



TRITTON RESOURCES PTY LTD

ABN 88 100 095 494

Rehabilitation Management Plan

for the

Tritton Copper Mine



Prepared by:



RWCorkery&co

February 2024

DRAFT

DRAFT

DRAFT



ACKNOWLEDGEMENT

R.W. Corkery & Co. acknowledge and pay our respects to the Traditional Custodians of the lands in NSW and Australia on which our projects are located. We value the knowledge, advice and involvement of the Elders and extended Aboriginal community that contribute to our Projects and extend our respect to all Aboriginal and Torres Strait Islander peoples.





TRITTON RESOURCES PTY LTD

ABN 88 100 095 494

Rehabilitation Management Plan

for the

Tritton Copper Mine

Prepared for:

Tritton Resources Pty Ltd
ABN: 88 100 095 494

Yarrandale Road
HERMIDALE NSW 2831

Telephone: (02) 6838 1100
Email: info@aerisresources.com.au

Prepared by:

R.W. Corkery & Co. Pty. Limited
Geological & Environmental Consultants
ABN: 31 002 033 712

Telephone: (02) 9985 8511
Email: admin@rwcorkery.com
Postal: PO Box 1796
CHATSWOOD NSW 2057

Sydney | Orange | Townsville

Sydney
Suite 12.01, 1-5 Railway Street
CHATSWOOD NSW 2067

Orange
62 Hill Street
ORANGE NSW 2800

Ref No. 440/20

February 2024



DRAFT

DRAFT

DRAFT

DRAFT

Summary Table

Name of Mine		Tritton Copper Mine		
RMP Commencement Date		2 August 2022		
Mineral Authorities		ML1544	Expiry Date	21 December 2028
Name of Leaseholder		Tritton Resources Pty Ltd		
Version	Author	Purpose	Approved by	Date of Submission
1	RWC (M. Fake)	Draft Issued to Resources Regulator for Reference	Q. Brewer (Aeris)	15/06/2023
2	RWC (M. Fake)	Final draft for website		

DRAFT

This Copyright is included for the protection of this document

COPYRIGHT

© R.W. Corkery & Co. Pty Limited 2024
and
© Tritton Resources Pty Ltd 2024

All intellectual property and copyright reserved.

Apart from any fair dealing for the purpose of private study, research, criticism or review, as permitted under the Copyright Act, 1968, no part of this report may be reproduced, transmitted, stored in a retrieval system or adapted in any form or by any means (electronic, mechanical, photocopying, recording or otherwise) without written permission. Enquiries should be addressed to R.W. Corkery & Co. Pty Limited.

DRAFT

CONTENTS

	Page
LIST OF ACRONYMS.....	VI
1. INTRODUCTION TO MINING PROJECT	1
1.1 HISTORY OF OPERATIONS.....	4
1.1.1 Mining Activities	4
1.1.2 Rehabilitation	6
1.2 CURRENT DEVELOPMENT CONSENTS, LEASES AND LICENCES	6
1.3 LAND OWNERSHIP AND LAND USE.....	7
1.3.1 Land Ownership and Land Use Figures	8
2. FINAL LAND USE	3
2.1 REGULATORY REQUIREMENTS FOR REHABILITATION	3
2.2 FINAL LAND USE OPTIONS ASSESSMENT	3
2.3 FINAL LAND USE STATEMENT	3
2.4 FINAL LAND USE AND MINING DOMAINS	4
2.4.1 Final Land Use Domains.....	16
2.4.2 Mining Domains	16
3. REHABILITATION RISK ASSESSMENT	19
4. REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA	33
4.1 REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA	33
4.2 REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA – STAKEHOLDER CONSULTATION	33
5. FINAL LANDFORM AND REHABILITATION PLAN	36
5.1 FINAL LANDFORM AND REHABILITATION PLAN	36
6. REHABILITATION IMPLEMENTATION	39
6.1 LIFE OF MINE REHABILITATION SCHEDULE	39
6.2 PHASES OF REHABILITATION AND GENERAL METHODOLOGIES	43
6.2.1 Active Mining.....	43
6.2.2 Decommissioning	60
6.2.3 Landform Establishment	68
6.2.4 Growth Medium Development	72
6.2.5 Ecosystem and Land Use Establishment	73
6.2.6 Ecosystem and Land Use Development.....	79
6.3 REHABILITATION OF AREAS AFFECTED BY SUBSIDENCE.....	80
7. REHABILITATION QUALITY ASSURANCE PROCESS	81
8. REHABILITATION MONITORING PROGRAM	83
8.1 ANALOGUE SITE BASELINE MONITORING	83
8.2 REHABILITATION ESTABLISHMENT MONITORING	86

DRAFT

DRAFT

DRAFT

DRAFT

DRAFT

DRAFT

CONTENTS

	Page
8.3 MEASURING PERFORMANCE AGAINST REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA	88
9. REHABILITATION RESEARCH AND TRIALS	89
9.1 CURRENT REHABILITATION RESEARCH AND TRIALS	89
9.1.1 Minor Rehabilitation Trials	89
9.2 FUTURE REHABILITATION RESEARCH AND TRIALS	90
9.2.1 Seed Collection and Procurement Strategy	90
9.2.2 Post-Closure Water Management Strategy	90
9.2.3 Land Contamination and Hazard Assessment	91
9.2.4 Tailings Storage Facility Capping Detailed Design	91
9.2.5 Landform Modelling	92
9.2.6 Other research and trials	92
10. INTERVENTION AND ADAPTIVE MANAGEMENT	94
10.1 THREATS TO REHABILITATION	94
10.2 TRIGGER ACTION RESPONSE PLAN	94
11. REVIEW AND IMPLEMENTATION	101
12. REFERENCES	103

APPENDICES

Appendix 1 Letter ?
Appendix 2 Advice from O’Kane re. Heap Leach Pads
Appendix 3 Rehabilitation Quality Assurance and Quality Control Template

FIGURES

Figure 1 Locality Plan and Mineral Authorities	3
Figure 2 Existing Mine Site Layout	5
Figure 3 Land Ownership and Residence	9
Figure 4 Surrounding Land Uses	10
Figure 5 Vegetation Communities	1
Figure 6 Land Zoning	2
Figure 7 Final Landuse Domains	17
Figure 8 Mining Domains	18
Figure 9 Rehabilitation Monitoring Sites	85

TABLES

Table 1 Consents, Leases and Licenses	6
Table 2 Land Ownership	8

CONTENTS

	Page
Table 3 Regulatory Requirements for Rehabilitation	5
Table 4 Final Land Use Domains.....	16
Table 5 Mining Domains	16
Table 6 Tritton Consequence Table.....	20
Table 7 Qualitative Likelihood Rating	21
Table 8 Qualitative Risk Rating.....	21
Table 9 Residual Risk Level Action	22
Table 10 Rehabilitation Risk Assessment	23
Table 11 Community Consultation Activities	33
Table 12 Proposed Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria	35
Table 13 Non-Production Waste Management.....	52
Table 14 Tailings Characterisation Test Results	56
Table 15 Requirements for Infrastructure to be Removed or Demolished	61
Table 16 Requirements for Infrastructure to be Retained.....	63
Table 17 Water Management Infrastructure	69
Table 18 Regional Climate Statistics	73
Table 19 Murrawombie Copper Mine Rehabilitation Species List.....	76
Table 20 Key Roles and Responsibilities	81
Table 21 Analogue Reference Sites	84
Table 22 Trigger Action Response Plan	95
Table 23 Rehabilitation Management Plan Amendment / Review Triggers	101

PLANS

Plan 1 Final Landform Features.....	37
Plan 2 Final Landform Contours	38
Plan 3 Progressive Rehabilitation Schedule 2022 - 2025.....	41
Plan 4 Progressive Rehabilitation Schedule: 2027 - 2031.....	42

DRAFT

DRAFT

DRAFT

DRAFT

DRAFT

DRAFT

List of Acronyms

AHD	Australian Height Datum
BOM	Bureau of Meteorology
CCC	Community Consultative Committee
DA	Development Approval
DPE	Department of Planning and Environment
DRE	Division of Resources and Energy
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EPL	Environment Protection Licence
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
GCC	Girilambone Copper Company
ML	Mining Lease
MOP	Mining Operations Plan
MPL	Mining Purpose Lease
NAF	Non-Acid Forming
PAF	Potentially Acid Forming
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
ROM	Run-Of-Mine
SoEE	Statement of Environmental Effects
TARP	Trigger Action Response Plan

1. Introduction to Mining Project

This *Rehabilitation Management Plan* (RMP) has been prepared by R.W. Corkery & Co. Pty. Limited (RWC) on behalf of Tritton Resources Pty Ltd (the “Company”), a wholly owned subsidiary of Aeris Resources Limited (Aeris), for the Tritton Copper Mine (the “Mine”). The Mine is located approximately 22km southwest of the village of Girilambone and approximately 45km northeast of the town of Nyngan (**Figure 1**). The principal mineral authority for the Mine is Mining Lease (ML) 1544. For the purpose of this document, the area covered by ML1544 is referred to as the “Mine Site” (see **Figures 1 and 2**).

The Mine is one of four operational mines within the vicinity of Girilambone that are owned and operated by the Company, collectively referred to as the Tritton Copper Operations. For the purposes of this RMP, the Tritton Copper Operations consists of:

- the Tritton Copper Mine;
- the Murrawombie Copper Mine;
- the North East Copper Mine; and
- the Avoca Tank Mine,

In general, all mines within Tritton Copper Operations are managed in parallel where practicable; as such, many existing assessments, approvals, and management plans may apply to multiple or all mines within the Tritton Copper Operations. This RMP relates only to the management of rehabilitation within the Mine Site (i.e. the Tritton Copper Mine).

The RMP is intended to provide a summary of current plans for progressive and final rehabilitation of the Mine Site and a practical guide to rehabilitation planning for site personnel. The RMP provides the following information.

- Introduction to the Mine (Section 1).
- Final land use information including regulatory requirements (Section 2).
- A summary of the current rehabilitation risk assessment outcomes (Section 3).
- A statement of the Company’s rehabilitation objectives and the completion criteria that must be satisfied before rehabilitation is considered complete (Section 4).
- Final landform plans (Section 5).
- An overview of the planned implementation of progressive and final rehabilitation (Section 6).
- A summary of how rehabilitation quality will be maintained (Section 7).
- An overview of intended rehabilitation monitoring (Section 8) and ongoing research and trials (Section 9).
- A summary of the Company’s management approach including a trigger action response plan (Section 10) and procedures for review and update of the plan (Section 11).

Commented [DM1]: Should these be updated as merged now into North East Mine?

Commented [MF2R1]: They are only merged for reporting requirements under the MLs so it is fine to leave like this for now

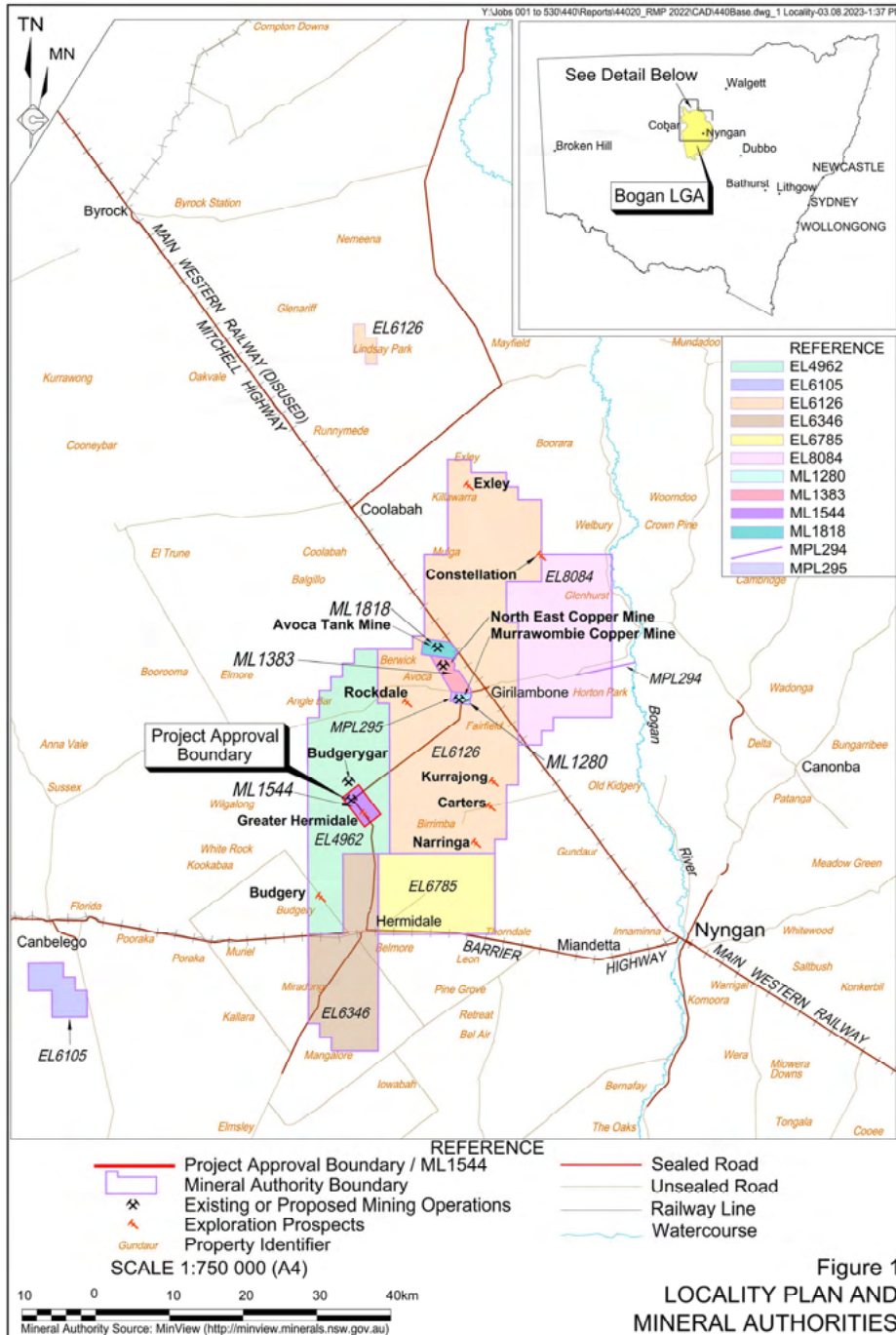
DRAFT

DRAFT

DRAFT

This RMP has been prepared in accordance with the following documents and guidelines.

- *Form and Way: Rehabilitation Management Plan for Large Mines (July 2021).*
- *Form and Way: Rehabilitation Objectives, Rehabilitation Completion Criteria and Final Landform and Rehabilitation Plan for Large Mines (July 2021).*
- *Guideline 1: Rehabilitation Risk Assessment (July 2021).*
- *Guideline 2: Rehabilitation Records (July 2021).*
- *Guideline 3: Rehabilitation Controls (July 2021).*
- *Guideline 5: Rehabilitation Objectives and Rehabilitation Completion Criteria (July 2021).*



1.1 History of Operations

1.1.1 Mining Activities

Historical Mining Activities

The Girilambone copper deposits were first discovered in 1879 with mining commencing in the vicinity of what is now the Girilambone village in 1881. Mining of other known deposits such as Budgerygar and Budgery (see **Figure 1**) occurred throughout 1906 to 1908 and 1920, respectively. Other minor historical mining operations are known to have occurred sporadically throughout the 20th century. Several other historic mining areas are known to be located throughout the area.

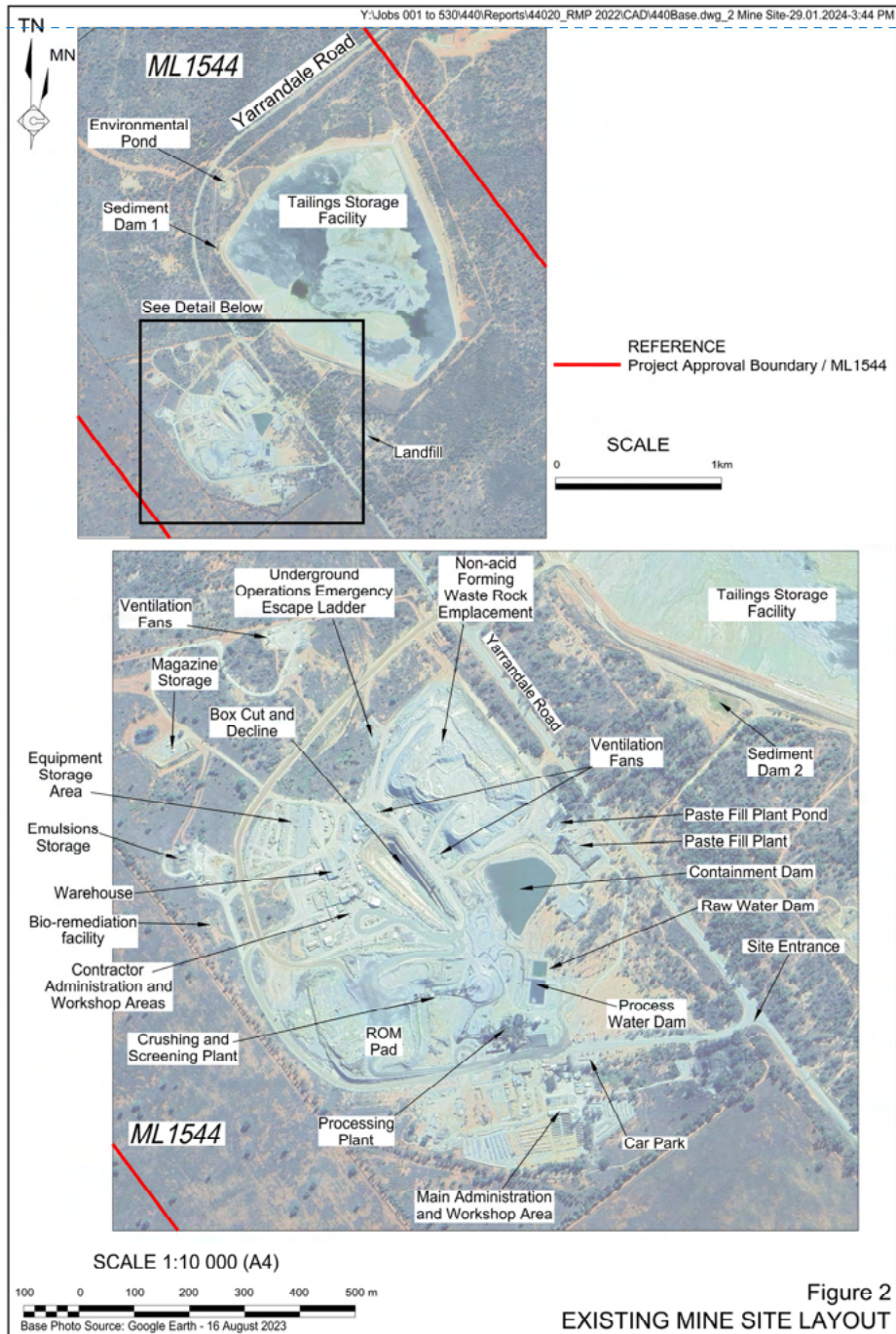
The Girilambone Copper Company (GCC), a Joint Venture between Tritton Resources Pty Ltd (60%) and Nord Pacific Ltd (40%) was formed in 1992, following development of the (then) Girilambone Copper Mine (now the Murrawombie Copper Mine), to undertake mineral exploration within relatively close proximity to the existing mine.

