedule. Quality Assurance Program identified that work has not been completed to a satisfactory level.	Reimplementation of Organisation Chart.
Active Mining Phase of Rehabilitation			
Adverse geochemical/chemical composition of materials such as overburden, tailings, heap leach, subsoils and topsoils, etc.	Chemical composition impacts the ability to achieve rehabilitation objectives / mine closure criteria.	Waste characterisation/geochemical assessment identifies adverse geochemical/chemical composition of materials.	Engagement of suitably qualified engineer to recommend appropriate mitigation measures.
Handling and containment of waste materials including Tailings, waste rock, heap leach, waste/contaminated water.		Observed improper handling of waste materials. Failure or leakage of waste containment structures. Reported contamination spills.	Engagement of suitably qualified engineer to recommend appropriate mitigation measures.
Insufficient availability of material required for capping of final landforms.	Final landform unsuitable for final land use.	Material balance identifies potential or actual deficit of suitable NAF material.	Review and refine material handling practices to maximise recovery of NAF material. Consider alternative sources of capping material within the Tritton Copper Operations.
Decommissioning Phase of Rehabilitation			
Surface water management infrastructure required to support final land use is not fit for purpose.	Increased risk of/from erosion and sedimentation. Increased maintenance requirements. Contamination of land/water impacts final land use/surrounding land use.	Decommissioning/engineering survey identifies poor/unsuitable condition/performance of water management infrastructure to be retained.	Engagement of suitably qualified person(s) to identify remedial actions.
		Post-Closure Water Management Strategy identifies significant redesign of existing infrastructure, including additional infrastructure, is required.	Engagement of suitably qualified person(s) to recommend appropriate changes to water management infrastructure.

Table 22 (Cont'd)
Trigger Action Response Plan

Rehabilitation Risk	Potential Adverse Outcome	Trigger	Response
Decommissioning Phase of Rehabilitation (Cont'd)			
Unauthorised access to open pit/voids, underground workings, infrastructure areas and general mining landforms.	Public access to final Open Pit Void possible.	Regular inspections of fencing or safety bunds identifies potential for public access to voids or access by unauthorised persons is identified. Reports of unauthorised access to Mine Site.	Undertake repairs to security fencing and, if necessary, install additional security measures to prevent and/or discourage public access.
Landform Establishment Phase of Rehabilitation			
Geotechnical instability of Final Open Pit voids.	Failure of pit walls. Failure to achieve safe and stable landforms.	Geotechnical assessment identifies instability of pit walls.	Engagement of suitably qualified engineer to recommend appropriate mitigation measures.
Geotechnical instability of Murrawombie Waste Rock Emplacement	Failure of landform. Exposure of adverse geochemical material.	Geotechnical assessment of waste rock material significantly deviates from previous testing/reports.	Conduct additional testing to increase certainty of characterisation. Engage suitably qualified person(s) to review existing design reports in consideration of new testing results. Review and revise existing testing programs, if required.
		Engineering assessments identify potential or actual risk of failure of final landform.	Depending on level of inherent risk, reduce or cease operation of the Murrawombie Waste Rock Emplacement Notify all relevant regulatory authorities. Engage suitably qualified person(s) to undertake any additional assessments and, if required, review and revise existing designs for the facility.
Insufficient material available for capping of Heap Leach Pads.	Exposure of adverse geochemical material. Increased risk of erosion of final landform.	Contamination/geochemical characterisation assessments during salvage of stockpiled resources identify previously unknown contamination of rehabilitation material.	Isolate contaminated material and undertake further investigations to quantify contaminated material and identify potential impact. Review material balance to identify scope of impacts. Engage suitably qualified person(s) to review capping design requirements, including potential refinement of minimum thickness. Investigate alternative sources of capping material.
		Water monitoring identifies impact to water quality.	Engage a suitably qualified person(s) to identify source of reduced water quality and recommend remediation actions, if required.