The Tritton Copper Mine

The mineralisation at the Mine Site was discovered in 1995. Following a series of preliminary assessments and preparation of an *Environmental Impact Statement*, Development Consent (DA) 41/98 was approved on 1 September 1999 by the Minister for Planning and Urban Affairs. Mining operations under DA 41/98 are approved until 21 December 2028. ML 1544 was issued by the former Department of Mineral Resources on ~~22 August 1992~~ 22 December 2003.²

The current layout of the Mine Site is provided in **Figure 2**. The approved operations under DA 4/98 include the following.

- Extraction of ~~a total of approximately 12.8 million (M) tonne (t) of~~ copper ore using underground mining techniques.
- Construction and use of a Non-acid Forming Waste Rock Emplacement to a maximum height of 30m above the natural surface or approximately 301m AHD.
- Importation of no more than 1Mt of copper ore in a calendar year for processing at the Mine Site.
- Processing of on-site and imported copper ore to produce a copper concentrate.
- Export of no more than 30,000 tonnes of waste rock from the Mine Site in a calendar year, generally for the purposes of local road construction and maintenance.
- Transportation of the copper concentrate in shipping containers to the Hermidale rail siding, located approximately 19km to the south of the Mine Site, and transportation of that material by train to port for export.
- Construction and use of a Tailings Storage Facility.



Commented [D3]: The main administration and workshop area points to the exploration core yard. The primary ventilations fans are not shown.

Commented [MF4R3]: Can you send through the locations of the vent fans?

DRAFT

1.1.2 Rehabilitation

To date all areas of the Mine Site remain active mining areas and only minor rehabilitation of the embankments of the Tailings Storage Facility (TSF) has commenced. Areas such as the TSF, Waste Rock Emplacement (WRE) and processing hardstand, will be rehabilitated progressively where available and/or at mine closure.

Progressive hydroseeding of the TSF embankment has occurred during operations, including 2.5ha in 2009, and 0.4ha in 2016 and 2018. In 2021 the Company hydroseeded ~~5,000m²~~ 0.5ha of the ~~n~~ Northern TSF embankment. In 2020, the Company modified its hydroseeding approach (to that applied in 2018) based on advice from its restoration ecologist. The modifications included maintaining dozer rip lines following soil amelioration (addition of gypsum) and trial the addition of biological resources. Previously dozer rip lines were tracked-in to provide a smooth surface for the hydromulch to ensure maximum coverage. It is anticipated that maintaining the rip lines and the addition of retained timber logs will accelerate ecological function and stability.

Commented [D5]: I'm not sure what the strategy is here but I thought I would note the main and a section of the northern embankment was hydroseeded in 2009 (2.5 hectares). The southern embankment in 2016 and 2018 (0.4 hectares).

1.2 Current Development Consents, Leases and Licences

Table 1 presents the current consents, leases and licences for the Mine.

Table 1
Consents, Leases and Licences

Page 1 of 2

Consent, Lease or Licence	No.	Issue Date	Expiry Date	Comment(s)
Development Consent	41/98	1/9/1999	N/A	Tritton Project Development
	029/2007	25/5/2007	N/A	Tritton new office block and bath house
	2010/006	25/05/2010	13/9/2015	Construction of a Paste Fill Plant
	2010/028	04/11/10	04/11/2015	Communication Tower
	10/2019/021/001	15/01/2020	15/01/2025	Construction and use of Water Pipeline.
	CDC2021/002	06/04/2021	06/04/2026	New Telecommunication Tower.
Development Consent Modifications	41/98 MOD1	26/08/2004	22/12/2024	Increased mining schedule and extended life of mine.
	41/98 MOD2	22/09/2005	22/12/2024	Tailings Storage Facility Construction.
	41/98 MOD3	19/06/2007	22/12/2024	Waste Rock Emplacement Construction.
	41/98 MOD4	19/12/2007	22/12/2024	Expansion of the Tritton Copper Mine Processing Plant and Tailings Storage Facility.
	41/98 MOD5	07/04/2015	22/12/2024	Waste Rock Emplacement construction, mineral ore import and export of crushed waste rock.
	41/98 MOD6	30/01/2019	21/12/2024	Excavation and exportation of tailings from Tailings Storage Facility for use in the Paste Fill Plant at the Murrawombie Copper Mine.
	41/98 MOD7	12/10/2021	21/12/2024	Construction of two ventilation rises to support underground exploration activities.

DRAFT

DRAFT

Table 1 (Cont'd)
Consents, Leases and Licenses

Page 2 of 2

Consent, Lease or Licence	No.	Issue Date	Expiry Date	Comment(s)
Development Consent Modifications (Cont'd)	41/98 MOD8	02/06/2022	21/12/2028	Various modifications, including underground mining of the Budgerygar deposit and installation of ancillary surface infrastructure, approximate 10m raise to the existing approved Waste Rock Emplacement, disposal of the materials within the Tailings Storage Facility and an extension to the Mine life until 21 December 2028.
Exploration Licence	EL4962	19/03/1996	19/03/2028	Exploration Activities.
Mining Lease	ML1544	22/12/2003	22/12/2024	Mining Activities.
Water Access Licence	WAL 009374	24/02/2005	Perpetuity	Water Licence.
	WAL 009375	24/02/2005	Perpetuity	
	WAL009940	01/07/2004	Perpetuity	
	WAL 31090	30/07/2006	Perpetuity	Dewatering Underground Mine.
Water Use and Works Approval	80WA702816	24/02/2005	23/02/2020	Gunningbar Creek and Bogan River Pumps.
	80WA716044	16/01/2012	28/05/2017	Dewatering Underground Mine.
Authority for Joint Supply Scheme	80SAD10630	24/02/2005	Ongoing	Joint Supply Works Pumps on Bogan River.
Water Bore Licence	80BL 239188	04/01/2001	Perpetuity	Tailings Storage Facility Monitoring Bores.
	80BL 239189	04/01/2001	Perpetuity	
	80BL 239190	04/01/2001	Perpetuity	
	80BL 239191	04/01/2001	Perpetuity	
	80BL 239192	04/01/2001	Perpetuity	
	80BL 239193	04/01/2001	Perpetuity	
	80BL 239194	04/01/2001	Perpetuity	
	80BL 245969	25/06/2010	Perpetuity	

Source: Tritton Resources Pty Ltd

1.3 Land Ownership and Land Use

Table 2 presents the land ownership for land within Mine Site. Land within the Mine Site is predominantly freehold land owned by the Company and a Private landowner, with some Crown land comprising a Travelling Stock Route and the Yarrandale Road reserve. **Figure 3** presents the land ownership surrounding the Mine Site.

Current land uses within and surrounding the Mine Site include the following (displayed on **Figure 4**).

- Mining activities.
- Agriculture, principally wheat cropping and sheep and cattle grazing.
- Transportation, namely Yarrandale Road.

DRAFT

DRAFT

DRAFT

Table 2
Land Ownership

Lot	Deposited Plan	Tenure	Owner	Leases
Mine Site				
61	875925	Freehold	Tritton Resources Pty Limited	ML 1544
41	879206	Freehold	Tritton Resources Pty Limited	ML 1544
62	875925	Freehold	Private Individual	ML 1544
42	879206	Freehold	Private Individual	ML 1544
7321	1160810	Crown Land	The State of NSW	ML 1544
7320	1160810	Crown Land	The State of NSW	ML 1544
7319	1160810	Crown Land	The State of NSW	ML 1544
7004	1126793	Crown Land	The State of NSW	ML 1544
13	751346	Crown Land	The State of NSW	ML 1544
7318	1160810	Crown Land	The State of NSW	ML 1544
14	751346	Freehold	Straits Mining Pty Limited	ML 1544
Land Adjacent to the Mine Site				
1	751346	Freehold	Private Individual	ML 1544
1, 3, 8	751308	Freehold	Private Individual	ML 1544
1, 8	751327	Freehold	Private Individual	ML 1544
6	751327	Freehold	Private Individual	ML 1544
8	751346	Freehold	Dom-Pat Holding Pty Ltd	ML 1544
9	751346	Freehold	Straits Mining Pty Limited	ML 1544
7	751346	Freehold	Private Individual	ML 1544
22	751322	Freehold	Private Individual	ML 1544
23	751322	Freehold	Private Individual	ML 1544
6	751312	Freehold	Private Individual	ML 1544

Commented [MF6]: Dean - I assume this is owned by Aeris / Tritton. Is that correct?

Commented [D7R6]: I believe so. I did the LLS returns this year and it included this, Part Lot 14 DP754346.

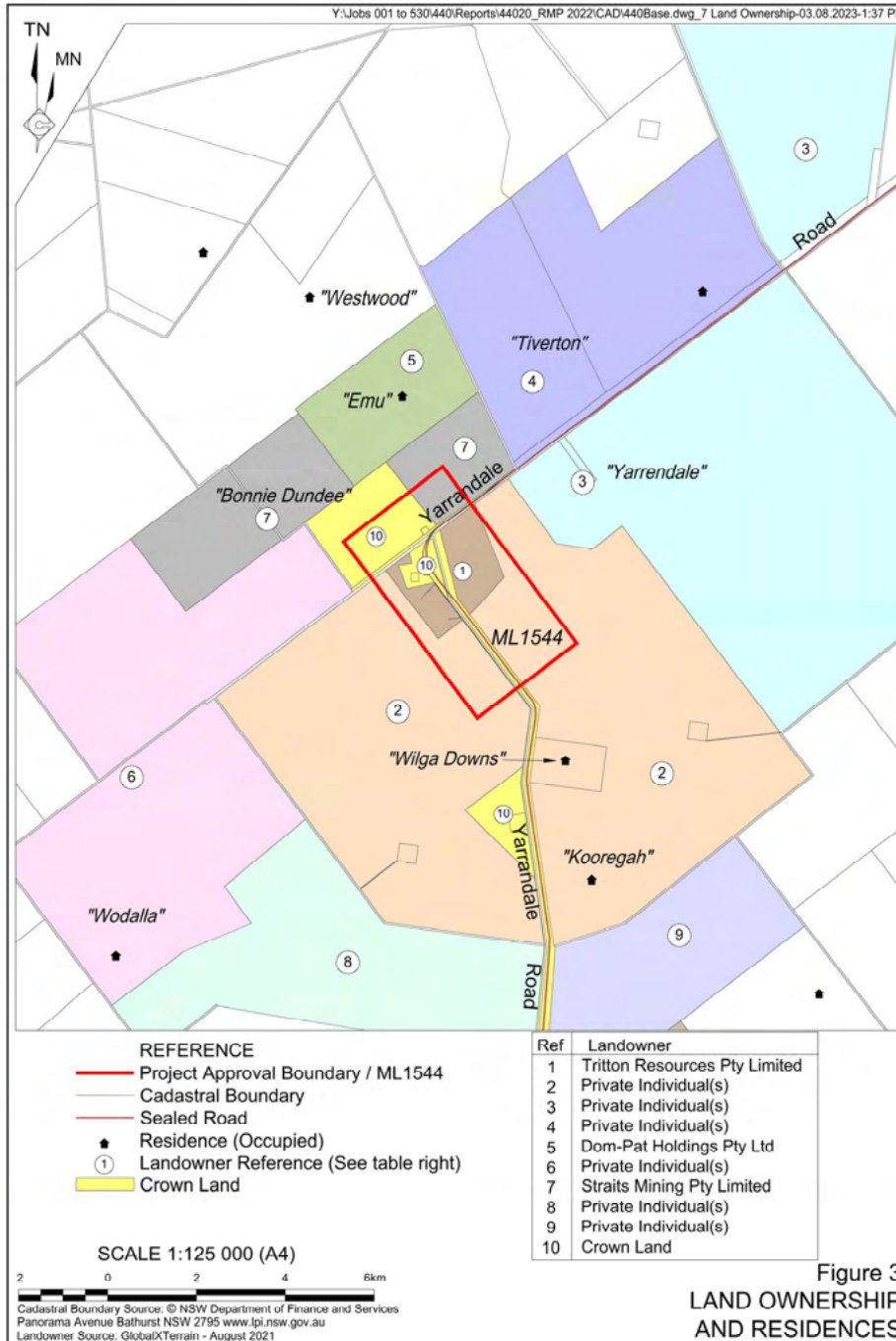
Commented [D8]: This one as well. All part of "Bonny View". Or Bonnie Dundee in Figure 3.

Historical land use within and in the vicinity of the Mine Site and the Tritton Copper Operations is discussed in Section 1.1.1.

Proposed final land uses for the Mine Site are detailed in Section 2 of this RMP. In summary, it is proposed that final land uses will consist of mixed vegetation commensurate with surrounding land uses and capable of supporting light agricultural grazing.

1.3.1 Land Ownership and Land Use Figures

Figure 3 presents land ownership for areas within and surrounding the Mine Site. **Figure 4** presents land uses in the vicinity of the Mine Site. **Figure 5** presents vegetation communities within the Mine Site and within the surrounding region. **Figure 6** presents land zoning in the vicinity of the Mine Site.

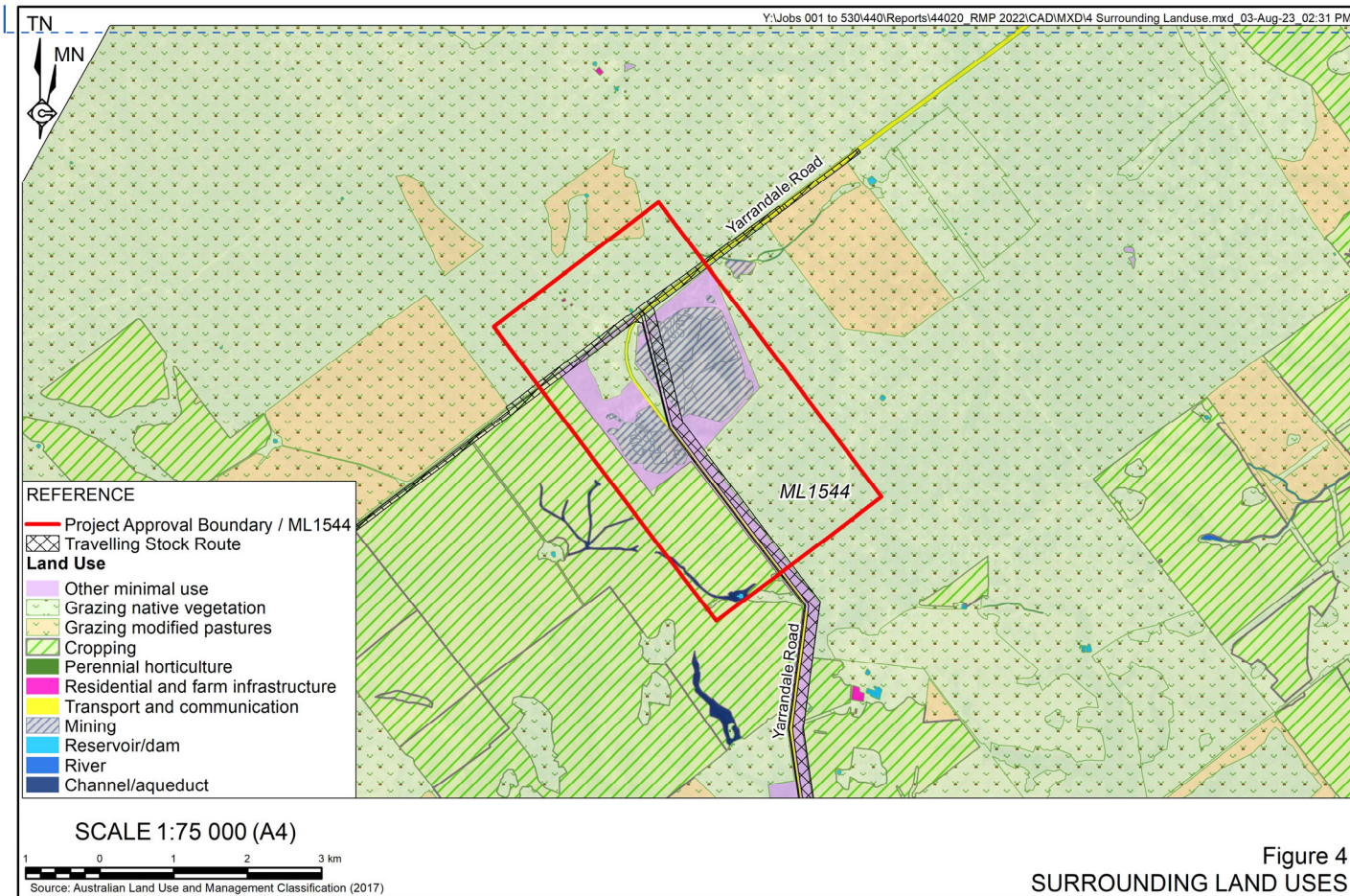


DRAFT

DRAFT

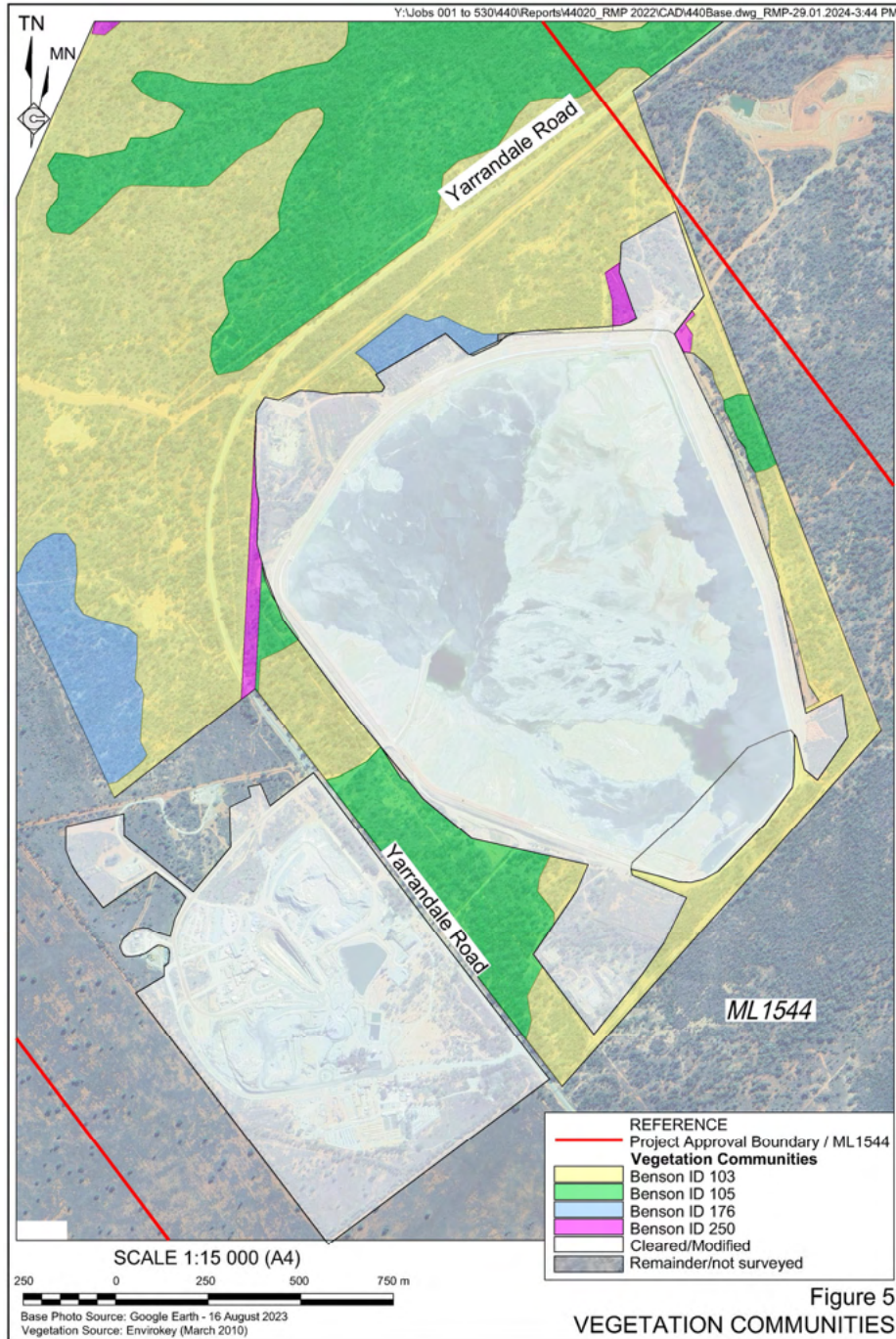
TRITTON RESOURCES PTY LTD
ML1544 – Tritton Copper Mine

REHABILITATION MANAGEMENT PLAN
Draft Report No. 440/20 – 7 December 2024



Commented [D9]: I'm concerned this figure refers to mining activity outside of the ML. Is it worth adding the compensatory planting area or is other minimal use ok?

Commented [MF10R9]: This is a public dataset so cant change the data. It shows mining, but doesn't explicitly link it to tritton. Not the MOD9 TSF reports mention this and the western borrow pit. I think this is something that will need to be sorted, just not with the RMP.



DRAFT

DRAFT

DRAFT



2. Final Land Use

2.1 Regulatory Requirements for Rehabilitation

Table 3 lists the regulatory requirements relating to the rehabilitation of the Mine Site and post-mining land uses. It is noted that the conditional requirements for MLs within the Mine Site have been adopted from Schedule 8A of the *Mining Amendment (Standard Conditions of Mining Leases – Rehabilitation) Regulation 2021*, gazetted by the NSW Government on 2 July 2021. It has been assumed that site specific conditions within Mining Authorities relating to rehabilitation have been retained, and the standard conditions have been replaced by those identified in Schedule 8A of the *Mining Amendment (Standard Conditions of Mining Leases – Rehabilitation) Regulation 2021*. In the event that there are any discrepancies between the conditions identified in this Plan and those included in the Mining Authorities for the Mine Site following updates to the conditions of these Mining Authorities, this Plan will be updated to correct these discrepancies.

2.2 Final Land Use Options Assessment

The final land use as defined by Section 2.14.1 of the EIS (RWC, 1998) generally consists of a revegetated landform commensurate with surrounding vegetation and capable of supporting light grazing. Subsequent development approvals and associated environmental assessments have generally maintained this commitment in consideration of new landforms, such as the Tailings Storage Facility.

The previously approved final land use as identified by the most-recent Mining Operations Plan (RWC, 2015) is generally in accordance with the above and presents the core final land use strategy of long-term agricultural grazing, including supporting infrastructure, commensurate with surrounding lands.

The final land use presented in Section 2.3 is generally in accordance with existing approvals and previously approved plans.

2.3 Final Land Use Statement

Final land uses within the Mine Site will include the following.

- Native Ecosystem Areas (Grassland) – areas revegetated to grassland, without shrubs or trees.
- Agricultural Areas (Grazing) - areas that will be rehabilitated in a manner suitable for agricultural purposes, consistent with land capability prior to mining disturbance and the surrounding topography.
- Water Management—Storage Areas – includes the Containment Dam, Environmental Pond and water management structures associated with the Tailings Storage Facility.

Commented [D11]: Not sure how this will be achieved? Is active management to achieve a final land use ok?

Commented [DM12R11]: Agree should not commit to no trees / shrubs, HOWEVER this is specific to the TSF, where there is a need. It's a bit late in the piece but having your TSF as grazing and not native grassland makes that the future landuse linked and owning the removal of trees.

Commented [MF13R11]: The way the domain classifications work is not crystal clear with regard to where and how to draw lines. Agricultural land use requires objectives relating to productivity and management actions, where as Native Ecosystem has objectives that relate to ecological composition etc. They are also not mutually exclusive, as you can have grazing within native ecosystem. In the ROBJ we were clear that the vegetation on the TSF needs to facilitate the capping function as priority number 1.

I am seeing questions from the RR and DPHI more and more with regard to vegetation on TSFs and WREs. I see long term management requirements becoming an industry problem. McPhillamys went around this by saying they were going to cover their TSF with (I think) upwards of 8-10m of waste rock. For discussion

DRAFT

- [Water Management Areas – includes infrastructure such as diversion, drains, and other water management features.](#)
- Infrastructure Areas – includes the access road.
- Final Void Area – the final void of the Box Cut and decline portal.

Final land use and rehabilitation plans for the Mine Site are presented in Section 5. ~~It is noted that the proposed final land uses will not interfere with the use of existing reserves within the Mine Site.~~

Commented [D14]: This sentence is a little confusing to me. What about the TSR? I didn't see a reference to the reserves in Section 5.

2.4 Final Land Use and Mining Domains

The *Form and Way: Rehabilitation Management Plan for Large Mines (September 2020)* guideline defines a domain as follows.

“An area (or areas) of the land that has been disturbed by mining and has a specific operational use (mining domain) or specific final land use (final land use domain). Land within a domain typically has similar geochemical and/or geophysical characteristics and therefore requires specific rehabilitation activities to achieve the associated final land use.”

DRAFT

DRAFT

Table 3
Regulatory Requirements for Rehabilitation

Page 1 of 11

Consent	Condition No. or Section	Requirement	Area	Timing	RMP Section
DA 41/98	1	The Applicant must carry out the development: (i) generally in accordance with the EIS; (ii) in accordance with the conditions of this consent; (iii) generally in accordance with the development layout; and (iv) in accordance with all written directions of the Secretary.	ML1544	Operation and rehabilitation	Noted
	3G	All demolition must be carried out in accordance with <i>Australian Standard AS 2601-2001 The Demolition of Structures</i> (Standards Australia, 2001), or its latest version.			6.2.2
	4	The Applicant shall prepare and implement a Mining Operations Plan or Rehabilitation Management Plan for the project in accordance with the conditions imposed on the mining lease(s) associated with the development under the Mining Act 1992. This plan must: (i) be prepared in accordance with any relevant RR guideline; (ii) demonstrate consistency with the conditions of this consent and any other statutory approvals; (iii) demonstrate consistency with the Environmental Management Plan required by Condition 6; (iv) provide the basis for implementing mining operations, environmental management, and ongoing monitoring and reporting; and (v) identify a schedule of proposed mine development for the period covered by the plan and include: – the area proposed to be impacted by mining activity and resource recovery mining methods and remediation measures including rehabilitation; – areas of environmental, heritage or archaeological sensitivity and mechanisms for appropriately minimising impact; – water management; and – proposals to appropriately minimise surface impacts. A copy of the MOP or Rehabilitation Management Plan must be made available on the Proponent's website in accordance with Schedule 5 condition 11.			This Plan
	17	Soil stripping and stockpiling procedures for use in future site rehabilitation are to be carried out as outlined in Section 4.4.2 of the EIS in consultation with EPA.			6.2.1.1
	18	All potentially acid producing mullock materials shall be stockpiled in controlled discharge areas such that there is no discharge of leachate beyond the designed water management system.			6.2.1.8
	19	Prior to the construction and the commencement of mining operations, and during the operational life of the mine, the Applicant shall conduct regular investigations to determine whether potentially acid-producing mullock will be mined.			6.2.1.8

DRAFT

DRAFT

Table 3 (Cont'd)
Regulatory Requirements for Rehabilitation

Page 2 of 11

Consent	Condition No. or Section	Requirement	Area	Timing	RMP Section
DA 41/98 (Cont'd)	20	Should investigations reveal the existence of potentially acid producing mullock, the Applicant shall: • prepare an acid mine drainage strategy in consultation with the EPA; and • encapsulate the material with non-acid forming material if it is to be located in the mullock stockpile area or be left underground.			6.2.1.8 10.1
	22	The Applicant shall ensure that, following the production of tailings, there is an alternative and permanent source of potable water for wildlife.	Environmental Pond	During operation and post closure	6.2.1.2
	32	All disturbed areas are to be revegetated as soon as practicable on completion of construction using species and fertilisers in combinations and at such rates acceptable to the BCS's Nyngan Catchment Advisory Officer.	ML1544	Operation and rehabilitation	6.2.5
Environmental Impact Statement (RWC, 1998)	2.14.1	As far as practicable blend the landform with the surrounding land fabric.	ML1544	During rehabilitation	6.2.3.3
		Provide a stable ground cover for erosion control.			6.2.1.10
		To provide a low maintenance, stable and safe landform commensurate with a grazing land use capability.			2, 5
		As far as practicable minimise impacts on scenic amenity.			6.2.3.3
		Revegetate with native trees and shrub species comparable with pre-existing vegetation communities.			6.2.1.2, 6.2.5.3
	2.14.3	The Underground Mine All underground areas would be cleared of infrastructure and any contaminated materials placed within the Tailings Storage Facility. The mine portal would be sealed and secured, as nominated by regulatory authorities. A final landform would be established in disturbed areas and revegetation allowed to occur naturally, or through seeding of appropriate species where this is not successful.			6.2.2.2
	2.14.4	Processing Plant and Facilities Area General commitment for removal of all infrastructure and services unless required for final land use. Remove all liners, sumps and excavation areas with contaminated material to be placed within the Tailings Storage Facility. Disturbed areas that would not be used for the final land use will be ripped, covered with available topsoil or suitable growth medium and allowed to revegetate naturally.			6.2.2.2

Table 3 (Cont'd)
Regulatory Requirements for Rehabilitation

Page 3 of 11

Consent	Condition No. or Section	Requirement	Area	Timing	RMP Section
Environmental Impact Statement (RWC, 1998) (Cont'd)	Waste Rock Emplacement	Construct the waste rock emplacement such that any waste rock identified as potentially acid forming is encapsulated. Construct the landform so that the surface is free draining and suitable for revegetation with native groundcover, shrub and tree species.			6.2.3.3
	2.14.5	Tailings Storage Facility Establish a stable, free draining landform. Establish vegetative communities native to the local area and consistent with the surrounding landscape. Provide for long term nature conservation use. Apply rock armouring or topsoil on the embankments and revegetate with native grasses. Remove all surface infrastructure, where it is safe to do so. Minimise surface percolation of rainfall through doming the surface and suitably applied capping. Provide a substrate for sustainable native vegetation regeneration on the surface of the Tailings Storage Facility.			6.2.2
Statement of Environmental Effects (Tritton, 2007)	2.11.4	Concepts for the Tailings Storage Facility final landform were developed in conjunction with Coffey. The two options were as follows. - Store and release concept with the water containment of the top surface. - Water shedding concept with water dispersed from the top surface. Future geochemical assessment will determine the suitability of the two options. The final landform will have a land capability consistent with Class VI (OEH, 2012) and will not be suitable for agricultural use.	Tailings Storage Facility	During rehabilitation works	6.2.3.3, 9.2.4
Environmental Assessment (RWC, 2014)	2.5.2	Rehabilitation of the Waste Rock Emplacement will involve the following. - Reshaping of the emplacement. - Construction of surface water controls to reduce the potential for significant erosion. - Spreading of soil to the approved depths. - Revegetation using native species consistent with the surrounding vegetation communities. Fencing of the rehabilitated area to exclude goats and other fauna that may adversely impact on revegetation establishment.	Waste Rock Emplacement		6.2.3.3

DRAFT

DRAFT

Table 3 (Cont'd)
Regulatory Requirements for Rehabilitation

Page 4 of 11

Consent	Condition No. or Section	Requirement	Area	Timing	RMP Section
Mining Leases					
ML 1544	4	Must prevent or minimise harm to the environment The holder of a mining lease must take all reasonable measures to prevent, or if that is not reasonably practicable, to minimise, harm to the environment caused by activities under the mining lease. In this clause – harm to the environment has the same meaning as in the <i>Protection of the Environment Operations Act 1997</i> .	ML 1544	During operation and rehabilitation.	This Plan
	5	Rehabilitation to occur as soon as reasonably practicable after disturbance The holder of a mining lease must rehabilitate land and water in the mining area that is disturbed by mining activities under the mining lease as soon as reasonably practicable after the disturbance occurs.			This Plan
	6	Rehabilitation must achieve final land use The holder of a mining lease must ensure that rehabilitation of the mining area achieves the final land use for the mining area. The holder of a mining lease must ensure any planning approval has been obtained that is necessary to enable the holder to comply with subclause (1). The holder of the mining lease must identify and record any reasonably foreseeable hazard that presents a risk to the holder's ability to comply with subclause (1) Note – clause 7 requires a rehabilitation risk assessment to be conducted whenever a hazard is identified under this subclause. In this clause – final land use for the mining area means the final landform and final land uses to be achieved for the mining area – as set out in the rehabilitation objectives statement and rehabilitation completion criteria statement, and for a large mine – as spatially depicted in the final landform and rehabilitation plan, and if the final land use for the mining area is required by a condition of development consent for activities under the mining lease – as stated in the condition. planning approval means – a development consent within the meaning of the <i>Environmental Planning and Assessment Act 1979</i> , or an approval under that Act, Division 5.1.		During rehabilitation.	Section 2.3

Table 3 (Cont'd)
Regulatory Requirements for Rehabilitation

Page 5 of 11

Consent	Condition No. or Section	Requirement	Area	Timing	RMP Section
Mining Leases (Cont'd)					
ML 1544 (Cont'd)	7	Rehabilitation risk assessment The holder of a mining lease must conduct a risk assessment (a <i>rehabilitation risk assessment</i>) that – identifies, assesses and evaluates the risks that need to be addressed to achieve the following in relation to the mining lease – the rehabilitation objectives, the rehabilitation completion criteria, for large mines – the final land use as spatially depicted in the final landform and rehabilitation plan, and identifies the measures that need to be implemented to eliminate, minimise or mitigate the risks. The holder of the mining lease must implement the measures identified. The holder of a mining lease must conduct a rehabilitation risk assessment – for a large mine – before preparing a rehabilitation management plan, and for a small mine – before preparing the rehabilitation outcome documents for the mine, and whenever a hazard is identified under clause 6(3) – as soon as reasonably practicable after it is identified, and whenever given a written direction to do so by the Secretary.		During construction, operation and rehabilitation.	Section 3
	8	Application of Division This Division does not apply to a mining lease unless— the security deposit required under the mining lease is greater than the minimum deposit prescribed under the Act, section 261BF in relation to that type of mining lease, or the Secretary gives a written direction to the holder of the mining lease that this Division, or a provision of this Division, applies to the mining lease.		During construction, operation and rehabilitation.	
	9	General requirements for documents A document required to be prepared under this Division must— be in a form approved by the Secretary, and Note— The approved forms are available on the Department's website. include any matter required to be included by the form, and if required to be given to the Secretary—be given in a way approved by the Secretary.		During construction, operation and rehabilitation.	This Plan