Table 22 (Cont'd)
Trigger Action Response Plan

Rehabilitation Risk	Potential Adverse Outcome	Trigger	Response
Landform Establishment Phase of Rehabilitation (Cont'd)			
Capping requirements for construction of the final landform are significantly greater than expected.	Insufficient material available for capping of final landform. Exposure of adverse geochemical material.	Contamination/geochemical characterisation assessments during decommissioning of Heap Leach Pad, Murrawombie Waste Rock Emplacement, ROM Pad, and any other mining-related landform identifies occurrence of geochemically adverse material.	Isolate contaminated material and undertake further investigations to quantify contaminated material and identify potential impact. Consider available options for removal, disposal, and or treatment of contaminated material, depending on scope of potential impact. Engage a suitably qualified person(s) to prepare a capping design for the affected landforms. Review material balance to assess potential for occurrence of deficit. If required, review and revise final landform plan to account for altered final landform and land use.
Growth Medium Development Phase of Rehabilitation			
Insufficient biological resources available for rehabilitation.	Insufficient/inadequate ground cover established resulting in increased susceptibility to erosion.	Adverse seasonal conditions result in reduced availability and/or viability of propagation material (e.g. damage/poor condition of monitoring sites identified during monitoring events prior to growth medium establishment.	Review and revise rehabilitation schedule to account for potential deficit of materials, such as delay in growth medium establishment until sufficient resources are located and secured.
Insufficient resources available for growth medium development.	Delayed/failed vegetation establishment. Increased susceptibility to erosion. Maintenance requirements of final landform/use is increased.	Visual inspections identify potential or actual damage to stockpiled growth medium resource from inappropriate handling practices (e.g. excessive damage from vehicles).	Temporarily cease stockpile salvage operations and investigate potential causes and remedial actions (e.g. such as additional signage/training) to prevent reoccurrence as far as practicable. Assess scope of damage and review material balance to identify potential impact.
		Unseasonal meteorological events (e.g., increased rainfall, drought, etc) are forecast and/or experienced	Inspect all erosion and sediment control infrastructure prior to, during, and following significant events. Prioritise monitoring and maintenance activities relating to key water management infrastructure. Investigate additional temporary erosion/sediment controls that could be implemented such as mulch.

Table 22 (Cont'd)
Trigger Action Response Plan

Rehabilitation Risk	Potential Adverse Outcome	Trigger	Response
Growth Medium Development Phase of Rehabilitation (Cont'd)			
Insufficient resources available for growth medium development. (Cont'd)	Delayed/failed vegetation establishment. Increased susceptibility to erosion. Maintenance requirements of final landform/use is increased. (Cont'd)	Visual inspections following delayed vegetation establishment identify significant soil loss.	Investigate condition of remaining growth medium and apply additional growth medium, if required. Inspect receiving catchment for impacts from increase erosion. Review material balance to identify impact of soil loss.
		Soil testing during growth medium phase identifies adverse soil characteristics.	Engage suitably qualified person(s) to recommend potential amelioration activities.
	Rehabilitation areas require increased maintenance compared to analogue sites.	Visual inspections identify high occurrence of weed species in stockpiled / placed growth medium.	Undertake targeted weed controls and increase monitoring frequency prior to vegetation establishment.
Ecosystem and Land Use Establishment Phase of Rehabilitation			
Insufficient biological resources available for rehabilitation.	Failure to establish target species at required density / location.	Rehabilitation monitoring records show revegetation has failed to meet target/expected density/diversity/relative abundance. Visual inspections following vegetation establishment identify significant soil loss. Visual inspections and/or rehabilitation monitoring identify partial or total germination failure and/or unexpectedly high loss of individuals.	Engage suitably qualified person(s) to Investigate potential causes of revegetation failure. Inspect landform/growth medium to assess suitability prior to infill planting and undertake remedial action if required. Review and revise revegetation methodologies to identity potential changes in approach for remaining revegetation activities. Investigate requirement for additional temporary erosion and sediment control measures and inspect receiving catchment including water management infrastructure. Undertake in-fill planting as soon as practicable.
Damage to establishing vegetation from herbivore activity	Failure to establish target species at required density / location.	Visual monitoring/rehabilitation monitoring identifies significant damage to or loss of plants from herbivore activity.	Review and revise monitoring and management practices, undertake additional and/or targeted controls until monitoring indicates return to expected levels or until vegetation becomes sufficiently established.