DRAFT

Table 3 (Cont'd)
Regulatory Requirements for Rehabilitation

Page 6 of 11

Consent	Condition No. or Section	Requirement	Area	Timing	RMP Section
Mining Leases (Cont'd)					
ML 1544 (Cont'd)	10	Rehabilitation management plans for large mines The holder of a mining lease relating to a large mine must prepare a plan (a rehabilitation management plan) for the mining lease that includes the following— - a description of how the holder proposes to manage all aspects of the rehabilitation of the mining area, - a description of the steps and actions the holder proposes to take to comply with the conditions of the mining lease that relate to rehabilitation, - a summary of rehabilitation risk assessments conducted by the holder, - the risk control measures identified in the rehabilitation risk assessments, - the rehabilitation outcome documents for the mining lease, - a statement of the performance outcomes for the matters addressed by the rehabilitation outcome documents and the ways in which those outcomes are to be measured and monitored. If a rehabilitation outcome document has not been approved by the Secretary, the holder of the mining lease must include a proposed version of the document. A rehabilitation management plan is not required to be given to the Secretary for approval. The holder of the mining lease— - must implement the matters set out in the rehabilitation management plan, and - if the forward program specifies timeframes for the implementation of the matters—must implement the matters within those timeframes.		During construction, operation and rehabilitation.	This Plan

DRAFT

Table 3 (Cont'd)
Regulatory Requirements for Rehabilitation

Page 7 of 11

Consent	Condition No. or Section	Requirement	Area	Timing	RMP Section
Mining Leases (Cont'd)					
ML 1544 (Cont'd)	11	Amendment of rehabilitation management plans The holder of a mining lease must amend the rehabilitation management plan for the mining lease as follows— to substitute the proposed version of a rehabilitation outcome document with the version approved by the Secretary—within 30 days after the document is approved, as a consequence of an amendment made under clause 14 to a rehabilitation outcome document—within 30 days after the amendment is made, to reflect any changes to the risk control measures in the prepared plan that are identified in a rehabilitation risk assessment—as soon as practicable after the rehabilitation risk assessment is conducted, whenever given a written direction to do so by the Secretary—in accordance with the direction.		During construction, operation and rehabilitation.	Noted.
	12	Rehabilitation outcome documents The holder of a mining lease must prepare the following documents (<i>the rehabilitation outcome documents</i>) for the mining lease and give them to the Secretary for approval— the <i>rehabilitation objectives statement</i>, which sets out the rehabilitation objectives required to achieve the final land use for the mining area, the <i>rehabilitation completion criteria statement</i>, which sets out criteria, the completion of which will demonstrate the achievement of the rehabilitation objectives, for a large mine, the <i>final landform and rehabilitation plan</i>, showing a spatial depiction of the final land use. If the final land use for the mining area is required by a condition of development consent for activities under the mining lease, the holder of the mining lease must ensure the rehabilitation outcome documents are consistent with that condition.		During construction, operation and rehabilitation.	Sections 4.2, 5.1

DRAFT

DRAFT

Table 3 (Cont'd)
Regulatory Requirements for Rehabilitation

Page 8 of 11

Consent	Condition No. or Section	Requirement	Area	Timing	RMP Section
Mining Leases (Cont'd)					
ML 1544 (Cont'd)	13	Forward program and annual rehabilitation report The holder of a mining lease must prepare a program (a forward program) for the mining lease that includes the following— - a schedule of mining activities for the mining area for the next 3 years, - a summary of the spatial progression of rehabilitation through its various phases for the next 3 years, - a requirement that the rehabilitation of land and water disturbed by mining activities under the mining lease must occur as soon as reasonably practicable after the disturbance occurs. The holder of a mining lease must prepare a report (an annual rehabilitation report) for the mining lease that includes— - a description of the rehabilitation undertaken over the annual reporting period, - a report demonstrating the progress made through the phases of rehabilitation provided for in the forward program applying to the reporting period, - a report demonstrating progress made towards the achievement of the following— - the objectives set out in the rehabilitation objectives statement, - the criteria set out in the rehabilitation completion criteria statement, for large mines—the final land use as spatially depicted in the final landform and rehabilitation plan. If a rehabilitation outcome document has not been approved by the Secretary, the holder of the mining lease must rely on a proposed version of the document. The holder of the mining lease must give the forward program and annual rehabilitation report to the Secretary. In this clause— annual reporting period means each period of 12 months commencing on— - the date on which the mining lease is granted, or - if the Secretary approves another date in relation to the mining lease— the other date		During construction, operation and rehabilitation	Section 11

Table 3 (Cont'd)
Regulatory Requirements for Rehabilitation

Page 9 of 11

Consent	Condition No. or Section	Requirement	Area	Timing	RMP Section
Mining Leases (Cont'd)					
ML 1544 (Cont'd)	14	Amendment of rehabilitation outcome documents and forward program This clause applies to— - a rehabilitation outcome document if it has been approved by the Secretary, and - a forward program if it has been given to the Secretary. The holder of a mining lease must not amend a document to which this clause applies that relates to the mining lease unless— - the Secretary gives the holder a written direction to do so, or - the Secretary, on written application by the holder, gives a written approval of the amendment. The holder of the mining lease must amend the document in accordance with the Secretary's direction or approval. Nothing in this clause prevents the holder of a mining lease preparing a draft amendment for submission to the Secretary for approval.		During construction, operation and rehabilitation	Noted.
	15	Times at which documents must be prepared and given The holder of a mining lease must do the following before the end of the initial period— - prepare a rehabilitation management plan, and - prepare rehabilitation outcome documents and give them, other than the rehabilitation completion criteria statement, to the Secretary for approval, and - prepare a forward program and give it to the Secretary. The holder of the mining lease must prepare a forward program and annual rehabilitation report and give them to the Secretary before— 60 days after the last day of each annual reporting period, commencing with the annual reporting period in which the forward program was given to Secretary under subclause (1)(c), or - a later date approved by the Secretary. A rehabilitation completion criteria statement relating to completion of rehabilitation during a period covered by a forward program must be given to the Secretary for approval when the forward program is required to be given to the Secretary.		During construction, operation and rehabilitation	This Plan

DRAFT

DRAFT

Table 3 (Cont'd)
Regulatory Requirements for Rehabilitation

Page 10 of 11

Consent	Condition No. or Section	Requirement	Area	Timing	RMP Section
Mining Leases (Cont'd)					
ML 1544 (Cont'd)	15 (Cont'd)	The holder of the mining lease must prepare updated rehabilitation outcome documents for the mining lease and give them to the Secretary for approval before— 60 days after a development consent is modified following an application referred to in clause 20(1)(b), or a later date approved by the Secretary. A rehabilitation completion criteria statement is not required to be given to the Secretary under subclause (4) unless a rehabilitation completion criteria statement has already been given to the Secretary under subclause (3). The Secretary may, by written notice, direct the holder of a mining lease to prepare, or give to the Secretary, a document required to be prepared under this Division at a time other than that specified in this clause. The holder of the mining lease must comply with the direction. In this clause— initial period means the period commencing when the mining lease is granted and ending— 30 days, or other period approved by the Secretary, after this Division first applies to the mining lease, or if this Division applies to the mining lease because of an increase in the required security deposit— when the surface of the mining area is disturbed by activities under the mining lease, or at a later date approved by the Secretary.			
	16	Certain documents to be publicly available This clause applies to the following documents— a rehabilitation management plan, a forward program, an annual rehabilitation report. The holder of a mining lease must make a document to which this clause applies publicly available by— publishing it on its website in a prominent position, or if the holder does not have a website— providing a copy of it to a person— on the written request of a person, and without charge, and within 14 days after the request is received.		During construction, operation and rehabilitation	Noted.

Table 3 (Cont'd)
Regulatory Requirements for Rehabilitation

Page 11 of 11

Consent	Condition No. or Section	Requirement	Area	Timing	RMP Section
Mining Leases (Cont'd)					
ML 1544 (Cont'd)	16 (Cont'd)	If a document is published on the website of the holder of the mining lease, the holder must ensure that it is published— for a rehabilitation management plan—within 14 days after it is prepared or amended, or for a forward program or an annual rehabilitation report—within 14 days after it is given to the Secretary or amended, Personal information within the meaning of the <i>Privacy and Personal Information Protection Act 1998</i> is not required to be included in a document made available to a person under this clause.			
	17	Records demonstrating compliance The holder of a mining lease must create and maintain records of all actions taken that demonstrate compliance with each of the conditions set out in this Part. Note— The Act, sections 163D and 163E provide for the form in which records must be kept and the period for which they must be retained.		During construction, operation and rehabilitation	Noted.
	18	Report on non-compliance The holder of a mining lease must provide the Minister with a written report detailing any non-compliance with— a condition of the mining lease, or Note— The Act, section 364A contains provisions relating to the use and disclosure of information provided under this condition. a requirement of the Act or this Regulation relating to activities under the mining lease. The holder of the mining lease must provide the report within 7 days after becoming aware of the non-compliance. The holder of the mining lease must ensure the report— identifies the condition of the mining lease, or the requirement of the Act or this Regulation, to which the non-compliance relates, and describes the non-compliance and specifies the date or dates on which, or the period during which, the non-compliance occurred, and describes the causes or likely causes of the non-compliance, and describes the action that has been taken, or will be taken, to mitigate the effects, and to prevent any recurrence, of the non-compliance.		During construction, operation and rehabilitation	Noted.

DRAFT

2.4.1 Final Land Use Domains

Table 4 defines the final land use domains for the Mine and **Figure 7** displays the final land use domains for the Mine Site.

Table 4
Final Land Use Domains

Final Land Use Domain	Domain ID ¹	Domain Description
Native Ecosystem Area - Grassland	A	Includes the Tailings Storage Facility that will be rehabilitated to grassland, without shrubs or trees, where a mid- or over-storey of vegetation may adversely impact on the stability of the final landform.
Agricultural Area - Grazing	B	Includes areas that will be rehabilitated to be suitable for light grazing agricultural purposes (i.e. areas of mine-related disturbance, Waste Rock Emplacement, stockpiles, ROM Pad and infrastructure and access tracks not being retained).
Water Storage Area	G	Includes all water storage infrastructure to be retained for the final land use (i.e. the Containment Dam, Environmental Pond and management structures associated with TSF).
Infrastructure Area	I	Includes all built infrastructure to be retained or constructed for the final land use (e.g. the access road).
Final Void Area	J	Includes the final void of the Box Cut and Decline portal.
Note 1: See Figure 7		

2.4.2 Mining Domains

Table 5 defines the mining domains for the Mine Site, as shown on **Figure 8**.

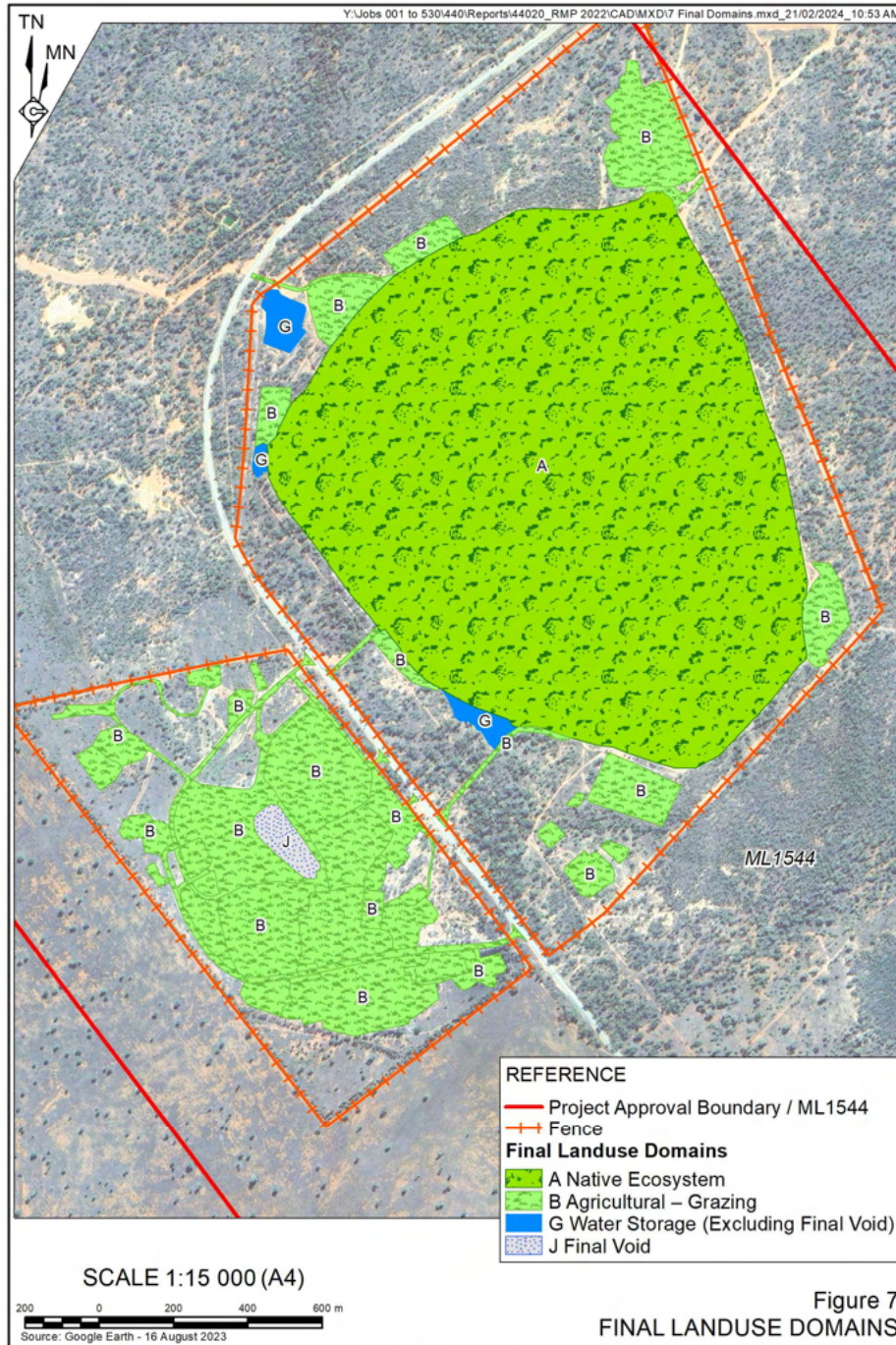
Table 5
Mining Domains

Mining Domain	Domain ID ¹	Domain Description
Infrastructure Area	1	Includes the core infrastructure and ancillary areas of the Mine Site, including the Processing Plant, Paste Fill Plant, magazine storage and emulsions storage infrastructure, supplies warehouse, contractor's workshop and storage area, existing administration and workshop areas and core sample yard, car parking area and miscellaneous structures including roads, sheds, bioremediation facility, landfill, and a graveyard area.
Tailings Storage Facility	2	Includes the Tailings Storage Facility including all embankments, internal access tracks and drainage structures.
Water Management Area	3	Clean Water Includes the water management structures that capture clean water from undisturbed areas within the Mine Site or that are used as temporary storage locations for water sourced under licence from the Bogan River via the Murrumbidgee Mine or from an approved offtake from the Nynghan-Cobar pipeline (e.g. the Environmental Pond that provides a water source for local fauna).
		Contaminated Water Includes the Containment Dam and Process Water Dam that collect potentially contaminated runoff and water from the Processing Plant or Paste Fill Plant.
Active Mining Area (Box Cut and Decline)	5	Includes the Box Cut and Decline for access to the underground operations, as well as the adjacent safety bunds.
Other (Topsoil Stockpile Area)	8	Includes areas used for stockpiling of topsoil and subsoil material.
Note 1: See Figure 8		

Commented [D15]: What about the Hermidale line?

DRAFT

DRAFT



DRAFT

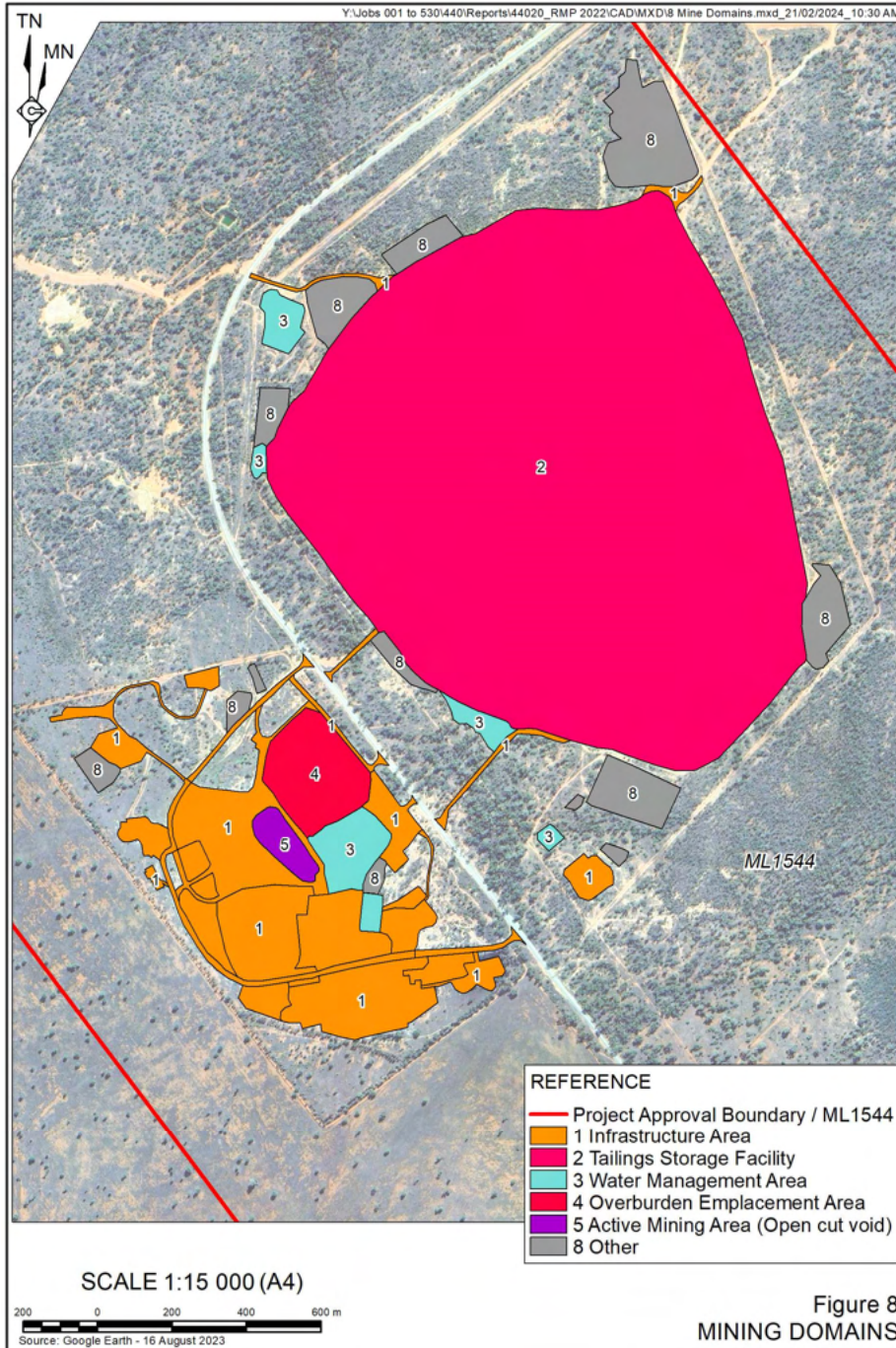
DRAFT

DRAFT

DRAFT

DRAFT

DRAFT



3. Rehabilitation Risk Assessment

The initial Rehabilitation Risk Assessment for the Mine was undertaken generally in accordance with *Australian Standard AS/NZS ISO 31000:2009 Risk Management*. The Rehabilitation Risk Assessment has been prepared to consider potential rehabilitation risks associated with any mine within the Tritton Copper Operations, and as such, also applies to those mines.

Risks to achieving the rehabilitation objectives and rehabilitation completion criteria outlined in Section 4, as well as the final landform outlined in Section 5, were identified and assessed jointly prior to the preparation of this plan by representatives from the following.

- Company staff, including specialists and/or managers for:
 - environmental;
 - geotechnical;
 - geological; and
 - operational activities.
- External consultants from:
 - R.W. Corkery & Co. Pty Limited (environmental management and approvals);
 - [Burton Environmental \(facilitator\)](#);
 - O’Kane Consulting Pty Ltd (geoscience); and
 - DnA Environmental (ecology).

Site specific threats to rehabilitation were assessed based on both the results of previous rehabilitation trials (see Section 9) as well as observations of site-specific conditions and threats to rehabilitation observed during site inspections. This risk assessment was completed with consideration of existing controls as well as those risk controls outlined in this Plan.

For each identified risk to rehabilitation, potential adverse outcomes were identified and allocated a risk rating based on the potential consequences and likelihood of occurrence. **Tables 6, 7, 8 and 9** present the consequence, likelihood, risk rating and residual risk rating used during this analysis. 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.

In accordance with Schedule 8A of the *Mining Regulation 2016*, the Rehabilitation Risk Assessment is maintained as a ‘live’ document and is regularly reviewed in response to changes to operations where potential risks to rehabilitation may occur.

Table 10 presents the results of the risk analysis assuming the implementation of standard mitigation measures and those outlined within this RMP.

DRAFT

DRAFT

DRAFT

Table 6
Tritton Consequence Table

Page 1 of 2

Level				
5	4	3	2	1
Descriptor				
Insignificant	Minor	Moderate	Major	Critical
Description				
Health and Safety				
First aid treatment or injury only	Medical Treatment Injury (MTI)	Single Lost Time Injury (LTI)	Multiple Lost Time Injuries	Permanent disability > 30%
Low level soreness or small amount of pain	Restricted Work Injury (RWI)	Short term hospitalisation (< 7 days)	Extended hospital treatment (> 7 days)	One or more fatalities
	Presented to hospital (no overnight stay)	Reversible impairment to human health	Permanent disability < 30%	
			Serious long-term health issue	
Environment				
No or very low environmental impact	Low environmental Impact	Moderate environmental impact	Major environmental impact	Severe environmental impact
Impact confined to a small area	Rapid clean-up by internal staff or contractors	Clean-up by internal staff or contractors	Considerable clean-up effort required by internal staff and external contractors	Likely species destruction and long recovery period
	Impact contained to area already impacted by operations	Impact confined within lease boundary	Impact may extend across lease boundary	Extensive clean-up using external resources Impact on a regional scale
Community/External Relations				
Isolated complaint received	Multiple or sporadic complaints received	Repeated or serious rate of complaints	Ongoing complaints from local groups, NGO's or regulators	High level concern from community, regulators, stakeholders and /or stakeholders
No media coverage	No media coverage	Local media interest and coverage	Regional/national media interests	Adverse national or international media coverage
No damage to reputation or relationships with stakeholders	Short-term damage with relationship with one or more stakeholders but no damage to reputation	Reversible damage with stakeholders and to reputation	Protests by external stakeholders	International damage to reputation
			Local or regional damage to reputation	
Legal				
Questionable or minor non-conformance with operating condition	Non-compliance with operating conditions	Breach of local or national law with potential prosecution by regulator	Major breach of local or national law	Significant breach of national or international law with potential jail sentence
No fine or prosecution	Could attach low level administrative response from regulator	Continuing occurrence of minor breach	Prosecution or penalties by regulator likely	Operations suspended or cease (short term or long term)
Unlikely to attract regulatory interest	No court appearance required		Short term treat to operations continuing	Licenses withdrawn or revoked
Easy to resolve			Civil action initiated	Class action initiated

Table 6 (Cont'd)
Tritton Consequence Table

Page 2 of 2

Level				
5	4	3	2	1
Descriptor				
Insignificant	Minor	Moderate	Major	Critical
Description				
Operational/Cost				
Minor impact, easily corrected with insignificant cost to the operation:	Minor damage/failure to equipment or infrastructure with minimal associated cost:	Damage/failure to equipment or infrastructure marginal cost to the operation:	Damage/failure to equipment or infrastructure resulting in significant cost to the operation:	Damage/failure to equipment or infrastructure resulting in a detrimental cost to the operation:
<\$5,000	\$5,000 - \$50,000	\$50,000 - \$100,000	\$100,000 - \$500,000	> \$500,000
Business Interruption				
Minimal disruption to concentrate production (<4hrs)	Minor loss of concentrate production (< 1 day)	Significant loss of concentrate production (1 - 3 days)	Major disruption to concentrate production (3 - 7 days)	Critical loss of revenue from extended disruption to concentrate production (>1 week)
<100,000	\$100,000 to \$500,000	\$500,000 - 1,500,000	\$1,500,000 - \$4,500,000	> \$4,500,000

Source: Tritton Resources

Table 7
Qualitative Likelihood Rating

Level	Descriptor	Description in terms of full operating life of the Site	Description in terms of frequency
A	Almost Certain	Consequences expected to occur in most circumstances	Daily or continuous
B	Likely	Consequences will probably occur in most circumstances	Weekly or monthly
C	Possible	Consequences could occur at some time	Annually
D	Unlikely	Consequence will probably NOT occur in most circumstances	Within the life of the operation
E	Rare	Consequence may occur in exceptional circumstances	>100 years

Source: Tritton Resources

Table 8
Qualitative Risk Rating

Likelihood	Consequence				
	5 Insignificant	4 Minor	3 Moderate	2 Major	1 Critical
A Almost Certain	15	10	6	3	1
B Likely	19	14	9	5	2
C Possible	22	18	13	8	4
D Unlikely	24	21	17	12	7
E Rare	25	23	20	16	11

Source: Tritton Resources

DRAFT

DRAFT

DRAFT

DRAFT

DRAFT

DRAFT

Table 9
Residual Risk Level Action

Residual Risk Level	Priority	Actions to Minimise Risk	Actions to Maximise Opportunity
Critical	1	Detailed research and planning required; determine whether activity or task should be stopped pending further investigation.	Detailed research and planned required; high payoff potential; pursue opportunity aggressively.
High	2	Senior management attention; immediate corrective and preventative action required.	Near term opportunity with above average rate of return; pursue diligently.
Moderate	3	Conditionally acceptable risk – management responsibility assigned; corrective and preventative action plan developed.	Opportunity to realise average rate of return with certainty pursue with existing plans.
Low	4	Manage by routine procedures; accept risk.	Manage by routine procedures.

Table 10
Rehabilitation Risk Assessment

Page 1 of 10

Risk	Risk Control	Risk Rating*	Where Addressed in this RMP
General			
Insufficient skills and experience of rehabilitation personnel.	- Site based environmental staff are to be supported by external consultants. - Procedural documents and records are to be located in central server for document control and storage. - Company to implement succession planning and staff training as much as is feasible. - Company to maintain a Rehabilitation Management Plan as a staff manual and ensure it is available for ease of guidance to new or inexperienced staff. - Company to assess and assign sufficient resources to manage environmental and closure risk.	17 (D3)	L
Lack of clearly defined responsibilities.	- Clearly mapped and available organisation chart and management plans to be maintained. - Position descriptions for relevant staff include rehabilitation and mine closure responsibilities. - Quality Assurance program to be established through Rehabilitation Management Plan. - Clear communication between departments and relevant stakeholders relating to rehabilitation planning, scheduling and execution.	18 (C4)	-
Insufficient funding for or prioritisation of rehabilitation activities.	- Budget and reforecast process applied. - Rehabilitation commitments acknowledged and understood at senior leadership level. - Long-term rehabilitation schedule to be included in Rehabilitation Management Plan with currently estimated costing for each action to be maintained confidentially for staff action and update. - All capital investment decision making to include recognition of rehabilitation and closure aspects.	21 (D4)	-
Not compliant with permit/licence approvals.	- Obligation Register to be regularly reviewed and updated. Development of a system to assign responsibilities from Obligation Register to 'Obligation Owners'. - Annual reporting, monitoring and Independent Environmental Audits as required under conditions of consent. - Trigger Action Response Plans (TARPs) and summary of legal and permit requirements included in RMPs. - Regular risk assessments used to identify and assess compliance with permit and licence conditions. - Devise and implement corrective actions (following audits, incidents, non-compliances, specialist reports) as needed.	24 (D5)	-

Commented [DM17]: Are these potential / desired or actual / implemented controls?

Commented [MF18R17]: Combination

Commented [DM20]: Why don't these "General" risks get addressed in the RMP? Opportunity to drive / justify system and training improvements?

Commented [MF21R20]: The scope of the RMP is pretty firmly set by the Form and Way. I agree that these are important and generally the main reason for why the mines are like they are today. However I do not see a clear area for where this should be addressed in the RMP as it deals more with the bio-physical rather than corporate / management systems and procedures.

Commented [DM19]: The lack or turnover of staff probably the real risk here, but understand this has already been workshopped.

DRAFT

DRAFT

Table 10 (Cont'd)
Rehabilitation Risk Assessment

Page 2 of 10

Risk	Risk Control	Risk Rating*	Where Addressed in this RMP
Active Mining Phase of Rehabilitation			
Poor / inadequate / lost opportunity to salvage topsoil & other biological resources through clearing, salvage and handling practices (including timing).	- Progressive stripping and storage of topsoil. - Practices that minimise the re-handling of topsoil. - Topsoil tested and analysed through rehabilitation monitoring. - Habitat structures (timber / trees etc) retained for placement at rehabilitation. - Material inventory (including topsoil, NAF waste rock) and a projection of future closure requirements. - Geotechnical and geochemical characterisation of growth medium and capping material to be undertaken opportunistically as stripped. - Seed collection including a seed quantity inventory to be established where necessary to support ongoing purchase of seed and tubestock.	21 (D4)	6.2.1.1, 6.2.1.11
Limited pre-existing and stockpiled biological resources for salvage.	- Progressive stripping and storage of topsoil. - Practices that minimise the re-handling of topsoil. - Topsoil tested and analysed through rehabilitation monitoring. - Habitat structures (timber / trees etc) retained for placement at rehabilitation. - Material inventory (including topsoil, NAF waste rock) and a projection of future closure requirements. - Develop contingency plan for where material inventory projection forecasts a deficit (TARP). - Investigate use of Company owned farming land for seed and biological resource salvage.	23 (D4)	6.2.1.11, 10.2
Adverse geochemical/chemical composition of materials such as overburden, tailings, subsoils and topsoils etc	- Design and Rehabilitation Planning - Cover design/model for TSF. - Ongoing kinetic geochemical characterisation of waste rock and update of Waste Rock Characterisation and Management Plan. - Ongoing rehabilitation trials or assessments and accurate records. - Implementation of corrective actions from Rehabilitation Monitoring - incorporation of findings/success into future mine closure plans. - Survey and testing of historical mining areas to identify contaminated areas / materials that need to be removed / treated prior to rehabilitation. - Rehabilitation-focused assessments of high-risk landforms including groundwater modelling, water balance modelling.	17 (D3)	6.2.1.4, 6.2.1.6, 6.2.1.9, 6.2.1.11, 9.1.1

Table 10 (Cont'd)
Rehabilitation Risk Assessment

Page 3 of 10

Risk	Risk Control	Risk Rating*	Where Addressed in this RMP
Active Mining Phase of Rehabilitation (Cont'd)			
Handling and containment of waste materials including Tailings, waste rock, heap leach, waste / contaminated water.	- Proactive waste classification and segregation (NAF / PAF) and further kinetic geochemical characterisation of waste rock and update of Waste Rock Characterisation and Management Plan. - Design and Rehabilitation Planning - Cover design/model for TSF. - Ongoing kinetic geochemical characterisation of waste rock and update of Waste Rock Characterisation and Management Plan. - Ongoing rehabilitation trials or assessments and accurate records. - Implementation of corrective actions from Rehabilitation Monitoring - incorporation of findings/success into future mine closure plans. - Survey and testing of historical mining areas to identify contaminated areas or materials that need to be removed or treated prior to rehabilitation.	17 (D3)	6.2.1.4, 6.2.1.5, 6.2.1.9
Adverse surface and groundwater quality and quantity.	- Sediment and erosion control structures/dams. Current studies indicate pits and underground workings act as groundwater sinks. - Rehabilitation-focused assessments of high-risk landforms including groundwater modelling, water balance modelling. - Implement mitigation/containment controls as required.	21 (D4)	6.2.1.10
Decommissioning Phase of Rehabilitation			
Failure to disconnect services / remove infrastructure.	- Survey records, as built records of services and evidence of prior decommissioning. - Decommissioning activities to commence in close association with the mine production schedule. - Infrastructure that can be used at the other nearby Tritton operations will be re-located to these facilities.	21 (D4)	6.2.2.2
Hazards associated with retained infrastructure.	- Identification of equipment and material to be retained. - Prior to mine closure - undertake risk assessment on infrastructure that is proposed to be retained. Risk assessment to focus on future / long term liability for the environment, community and the beneficial use of land and water. Implement controls as identified.	21 (D4)	6.2.2.3

DRAFT

DRAFT

Table 10 (Cont'd)
Rehabilitation Risk Assessment

Page 4 of 10

Risk	Risk Control	Risk Rating*	Where Addressed in this RMP
Decommissioning Phase of Rehabilitation (Cont'd)			
Any identified hazards on items of heritage or biodiversity assets (e.g. known heritage items / fauna species at the operational site) e.g. migratory birds (utilising water sources), bats (utilising underground portals, etc)	- Cultural and heritage registers. - Flora and fauna registers. - Annually monitoring. - Undertake survey (fauna) and risk assessments prior to mine closure to ensure mine closure activities do not impact on heritage or fauna within active mining areas.	21 (D4)	6.2.1.2, 6.2.1.3, 6.2.1.13
Generation of material and waste products from the demolition process (including hazardous waste materials).	- Survey and identification of generated wastes prior to commencing demolition. - Hazardous materials, demolition products and transport assessments prior to demolition. - Demolition according to relevant Australian Standards. - Consultation with BSC regarding landfill impact. - Maximise re-use and recycle principles, where feasible.	21 (D4)	6.2.1.5, 6.2.2.4, 6.2.2.5
Accumulation of groundwater in underground / open pit workings - impact on beneficial use of groundwater resources.	- Current groundwater monitoring network. - Develop modelling assessment of long term/future groundwater impact risks. Mine closure plans adjusted following model results.	21 (D4)	6.2.6.2
Failure to remove hazardous materials resulting in land / water contamination	- All spills reported and cleaned up. - Designated hydrocarbon and chemical storage areas, with hydrocarbons stored in bunded areas (compliant with AS1940). - Contaminated site register. - Contamination assessment undertaken for all 'at risk' areas with remediation undertaken as required. - Validation sampling undertaken to verify any residual contamination is below industry/government (NEPM) guidelines.	24 (D5)	6.2.2.5