Table 22 (Cont'd)
Trigger Action Response Plan

Rehabilitation Risk	Potential Adverse Outcome	Trigger	Response
Ecosystem and Land Use Establishment Phase of Rehabilitation (Cont'd)			
Rehabilitation areas impact suitability of final/surrounding land uses.	Increased weed occurrence due to lack of competition from native species leads to increased maintenance requirements within and surrounding rehabilitation areas.	Visual monitoring / rehabilitation monitoring identifies weed presence/abundance within and/or in the vicinity of rehabilitation areas is significantly higher than analogue sites/long term trends.	Review and revise weed monitoring and management practices, undertake targeted controls and increase frequency until monitoring indicates return to expected levels.
Ecosystem and Land Use Development Phase of Rehabilitation			
Damage to revegetation from pests, livestock, unauthorised machinery access, bushfire, vandalism etc.	Poor vegetation establishment/persistence resulting in failure to meet rehabilitation objectives/mine closure criteria.	Observed damage to vegetation in revegetated areas. Lack of revegetation establishment within expected timeframes. Bushfire events. Reported incidents of unauthorised machinery access or other incidents resulting in vegetation damage.	Engagement of suitably qualified ecologist or other appropriate persons to assess damages and recommend appropriate mitigation measures. Installation of security structures to prevent unauthorised access.

11. Review, Revision and Implementation

Table 23 presents the triggers for reviewing this Plan. Following each review, this Plan will be revised if significant structural amendments are necessary and provided to the Resources Regulator. Additionally, further consultation with relevant stakeholders will be undertaken where revisions to this Plan result in significant changes to proposed final land uses final landforms, rehabilitation objectives, rehabilitation completion criteria and/or the rehabilitation schedule. Milestones as documented in this Plan will be updated in the Annual Rehabilitation Report and will trigger an update to this Plan in the event that a significant change in rehabilitation risks and/or proposed rehabilitation methodologies is identified.

Table 23
Rehabilitation Management Plan Review / Amendment Triggers

Trigger	Timing
Amendment (required under Clause 11 of Schedule 8A of the *Mining Regulation 2016*)	
Approval of the proposed rehabilitation outcome document by the Secretary.	Within 30 days
Amendment to the rehabilitation outcome document under Clause 14 of Schedule 8A of the Mining Regulation 2016.	Within 30 days
Changes to risk control measures in the Rehabilitation Risk Assessment.	As soon as practicable
Written request from the Secretary.	As required by any notice
Review	
Commencement of the Operational Rehabilitation Reform transition period.	Within 12 months
Modification of an existing development consent.	Within 3 months
Modification of ML1280 or ML1383.	Within 3 months
Submission of each Annual Rehabilitation Report and Forward Program.	Within 1 month
Completion of a rehabilitation trial.	Within 1 month
Modification of any management plans.	Within 3 months
Receipt of a specialist consultant report prepared in response to a trigger outlined in Section 10.	Within 3 months
Consultation with relevant stakeholders with significant implications for the final land use and/or final landform.	Within 3 months
Consultation with relevant stakeholders with significant implications for rehabilitation objectives and/or rehabilitation completion criteria.	Within 3 months

In addition to reviews of this Plan as outlined in **Table 21**, a Rehabilitation Quality Assurance Register will be developed and regularly maintained to ensure that mining and rehabilitation activities at the Mine Site are being conducted in accordance with this Plan. The Rehabilitation Quality Assurance Register will include the checklist presented as **Appendix XX** as well as a compliance register used to assess the status of compliance with requirements under relevant development consents, leases and licences. Additionally, the Rehabilitation Quality Assurance Register will include:

- records of any contaminated water or hazardous materials collected at the Mine Site and disposed of off site;
- the latest map of contamination at the Mine Site; and
- details of any additional rehabilitation measures and/or risk controls implemented within individual domains during rehabilitation operations.

12. References

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The Flora and Fauna Management Plan 2016

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Water Management Plan

Cultural Heritage Management Plan 2016