Table 10 (Cont'd)
Rehabilitation Risk Assessment

Page 5 of 10

Risk	Risk Control	Risk Rating*	Where Addressed in this RMP
Decommissioning Phase of Rehabilitation (Cont'd)			
Failure to address contamination, resulting in residual contamination that impacts meeting mine closure criteria / impacts future beneficial land / surface water / ground water use.	- All spills reported and cleaned up. - Designated hydrocarbon and chemical storage areas, with hydrocarbons stored in bunded areas (compliant with AS1940). - Contaminated site register. - Contamination assessment undertaken for all 'at risk' areas with remediation undertaken as required. - Validation sampling undertaken to verify any residual contamination is below industry/government (NEPM) guidelines. - Tailings Storage Facility cover design to be developed. - Groundwater and surface water monitoring during operations and post-closure. - Consideration of passive water treatment options.	24 (D5)	6.2.2.4, 6.2.2.5
Unauthorised access to open pit / voids, underground workings, infrastructure areas and general mining landforms.	- Establish safety and security bunds during operational life of mine where possible. - Underground workings and vent rises fitted with a concrete plug. - Safety bunds, fencing and signs established to limit public access. - Final landform assessment to ensure landforms are built to the approved final landform design and stable.	16(E2)	6.2.2.1
Landform Establishment Phase of Rehabilitation			
Final landform does not conform to the approved final landform.	- All landforms planned and constructed as per approved project description, commitments, approvals and permits. - Detailed final landform design plans - design landform for free drainage. - Post closure 'as built' survey to confirm free draining landform i.e. built to design. - Re-profile slopes or install drainage to provide a stable free-draining landform i.e. meets construction design. - Where existing rehabilitation landforms show poor rehabilitation outcomes, develop and implement alternate designs.	21 (D4)	6.2.3.2, 6.2.3.3, 6.2.3.4
Lack of suitable materials for capping/encapsulation of adverse materials.			
Unstable Tailing Storage Facility embankments.	- Dam surveillance reports. - Design plans and as-builts surveys. - Include rehabilitation objectives and proposed final land use in embankment design as part of future Tailing Storage Facility design work. - Restoration ecologist to provide input into Tailing Storage Facility embankment design decisions. - Understand long term stability and risks to the rehabilitated landform (e.g. landform evolution modelling).	20 (E3)	6.2.3.4

DRAFT

DRAFT

Table 10 (Cont'd)
Rehabilitation Risk Assessment

Page 6 of 10

Risk	Risk Control	Risk Rating*	Where Addressed in this RMP
Landform Establishment Phase of Rehabilitation (Cont'd)			
Tailing Storage Facility embankment design not suitable for final land use.	- Stability of Tailings Storage Facility embankments monitored and assessed during operational mining phases. - Any unstable embankments identified and repaired during operational phases in consultation with the NSW Resource Regulator and Dam Safety Committee. - Dam surveillance reports. - Design plans and as-builts surveys. - Include rehabilitation objectives and proposed final land use in embankment design as part of future Tailing Storage Facility design work. - Restoration ecologist to provide input into Tailing Storage Facility embankment design decisions. - Understand long term stability and risks to the rehabilitated landform (e.g. landform evolution modelling).	21 (D4)	6.2.3.3
Tailings Storage Facility capping is unsuccessful /inadequate.	- Proposed cover of NAF material and topsoil. - Develop a cover design for the Tailings Storage Facility surface (including climate assessment). - Modelling (such as SeepW modelling of groundwater flow) to better understand risks at closure and plan for remediation. - Undertake revegetation trial using proposed capping to verify design.	21 (D4)	
Tailings Storage Facility Leachate uncontained/released to environment.	- Current drainage, collection, reuse system - Proposed cover of NAF material and topsoil - Develop a cover design for the Tailings Storage Facility surface (including climate assessment). - Modelling (such as SeepW modelling of groundwater flow) to better understand risks at closure and plan for remediation. - Undertake revegetation trial using proposed capping to verify design. - If required, develop passive contingency for management of leachate post closure (such as constructed wetland).	21 (D4)	

Table 10 (Cont'd)
Rehabilitation Risk Assessment

Page 7 of 10

Risk	Risk Control	Risk Rating*	Where Addressed in this RMP
Landform Establishment Phase of Rehabilitation (Cont'd)			
Generation and release of acid and metalliferous drainage.	• Geochemical assessment of waste rock during mining. • Identification and selective handling and storing of NAF/PAF material. • Refinement of Waste Rock Characterisation and Management Plan. • Established containment to prevent release of AMD leachate - maintained throughout operational and post closure phases. • Geochemical characterisation of existing Waste Rock Emplacements (kinetic and static) - targeting failed or underperforming rehabilitation areas. • Remediation of identified failures in rehabilitation of emplacements.	21 (D4)	6.2.1.8, 6.2.3.3
Waste Rock Emplacement leachate uncontained/released to environment.	• Sediment dams located to capture runoff from waste rock emplacement. • Understand groundwater and surface water contamination risks for Waste Rock Emplacement by undertaking (for example) groundwater modelling. Implement mitigation / containment measures as required.	21 (D4)	6.2.3.3
Overall Waste Rock Emplacement landform design is unsuitable to sustain final land use.	• Stability of rehabilitated Waste Rock Emplacements monitored and assessed during operational mining phases. • Undertake further characterisation and selective use of closure materials in Waste Rock Emplacement design and construction. • Assess and develop corrective actions for existing rehabilitated Waste Rock Emplacement landforms to improve vegetation establishment and persistence (where required). • Any failed slopes repaired following assessment and re-design by qualified geotechnical engineer in consultation with restoration ecologist. • Landform evolution modelling to inform final landform establishment works that may be required. • Waste Rock Emplacement design updated following completion of above study / assessments and rehabilitation outcomes.	21 (D4)	6.2.3.3
Soil erosion/pollution/sedimentation of waterways.	• Remediate eroding area through additional earthworks, soil works, revegetation or other stabilisation works. Cross-ripping (parallel to the contour). • If current controls are unsuccessful, engage a suitably qualified professional in sediment and erosion control to prepare an assessment report and recommendations.	21 (D4)	6.2.3.1

DRAFT

DRAFT

Table 10 (Cont'd)
Rehabilitation Risk Assessment

Page 8 of 10

Risk	Risk Control	Risk Rating*	Where Addressed in this RMP
Growth Medium Development Phase of Rehabilitation			
Physical and structural properties of substrate.	Materials inventory and characterisation (including topsoil and NAF waste rock) with a projection of future closure requirements.	21 (D4)	6.2.4
Subsoil and topsoil deficit for rehabilitation activities.	- Undertake further characterisation and selective use of closure materials in Waste Rock Emplacement design and construction. - Incorporate specific materials into detailed rehabilitation designs.	21 (D4)	6.2.4
Topsoil not applied as per plan.	- Topsoil applied as per mine closure planning requirements (nominally 100mm thick). - Engage a restoration ecologist to re-evaluate vegetation type for each domain (therefore topsoil requirements) and incorporate findings into mine closure plans. - Document amount of topsoil applied at the time of undertaking rehabilitation in 'as built' surveys and reports. - Develop and implement quality assurance program.	24 (D5)	6.2.4
Topsoil unsuitable for vegetation establishment.	- Minimise handling of all soils so they retain their structural integrity. - Where possible direct placement of stripped topsoil to rehabilitation form. - For sub-optimal soils, investigate stockpile amelioration to improve rehabilitation outcomes.	24 (D5)	6.2.4
Ecosystem and Land Use Establishment Phase of Rehabilitation			
Ant, insect, fauna predation of seed.	- Soil tests prior to revegetation works. - Develop protocols for seed collection for other relevant species in consultation with a suitably qualified person. - Purchase additional seed as required. - Develop internal protocol for seed collection and storage. <u>Pest and weed monitoring and controls at frequencies and intensities that reflect rehabilitation stage.</u>	21 (D4)	6.2.5
Poor quality tube stock.			
Weed infestation during plant establishment.			
Inappropriate or inadequate rehabilitation techniques including fleet / machinery selection.			
Inappropriate revegetation species mix for target final land use.			

Commented [DM22]: I feel this should be a risk captured at much earlier stages (topsoil stockpile management) and potentially throughout the phases.

Commented [MF23R22]: Good pick up. Is covered in later sections, but can be added to next review of the risk assessment - which will likely be needed following MOD9 and MOD5

Table 10 (Cont'd)
Rehabilitation Risk Assessment

Page 9 of 10

Risk	Risk Control	Risk Rating*	Where Addressed in this RMP
Ecosystem and Land Use Establishment Phase of Rehabilitation (Cont'd)			
Poor timing of revegetation works (sub-optimal climatic conditions for rehabilitation).			
Ecosystem and Land Use Development Phase of Rehabilitation			
Weather and climatic influences causing poor vegetation establishment resulting in failure to meet rehabilitation objectives / mine closure criteria.	• Selection of local native species adapted to local climate based on final land use vegetation type. • Undertake rehabilitation trials on native species establishment and persistence. • Develop and implement a revegetation strategy to guide revegetation works and improve the likelihood of success and reduce the likelihood of weed infestation or pest impacts. • Under prevailing drought conditions - defer rehabilitation activities. • Re-prepare (ripping, fertility/ameliorants etc.) and seeding of failed areas due to dry/drought conditions.	21 (D4)	6.2.6.3
Long term water quality issues (leachate, surface waters etc).	• Rehabilitation Monitoring • Ongoing rehabilitation trials and accurate records. • Survey and testing of historical mining areas to identify contaminated areas or materials that need to be removed or treated prior to rehabilitation. • Designated hydrocarbon and chemical storage areas with hydrocarbons stored in bunded areas (compliant with AS1940). • All spills reported and cleaned up. • Groundwater and surface water monitoring conducted during mine life to monitor impact with any contamination issues managed during active mine life. • Stormwater containment structures ensure that stormwater, leachate etc is contained.	21 (D4)	6.2.6.2
Damage to revegetation from pests, livestock, unauthorised machinery access, bushfire, vandalism etc.	• Pest control and population monitoring. • Exclusion fencing. • Rehabilitation inspections. • Staff inductions and training. • TARPs for identifying and implementing pest species management programs.	18 (C4)	6.2.6.1

DRAFT

Table 10 (Cont'd)
Rehabilitation Risk Assessment

Page 10 of 10

Risk	Risk Control	Risk Rating*	Where Addressed in this RMP
Ecosystem and Land Use Development Phase of Rehabilitation (Cont'd)			
Species established during revegetation operations do not meet mine closure objectives (diversity, structure, density, habitat).	- Suitable pasture species to be used for rehabilitation of lands with a final land use of 'agricultural - grazing' to be identified from monitoring of analogue sites. - Ongoing monitoring of revegetation success with corrective actions applied during operational phases. - Topsoil management and analysis. - Annual compliance monitoring. - If required, suitably qualified ecologist or revegetation expert engaged to assess reasons for failure of revegetation and recommend actions to ensure that the final vegetation community corresponds as closely as possible to analogue sites.	21 (D4)	6.2.6.4
Erosion and failure of landform, drainage and water management storage structures	- Detailed post closure drainage and containment structures designed to withstand climate change scenarios. - All containment structures to include safe overflow facilities.	21 (D4)	6.2.6.2
* Risk rating assumes successful implementation of risk controls.			

DRAFT

4. Rehabilitation Objectives and Rehabilitation Completion Criteria

4.1 Rehabilitation Objectives and Rehabilitation Completion Criteria

Table 12 presents the rehabilitation objectives and rehabilitation completion criteria for individual final land use domains at the Mine Site. Final land use domains are shown on **Figure 7** and current Mining Domains are shown on **Figure 8**.

4.2 Rehabilitation Objectives and Rehabilitation Completion Criteria – Stakeholder Consultation

Table 11 presents a summary of consultation undertaken with relevant stakeholders with regards to the rehabilitation objectives, rehabilitation completion criteria and proposed final land uses and landforms presented in this Plan. This table will be updated with each revision to this Plan to include details of further consultation with relevant and interested stakeholders.

Table 11
Community Consultation Activities

Page 1 of 2

Stakeholder	Consultation Activities
Bogan Shire Council	- Form of Consultation: Letter (email transmission).¹ - Date: 30 November 2022XX - Matters Subject to Consultation: Rehabilitation Objectives and Rehabilitation Completion Criteria, and Final Land Use Domain Plans. - Outcomes: No response received.
Heritage NSW	- Form of Consultation: Letter (email transmission).¹ - Date: 30 November 2022. - Matters Subject to Consultation: Rehabilitation Objectives and Rehabilitation Completion Criteria, and Final Land Use Domain Plans. - Outcomes: Response received 5 December 2022. No comments provided. Request to ensure consultation regarding heritage is maintained where relevant.
NSW Biodiversity, Conservation and Science Directorate	- Form of Consultation: Letter (email transmission).¹ - Date: 30 November 2022. - Matters Subject to Consultation: Rehabilitation Objectives and Rehabilitation Completion Criteria, and Final Land Use Domain Plans. - Outcomes: Response received 5 December 2022. No comments or actions required.

DRAFT

DRAFT

DRAFT

Table 11 (Cont'd)
Community Consultation Activities

Page 2 of 2

Stakeholder	Consultation Activities
NSW DPE Water	- Form of Consultation: Letter (email transmission).¹ - Date: 30 November 2022. - Matters Subject to Consultation: Rehabilitation Objectives and Rehabilitation Completion Criteria, and Final Land Use Domain Plans. - Outcomes: <u>Response received 13 December 2022. It is noted that DPE Water did not provide any specific comments relating to the proposed ROBJ, ROCC or FLRP. However, advice was provided with regard to the overall rehabilitation outcomes for the Mines.</u>XX
Nyngan Local Aboriginal Land Council	- Form of Consultation: Letter (email transmission).¹ - Date: 30 November 2022. - Matters Subject to Consultation: Rehabilitation Objectives and Rehabilitation Completion Criteria, and Final Land Use Domain Plans. - Outcomes: Response received 21 December 2022. No actions required. General comment to ensure consideration of <i>Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales</i> (NSW DECCW 2010)
Crown Lands	- Form of Consultation: Letter (email transmission).¹ - Date: 30 November 2022. - Matters Subject to Consultation: Rehabilitation Objectives and Rehabilitation Completion Criteria, and Final Land Use Domain Plans. - Outcomes: Response received 10 January 2023. No comments or actions required. .
Note 1: An example of this consultation letter is provided as Appendix 1XX	

Table 12
Proposed Rehabilitation Objectives and Proposed Rehabilitation Completion Criteria

Page 1 of 10

DRAFT PROVIDED SEPARATELY

DRAFT

5. Final Landform and Rehabilitation Plan

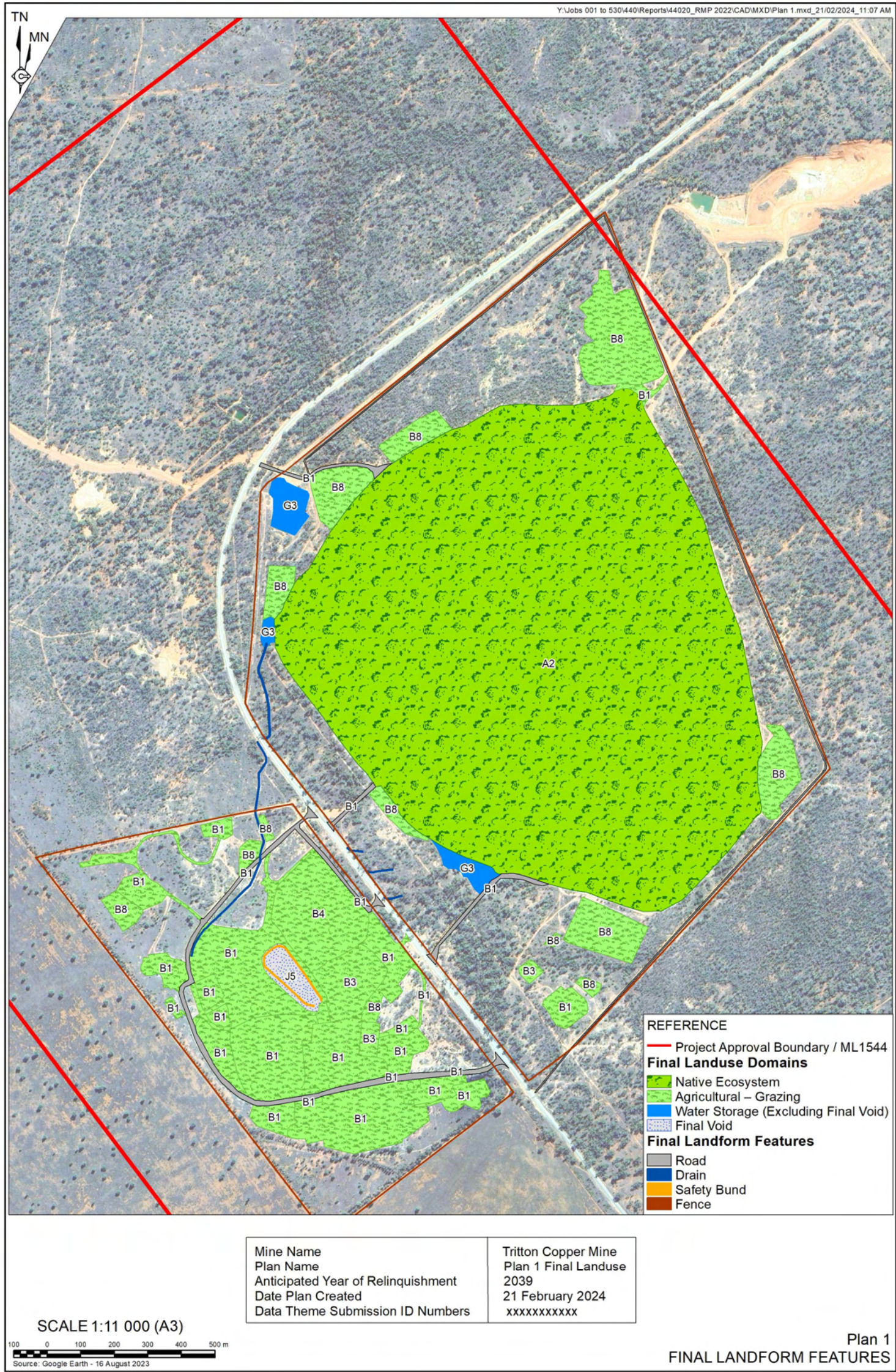
5.1 Final Landform and Rehabilitation Plan

Plan 1 presents the final landform features for the Mine Site and **Plan 2** presents the final landform contours for the Mine Site.

DRAFT

DRAFT





DRAFT

DRAFT

DRAFT

Plan 2
FINAL LANDFORM CONTOURS

6. Rehabilitation Implementation

6.1 Life Of Mine Rehabilitation Schedule

Based on current production rates and the extent of known mineralisation, and the current expiry date for DA 41/98, it is anticipated that mining operations at the Mine Site will be completed by end of 2027.

Prior to the cessation of mining operations, rehabilitation will be undertaken in areas which are no longer required for operational purposes.

Figure 8 depicts the current extent of disturbance at the Mine Site (i.e. the mining domains). **Plans 3 and 4** present the indicative rehabilitation schedule for the Mine Site by depicting those areas which will be rehabilitated during each 5-yearly increment between the commencement of this plan and Mine closure. It is noted that this schedule is applicable only until the completion of the Ecosystem and Land Use Establishment phase of rehabilitation operations within all Mining Domains (see Section 6.2). Approximate timings for the Ecosystem and Land Use Development phase of rehabilitation have not yet been defined as this phase will principally involve the monitoring and maintenance of completed rehabilitation works until completion criteria identified in Section 4.1 have been achieved.

It is noted that successful rehabilitation of the Mine Site is dependent on the outcomes of rehabilitation research and trials identified in Section 9. Further studies are necessary to determine the causes and appropriate corrective action. As a result, the Company will focus on completion of a seed balance strategy, landform evolution modelling and a growth medium materials balance to ensure that rehabilitation is successful. As such, the life of mine rehabilitation schedule is indicative only and will be updated in future revisions of this plan as more information is obtained.

The rehabilitation schedule for the Mine Site is presented on **Plans 3 and 4** and summarised as follows.

- 2022 to 2026 (**Plan 3**):
 - Revegetation Strategy and Seed Collection and Procurement Strategy prepared
 - Preparation of numerical groundwater model (for all mines within the Tritton Copper Operations) and Post Closure Water Management Plan developed.
 - Land contamination and hazard assessment including remediation plan developed.
 - Tailings Storage Facility progressive rehabilitation and maintenance of batters.
 - Tailings Storage Facility capping concept design research and trials (if required). This may include Landform Evolution Modelling and consolidation assessments, as required.
 - Decommissioning of landfill (depending on remaining capacity).

DRAFT

DRAFT

DRAFT

Commented [NB24]: Why is this being decommissioned at this time?

Commented [MF25R24]: Quinton states this is near capacity. Probably best to get this closed off asap in case it contains a can of worms.

Commented [DM26R24]: Agree this needs to go

DRAFT

DRAFT

DRAFT

- 2027 to 2031 (**Plan 4**):
 - Whole of site decommissioning, landform establishment, growth medium development and ecosystem and land use establishment and developments phases of rehabilitation to occur across all mining domains.
 - It is anticipated that the rehabilitation of all mining domains and the successful establishment of all final land use domains (up to the Ecosystem and Land Use Establishment phase, as a minimum) will be completed by 2028 with a further four years of monitoring and maintenance (to 2032).

Plan 3 Progressive Rehabilitation Schedule 2022 - 2025

A3/Colour

Plan dated 4/8/23 Inserted on 30/1/24

Commented [MF27]: Final edits being made for current ground disturbance

DRAFT

DRAFT

DRAFT

Plan 4 Progressive Rehabilitation Schedule: 2027 - 2031

A3/Colour

Plan dated 31/7/23 Inserted on 30/1/24

6.2 Phases of Rehabilitation and General Methodologies

6.2.1 Active Mining

The following subsections provide a summary of the status and actions that are in progress to support rehabilitation of the Mine Site. These management measures will be applied during the active mining phase as progressive rehabilitation or site management in readiness for future rehabilitation activities.

6.2.1.1 Soils and Materials

Existing Environment

Existing Assessments - Soils

The soils within and in the vicinity of the Mine Site were generally described as part of the EIS as including two main soil units as classified by Walker (1991). The ridgelines were representative of the Mineshaft Land System, and the lower slopes and drainage lines were representative of the Cobar Land System. The general characteristics of these soil systems varied across the Mine Site with basic soil characterisation provided for the general landscape; however, no detailed assessment of the in-situ soils was included as part of the EIS.

A *Soil Survey and Land Capability Report* prepared by Geoff Cunningham Natural Resource Consultants in February 2001 (GCNRC, 2001) described soils within the Mine Site in two units, namely:

- very deep, deep and moderate dermosols - within ridge tops, saddles and slopes; and
- very deep and deep red dermosols, very deep dermosols – within drainage flats.

Geoff Cunningham Natural Resource Consultants (2001) assessed the suitability of these soils for stripping and stockpiling for later use in rehabilitation and concluded that subject to operational measures that addressed the structural limitation and moderate to high erodibility, the soils were suitable for stripping and use in rehabilitation.

Existing Assessment – Capping Materials

Capping requirements for the Tailings Storage Facility are based on materials assessments undertaken for the *Murrawombie HLF Cover System and Landform Design* report prepared by O’Kane Consultants Pty Limited (O’Kane) for the nearby Murrawombie Copper Mine’s Heap Leach Pads (O’Kane, 2018). The *Murrawombie HLF Cover System and Landform Design* (O’Kane, 2018) report includes a review of the available cover materials within the Murrawombie Copper Mine Site and development of a set of material properties for the topsoil and non-acid-forming (NAF) waste rock. The results of that assessment provide substantial information pertaining to the physical characterisation, erosion and stability parameters of the material. In summary, the in-situ materials are identified as being suitable for a moisture store-and-release cover system.

O’Kane subsequently provided a follow-up memorandum regarding the applicability of the *Murrawombie HLF Cover System and Landform Design* (O’Kane, 2018) report for the capping and closure of the Tailings Storage Facility. The memorandum, *Tritton Mine – Closure TSF*

DRAFT

DRAFT

DRAFT

Cover System Suitability Assessment (O’Kane, 2023) states that the underlying assumptions of the existing conceptual design report are considered by O’Kane to be suitable for the Tailings Storage Facility. Further information on capping is provided in Section 6.2.3.4.

Ongoing Controls

Growth Medium

Soil resources are stripped and stockpiled within the Mine Site for use in rehabilitation activities. In general, the soil stockpiles are no greater than 2m in height to ensure viability of stockpiled material. Furthermore, the surface of stockpiles is left ‘rough’ to encourage infiltration of water and reduce erosion and loss of material. Passive revegetation of stockpile surfaces is permitted to occur to further reduce erosion and promote biological activity within the soils during stockpiling periods. Stockpiles are located ~~ation~~ away from operational areas and are clearly designated to reduce as far as practicable inadvertent damage to stockpiled resources.

Capping Material

NAF waste rock material for use in capping of the final Tailings Storage Facility is stored within the NAF Waste Rock Emplacement (see **Figure 2**). Further information on the NAF Waste Rock Emplacement is provided in Section 6.2.1.4. Depending on the results of contamination assessments, the ROM Pad may provide an additional source of NAF material for use in rehabilitation. For the purposes of this RMP, the material within the ROM Pad has been excluded until testing results can show the total available material.

Commented [D28]: What about using the ROM pad as well?

Commented [MF29R28]: Have added sentence. Contamination from ore will need to be looked into.

Controls to be Implemented

Soil and material resources within the Mine Site will continue to be managed in accordance with existing management practices.

Rehabilitation Requirements

- Topsoil and Subsoil (Growth Medium)

Based on current disturbances, approximately 61,634m³ of growth medium will be required for the rehabilitation of the Mine Site, excluding material required for capping of the Tailings Storage Facility.

In addition to the above, to achieve a nominal depth of 100mm across the upper surface of the Tailings Storage Facility, approximately 157,510m³ of topsoil will be required.

Based on the current growth medium stockpile register, approximately 152,700m³ of growth medium is currently stockpiled within the Mine Site, consisting of 143,100m³ of topsoil and 10,960m³ of subsoils.

- Capping Material

Based on the anticipated final landform and the current conceptual cover system of the Tailings Storage Facility (i.e. approximately 157.51ha at a depth of 400mm of waste rock), approximately 0.63Mm³ of NAF waste rock will be required for capping. Approximately 0.55Mm³ of NAF waste rock is currently stockpiled within the NAF Waste Rock Emplacement based on the 2022 Annual Report for the Mine. Based on current mine scheduling, approximately ~~XX~~m³ will be produced over the remaining life of the mine.

Commented [DM30]: Figure missing

Commented [MF31R30]: Dirk / Dean - can you track this number down?

Based on the above, there is potential for a deficit in growth medium of approximately 66,200m³, or 30% of the total requirement.

Based on current stockpile volumes, and excluding ongoing production of waste rock, a potential deficit of NAF waste rock of approximately 0.08Mm³ could occur. However, based on current production rates, the Company does not anticipate any deficit of materials would occur at the cessation of mining.

Notwithstanding the above, the Company will undertake a materials balance to quantify all stockpiled material within the Mine Site that is available for use in rehabilitation. The materials balance will be used to assess potential impacts from soil loss, such as through erosion and/or contamination.

6.2.1.2 Flora

Existing Environment

The EIS for the Mine includes a general commitment to revegetate areas of the Mine Site with native tree and shrub species comparable with pre-existing vegetation and plant communities.

Existing Assessments

A series of flora field surveys have been undertaken within the Mine Site since 1996 for preparation of the original EIS (RWC, 1998). Geoff Cunningham Natural Resource Consultants undertook flora surveys in October 1996 (GCNRC, 1998). In general, significant clearing of vegetation for agricultural production and historical mining activities occurred prior to development of the Mine Site, and much of the observed native vegetation was identified as regrowth. Notwithstanding, larger areas of remnant and/or mature regrowth native plant communities were identified as occurring within the disturbance boundary of the Tailings Storage Facility.

The most recent field surveys were undertaken in February 2010 by EnviroKey. EnviroKey (2010) reported the results of its field surveys as well as referring to the results of the surveys completed in 1996. The findings of EnviroKey (2010) are summarised as follows.

- Field surveys identified a total of 94 flora species within the study area. This indicates a moderate level of flora species richness.
- No threatened flora or Rare or Threatened Australian Plant species have been identified within the Mine Site. A single threatened Cobar Greenhood Orchid has previously been identified in field surveys to the south of the Tailings Storage Facility.
- Five different plant communities were identified (see **Figure 5**):
 - Poplar Box – Gum Coolabah and White Cypress Pine Shrubby Woodland mainly in the Cobar Peneplain Bioregion (Benson ID103);
 - Poplar Box Grassy Woodland on flats mainly in the Cobar Peneplain and Murray – Darling Depression Bioregions (Benson ID105);

Commented [DM32]: Has anyone ever done a floristic survey on the natural hills in the region?

Commented [MF33R32]: Not as far as I am aware. As discussed, I think these could be a source for species / conditions for the slopes of the WREs. I have not been to site though so this is all based on aerial imagery. Potentially something to fall back on if the current works fail.

DRAFT

- White Cypress Pine Woodland on sandy loams in central NSW wheatbelt (Benson ID70);
- GreenMallee – White Cypress Pine very tall Mallee Woodland on gravel rises mainly in the Cobar Penepplain Bioregion (Benson ID176); and
- Derived Tussock Grassland of the Central Western Plains and Lower Slopes of NSW (Benson ID250).

All five are widespread across the region and are not consistent with any endangered ecological communities.

Target Vegetation

The proposed final vegetation types and covers are shown on **Plan 1** and include:

- Native Ecosystem Area – consisting of modified native and exotic grassland plant communities within the Tailings Storage Facility mining domain; and
- Agricultural – Grazing – consisting of modified native and exotic woodland plant communities within all remaining areas of the Mine Site excluding the Active Mining Area and Water Management Area mining domains.

In summary, no specific Plant Community Types are proposed to be established as part of the final land use. Rather, the final vegetation types will consist of modified plant communities comprised of mixed native species commensurate with surrounding vegetation and land uses. It should be noted that the vegetation of the final landform of the Tailings Storage Facility will be required to function as part of the store and release cover design of the facility. Further information is provided in Section 6.2.3.3.

For the Native Ecosystem Areas, DnA Environmental (2023) state exotic pasture species are unlikely to persist in the semi-arid environment and will not be sustainable in the longer term without ongoing intervention. Therefore, native grasslands similar to those in the surrounding derived grassland areas are likely to provide the most reliable outcomes and sustainability of the vegetation cover system in the longer-term within the Native Ecosystem Areas. Exotic species are may be considered more suitable for use with native species within areas proposed to be managed for agricultural production where ongoing maintenance would form part of typical land management practices. Exotic species may also be used for more-rapid stabilisation of surfaces where required, to give time for native species to establish and eventually out-compete exotic species in the long term.

For the Agricultural – grazing areas, the reference plant communities will be the modified Poplar Box Grassy Woodlands (Benson ID103 and 105) that are common within and in the vicinity of the Tritton Copper Operations. DnA Environmental (2023) states that all remnant vegetation within the ML's, including the reference sites, have been subjected to some form of disturbance, in particular clearing, over grazing, erosion and "woody weed invasion". The reference sites are, however, typical of the local environment.

More information on species selection is provided in Section 6.2.5.3.

Commented [GU34]: JB. if it is a native ecosystem final land use, why are we describing exotic species

Commented [MF35R34]: Allows for exotics to be used as part of initial stabilisation measures, and on areas that are not on the cap.

Commented [MF36R34]: Similar approach has been accepted at other mines. Can nominate "Modified native vegetation community".

Commented [DM37]: Have seen this statement in a few docs and am curious what defines this or what justifies this. Grasses of high stock palatability or just exotic grass?

Commented [MF38R37]: Exotic pasture species are (very generally) short rooting, less fire / drought resistant and/or have seeds which do not last very long. Natives and especially native perennials are generally deep rooting and show higher survivability. Palatability would also play a large part as you suggest. They would be preferentially and progressively grazed out till it swings to equilibrium. There are a lot of anecdotal and potentially some trial reports coming out showing how exotics like buffel grass (I think) are making fires worse.

Commented [D39]: By who and what types? You don't see much in the way of "improved" pastures in the area.

Commented [MF40R39]: Have adjusted text

DRAFT

DRAFT

Controls to be Implemented

General Management of Flora

Management of flora within the Mine Site is undertaken generally in accordance with the *Flora and Fauna Management Plan 2021/23*, *Land Management Plan 2023/21* and *Weed Management Plan 2021/23*. During rehabilitation, each Plan will continue to be used to guide implementation of programs to limit and reduce impacts to native flora and fauna within the Mine Site. Management of existing flora populations and resources within the Mine Site will help to maintain genetic integrity and ecosystem resilience throughout operations including rehabilitation.

Propagation Resource Management

Revegetation strategies will likely include a combination of the use of seeds and tubestock, where relevant. Management of seed resources is further discussed in Section 9.2.1.

Two main sources of seed material will be used during rehabilitation of the Mine Site:

- in-situ seed bank and other vegetative material within stockpiled growth medium; and
- seed collected from surrounding areas within and in the vicinity of the Mine Site that are owned and/or controlled by the Company, and areas where access and collection are permitted.

All seed and propagation material collection will be undertaken by or ~~under the guidance of~~ consultation with ~~of~~ suitably qualified revegetation practitioners.

DnA-(2023) state that the areas of derived native grassland within and in the vicinity of the Mine Site are suitable for use as a source of propagation material. Dominant grasses within the local native pastures typically set seed early October – November (spring) and March – April (autumn) depending on seasonal conditions. DnA-(2023) states the follow methods would be suitable for collection of mature seeds from surrounding native pastures.

- Hand collection (brushcutters, scythes, mower catchers).
- Mechanical brush-harvesters.
- Baling using conventional farm machinery.
- Silage harvesters.

In addition to the above, DnA-(2023) identifies that planning for harvesting periods will be critical and will require consideration of the following key components.

- Identifying suitable areas for harvesting, including consideration of:
 - low weed density;
 - high diversity and abundance of desired species;
 - accessibility; and
 - proximity to the rehabilitation area to minimise costs;

Commented [DM41]: BROAD question, and conscious it is late in the day for this doc, it would be good if the actual controls, beyond introductory verbiage, were tabulated like commitments, if these sections are what we will be held to implementing. Makes compliance tracking easier.

Commented [MF42R41]: Agree that this would increase usability. This could be made into an appendix. To discuss.

Commented [MF43R41]: Generally most actions are taken from existing management plans

Commented [D44]: Were these updated in 2023?

Commented [DM45R44]: 2021 according to our drives

Commented [DM46R44]: They need updating

Commented [DM47]: 2021

Commented [QB48]: Is this really necessary, cant we use the local aboriginal council to collect seeds fr us? We can possibly tie it in with Donna's rehab monitoring?

Commented [MF49R48]: My interpretation of "under the guidance of" would be an ecologist sets out what to do in the Seed Balance and Procurement Strategy which can then be picked up by anyone as the official/approved (for want of a better word) method to be used. I like the idea of incorporating the LALC into the reveg strategy - indigenous knowledge will be great for seed collection!

DRAFT

- Engaging specialist contractors with suitable equipment, if required.
- Ensuring appropriate access rights are attained, where required.
- Ensuring appropriate handling of collected materials.

As a result of the continued implementation of the above management plans and revegetation strategies, flora-related risks to rehabilitation are considered to be low.

6.2.1.3 Fauna

Existing Environment

Existing Assessments

A series of fauna field surveys have been undertaken within the Mine Site since 1996 for preparation of the original EIS (RWC, 1998). Countrywide Ecological Service undertook fauna surveys between 1 and 5 October 1996 (CES, 1998). The most recent field surveys were undertaken in February 2010 by EnviroKey. EnviroKey (2010) reported the results of its field surveys as well as referring to the results of the surveys completed in 1996. The findings of EnviroKey (2010) are summarised as follows.

- Field surveys identified a total of 125 fauna species within the study area. This indicates a high level of faunal species richness.
- A total of 17 threatened fauna species listed under the *Threatened Species Conservation Act 1995* have been identified or have the potential to occur within the Mine Site. Five of these species are also listed in under the *Environmental Protection and Biodiversity Conservation Act 1999*.
- A single migratory bird species (the White-throated Needletail), listed under the EPBC Act, was recorded during the field surveys.
- EnviroKey (2010) concluded that several of the species identified in the CES (1998) surveys are no longer likely to occur within the Mine Site based on the habitat conditions observed during field surveys.

Target Fauna and Habitat

No specific target fauna species are identified as part of the proposed rehabilitation objectives for the Mine Site.

Notwithstanding the above, rehabilitation completion criteria relating to management of grazing pressure from native and introduced species will require specific management practices during rehabilitation. In addition, Condition 22 of DA41/98 requires the establishment of a permanent alternative water source for fauna due to presence of water within the Tailings Storage Dam. The Environmental Pond was established as an alternative water source and is to be retained as part of the final landform.

Commented [GU50]: JB. the section only deals with veg selection and seed collection, the main risks to flora / successful vegetation establishment are not even mentioned ! ... yet we conclude the risk is low.

Commented [MF51R50]: This is what is in the current version of the risk assessment

DRAFT

DRAFT

Ongoing Controls

Ongoing management of fauna within the Mine Site is undertaken in accordance with the *Flora and Fauna Management Plan 2021/26*. General management activities include:

- establishment of alternative clean water sources;
- regular fauna monitoring;
- exclusion of stock from vegetated areas of the Mine Site;
- regular pest monitoring and control;
- reduction in speed of mobile and heavy equipment in areas known to be populated or used by fauna;
- providing training and awareness to employees and contractors; and
- installation of fauna underpasses or access areas e.g. under haul roads.

Controls to be Implemented

The *Flora and Fauna Management Plan 2016-2021* will continue to be implemented during rehabilitation for general management of fauna within the Mine Site.

Management of grazing pressure through agricultural activities, exclusion fencing, and feral and native animal control programs will continue to be implemented to manage risks relating to the establishment of vegetation communities.

As a result of the continued implementation of the above management plans, fauna-related risks to rehabilitation are considered to be low.

6.2.1.4 Rock/Overburden Emplacement

Existing Environment

Waste Rock Emplacement

Two classes of waste rock, namely non-acid forming (NAF) and potentially acid forming (PAF) waste rock are generated at the Mine Site. PAF waste rock is placed underground within completed mining stopes, or if brought to the surface, temporarily stored on the ROM Pad prior to placement and encapsulation within the Tailings Storage Facility. NAF waste rock is temporarily stored on the surface within the NAF Waste Rock Emplacement for use as part of operations and for use in rehabilitation (see **Figure 2**).

Operational uses of NAF waste rock within the Mine Site include road base and other minor infrastructure such as rock-lined drains and bunding. A significant proportion of the NAF waste rock is forecast for use in capping of the Tailings Storage Facility during rehabilitation.

Approximately 0.82Mm³ of NAF waste rock is currently stored within the NAF Waste Rock Emplacement.

Commented [GU52]: JB should we mention the work undertaken to meet condition 26

Commented [MF53R52]: Do we have anything to show that it was actually done? Has it continued to be undertaken as the facility has been expanded?

Commented [MF54R52]: Also not certain that the compensatory planting areas have been maintained. Rough tracing of the approved location from the EIS



Commented [D55R52]: Site has done the work required to satisfy condition 26. I should be able to find evidence on the server when next at Tritton.

Commented [DM56]: 2021

Capping

The Tailings Storage Facility will require capping as part of landform establishment and closure of the Mine Site. Based on preliminary capping designs, in consideration of the *Murrawombie HLF Cover System and Landform Design* (O’Kane, 2018) (see Section 6.2.1.1), approximately 0.61Mm³ of NAF waste rock will be required for closure of the facility. Stockpiled material within the NAF Waste Rock Emplacement may also be salvaged for use in closure of the Heap Leach landforms of the nearby Murrawombie Mine Site (see **Figure 1**).

The Company does not anticipate that capping of any other landforms within the Mine Site will be required.

Ongoing Controls

Management of NAF and PAF waste rock is undertaken in accordance with the *Waste Rock Characterisation and Management Plan 2023*.

Placement of NAF waste rock within the NAF Waste Rock Emplacement occurs on a campaign basis. As the landform is not required as part of the final landform of the Mine Site, no specific design or management requirements are in place for the material other than those required to maintain a stable landform during operation.

Where required, suitable non-acid forming waste rock is processed to produce crushed road base material. That waste rock is transported from the underground mine and placed within the road base preparation area. As required, contract mobile crushing and screening plant equipment is bought to the Mine Site and the stockpiled material is crushed, screened and stockpiled. That road base is used for the sheeting of roads at surface and underground or is exported for use by or on behalf of a road authority.

Further information on the management of NAF and PAF material within the Mine Site is presented in Section 6.2.1.8. Information in the construction and management of the Tailings Storage Facility, including capping design, is presented in Section 6.2.3.4.

Controls to be Implemented

NAF waste rock from the Waste Rock Emplacement will be used in all progressive and final rehabilitation activities. It is expected that all NAF waste rock will be used for these activities, such that the Waste Rock Emplacement will be reduced to a height consistent with the surrounding topography at the time of mine closure. Technical designs for waste rock material intended to remain at the surface following mine closure require a final slope at a grade of 1V:3H to improve stability and general safety. A geotechnical assessment of the final landform will be undertaken prior to relinquishment to confirm the final stability of all terminal faces and domain slopes. As a result, slopes and slope management are considered to be a low risk to rehabilitation success at the Mine.

Geochemical/contamination assessments undertaken as part of decommissioning and closure of key landforms will be used to confirm final capping requirements.

In the event that additional suitable waste rock is required for the construction of surface infrastructure to achieve the final landform, the Company will explore options involving alternative waste rock sources such as transporting waste rock from the Company’s other mine sites in Girilambone. Approval for these activities will be sought where required.

Management of NAF and PAF waste rock will be undertaken in accordance with the *Waste Rock Characterisation and Management Plan 2023*. In summary, likely volumes of PAF waste rock will initially be identified based on resource definition drilling. Further characterisation will be undertaken during routine grade control drilling and geological inspection to enable separate management of NAF, PAF and ore material.

6.2.1.5 Waste Management

Existing Environment

Management of all wastes generated at the Tritton Operations is undertaken in accordance with the *Waste Management Plan 2021+6*. Management of the use and disposal of hydrocarbons and chemicals is also undertaken in accordance with the *Hydrocarbon and Chemical Management Plan 2021+6*.

Waste produced at ~~TM~~ the Mine is classified into different categories. These include:

- **Process Wastes:** includes acid sulphate soils, overburden material, coal rejects, general mine wastes, topsoil's, subsoil's and filter cake.
- **Non-process Waste:** includes any solid or liquid (or combination) that is leftover, surplus or an unwanted by-product whether of value or not, that is generated at any Straits operation.
- **Non-hazardous waste:** Wastes which are not ignitable, corrosive, reactive or toxic.
- **Hazardous Waste:** Any waste containing significant quantities of a substance that may present danger to human health and/or the environment when released into the environment or is improperly managed.

Process Waste Management

Management of overburden (i.e., topsoils and subsoils) is discussed in Section 6.2.1.1.

Management of waste rock is discussed in Sections 6.2.1.4 and 6.2.1.8.

Management of tailings/processing residue is discussed in Section 6.2.1.9.

Modification 8 of DA 41/98 permits the importation and disposal of drill cuttings from exploration projects within the Tritton Operations and Company's exploration tenements within the Tailings Storage Facility. This activity will commence following approval of the *Disposal Management Plan 2023*.

Drill cuttings are emplaced within discrete cells excavated within the Tailings Storage Facility. The location of each cell is determined in consideration of perimeter embankments and the decant pond.

General Non-process Waste Management

Waste disposal and materials handling practices at the Mine aim to mitigate and manage any risks to the environment, including current and future land uses. In most cases, non-production waste will be collected on the Mine Site and removed for disposal or recycling by a suitably qualified contractor. **Table 13** presents an estimate of the non-production waste and briefly describes how each class of waste is stored and subsequently removed from Mine Site.

Commented [DM57]: Why are we committing above / beyond the Management Plan?

Commented [MF58R57]: My understanding is that this would refer to routine testing done during mine development. Have added more

Commented [DM59]: 2021

Commented [DM60]: 2021 - a busy year for management plans

Commented [DM61]: To not confuse with the waste stream, perhaps Non-Process?

Table 13
Non-Production Waste Management

Waste Type	Storage / Management	Removal / Disposal
General waste (including food scraps)	Covered bins or skips located within lunch rooms, offices, outside workshops and elsewhere as required. Where these bins are located in open areas they are fitted with animal proof lids.	Collected on a regular basis by a licensed contractor and transported to an appropriately licensed facility for processing. Minor amounts of inert waste disposed in site landfill (refer Figure 2)
General Recyclables	Covered bins or skips located within lunch rooms, offices, outside workshops and elsewhere as required. Where these bins are located in open areas they are fitted with animal proof lids.	Collected on a regular basis by a licensed contractor and transported to an appropriately licensed facility for recycling.
Waste Oils and Greases	Stored in IBC's and 205L waste drums placed within the bunded hydrocarbon waste storage area. Where required, smaller, temporary storage containers may be positioned close to work areas, with the contents of those containers transferred to a larger storage tank prior to collection.	Collected on a regular basis by a licensed contractor and transported to an appropriately licensed facility for recycling.
Batteries	Placed within a covered and marked used battery storage area until removed from Mine Site.	Collected on a regular basis by a licensed contractor and transported to an appropriately licensed facility for recycling.
Tyres	Placed within a marked used tyre storage area until removed from the Mine Site or used for another purpose.	Tyres will be disposed of at a licensed waste management facility or removed by a third party approved to recycle tyres.
Scrap Metal	Stored in a specified area within the workshop area or elsewhere as required.	Collected on a regular basis by a scrap metal recycler.
Waste Water	Treated in the on-site Sewage Treatment Plant.	The on-site system will be pumped out by a licenced contractor on an as needs basis.

Management measures targeting the treatment and disposal of contaminated waste materials (e.g. contaminated growth medium) are detailed in Section 6.2.2.

Onsite- Landfill

Operation of the onsite Landfill (see **Figure 2**) is undertaken in accordance with EPL 11254 and all relevant industry guidelines. Disposal (landfilling) of inert and solid waste within the Landfill is permitted under the following conditions of EPL 11254.

- L2.3 - Inert Waste Class 1 – includes general inert wastes.
- L2.4 – Inert Waste Class 2 – includes inert wastes that are not physically, chemically, or biologically treated or processed.
- L2.5 – Solid Waste Class 1 – includes inert and/or solid putrescible wastes, asbestos waste (including asbestos waste in bonded matrix and asbestos fibre and dust waste resulting from the removal of thermal or acoustic insulating materials or from processes involving asbestos material, and dust from ventilation collection systems).

EPL 11254 permits the receipt of permitted wastes from the Murrawombie and North East Mines, managed under EPL 4501.

Ongoing Controls

Monitoring of all waste facilities, including the Landfill, is a key component of the Surface Operations Monthly Inspection Checklist. Completed checklists are kept on file and a summary is provided as part of each Annual Environmental Management Report. Further information is provided in the *Waste Management Plan 2021+6*.

Controls to be Implemented

Closure and rehabilitation of the Landfill is generally described in Section 7 of the *Waste Management Plan 2021+6*. In summary, the Landfill will be capped using available material (i.e. NAF waste rock and/or growth medium), profiled to a gentle slope generally commensurate with surrounding natural landforms, and revegetated in accordance with the final land use as shown on **Plan 1**.

Closure of the Landfill will be undertaken in accordance with the NSW EPA's Solid Waste Landfill Guidelines.

6.2.1.6 Geology and Geochemistry

Existing Environment

The Company has been operating the Mine since 2003 and has continued intermittent exploration within the Mine Site and on adjacent land since that time. As a result, the geology and mineralisation of the Mine Site is well understood.

The Tritton deposit is a hydrothermal source massive sulphide mineralisation in a metamorphosed seafloor sediment host. Copper mineralisation occurs within three zones within the Tritton ore body namely:

- Upper Zone – identified as being steeply dipping tabular with a characteristically higher bornite to chalcopyrite ratio within mineralisation.
- Central Zone – containing a deposit scale fold producing a thickening of the mineralisation with syncline and anticline forms mineralised. Chalcopyrite is notably enriched in the fold hinge of the syncline.
- Lower Zone – less well defined by diamond drilling, however the ore body geometry appears to return to a steeply dipping tabular mineralised form.

Ongoing Controls

The geochemical characteristics of waste rock were considered during preparation of the *Waste Rock Characterisation and Management Plan 2023*, which incorporates the management of waste rock at the Mine Site and the Company's other operations. The waste rock has previously been assessed for its net acid generation potential, that is, the potential for sulphide materials within the waste rock to oxidise to form a low pH or acidic leachate when exposed to oxygen. Section 6.2.1.4 describes the approved strategy for waste rock management and Section 6.2.1.8 describes the risks associated with material prone to acid mine drainage.

DRAFT

DRAFT

DRAFT

Controls to be Implemented

As a result of the historic mining and exploration activities undertaken within the Mine Site and surrounding land, and the proposed approach to managing waste rock at the Mine Site, the risks associated with unknown or unexpected geological or geochemical features is considered to be low. Based on the above, the *Waste Rock Characterisation and Management Plan 2023* will continue to be implemented.

Commented [DM62]: Should this section just state implement the associated plan?

6.2.1.7 Material Prone to Spontaneous Combustion

As no material within the Mine Site is prone to spontaneous combustion, no specific risks to rehabilitation associated with spontaneous combustion have been considered.

6.2.1.8 Material Prone to Generating Acid Mine Drainage

Existing Environment

As described in Section 6.2.1.4, and Section 6.2.1.6, PAF waste rock has previously been generated at the Mine Site and within the Company's other operations in the region. PAF waste rock is identified based on resource definition drilling.

Management of potentially acid generating material within the Mine Site is identified as a key control due to the significant volume of waste rock that will be required for use in rehabilitation, and due to the use of waste rock for road base material within and outside of the Mine Site.

Ongoing Controls

The *Waste Rock Characterisation and Management Plan 2023* describes the process for testing, separation and management of acid forming materials.

If known or suspected PAF material is encountered during mining operations, PAF waste rock may be:

- left in-situ; or
- placed directly underground within completed stopes; or
- brought to surface and temporarily stored within the ROM Pad and:
 - encapsulated within the Tailings Storage Facility, or;
 - mixed with tailings for deposition within the Tailings Storage Facility.

The Company undertakes regular geochemical monitoring for high-risk landforms within the Mine Site, namely, the Tailings Storage Facility and NAF Waste Rock Emplacement. In addition to regular visual inspections of recently deposited waste rock, monthly sampling of waste rock and tailings is undertaken to assess:

- Total Sulfur;
- Acid-Neutralising Capacity (ANC);
- Net Acid Production Potential (NAPP);
- Net Acid Generation (NAG).
- Visual inspection of recently deposited waste rock (monthly).

Commented [GU63]: JB. see previous comment and whether this is approved ... only had a quick scan but couldn't find it in the EIS

Commented [MF64R63]: This is from the management plan - not sure when it came from.

Commented [D65R63]: It's used for ongoing construction of the decant access roadway at the TSF.

If visible sulfides are identified, or nominated NAPP and NAG criteria are exceeded for the NAF Waste Rock Emplacement, the material is relocated underground or placed within the Tailings Storage Facility for disposal. A follow-up investigation is then undertaken to identify primary controls that resulted in placement of PAF material within the NAF Waste Rock Emplacement.

Controls to be Implemented

The *Waste Rock Characterisation and Management Plan 2023* will continue to be implemented during operations to ensure that sufficient NAF material is available for use in rehabilitation. Following the cessation of mining operations, targeted testing of materials may be undertaken to ensure as far as practicable that PAF contamination is below criteria levels.

Given the continued implementation of the *Waste Rock Characterisation and Management Plan 2023*, the risk of acid mine drainage resulting from the ongoing operation of the Mine is considered to be low.

6.2.1.9 Ore Beneficiations Waste Management (Reject and Tailings Disposal)

~~Tailings Production and Management~~Existing Environment

Tailings waste material produced at the Processing Plant comprise of finely ground rock with a considerable portion of pyrite, quartz and other sulphides and negligible quantities of residual processing reagents.

Tailings are pumped from the Processing Plant as slurry into the Tailings Storage Facility, where the tailings settles, drains and consolidates. The water contained in the slurry is extracted using a relocatable pump and is transported to the Process Water Dam, from where it is reused in the Processing Plant or Paste Fill Plant.

Table 14 presents a summary of tailings characterisation testing that has occurred over the life of the Mine. In summary, tailings have an average Total Sulphur of 10.4 wt%S (based on daily assay data). Net Acid Production Potential (NAPP) results were in the order of 150 kgH₂SO₄/t and two samples returning NAPP of 230-430 kgH₂SO₄/t.

Excavation of tailings from within the Tailings Storage Facility is permitted to occur for use within the Murrawombie Mine's Pastefill Plant.

~~Design of the Tailings Storage Facility~~Ongoing Controls

The Tailings Storage Facility utilises conventional upstream embankments.

Decant water is collected within a central Decant Pond within the Tailings Storage Facility. Decant water is transferred where required to the Process Water Ponds for re-use within the Processing Plant.

Further information on the final landform of the Tailings Storage Facility is provided in Section 6.2.3.3.

DRAFT

Commented [NB66]: Suggest delete.

Commented [MF67R66]: From the plan

Commented [D68]: A general comment at 2023 versions of management plans are mentioned throughout the plan. Can you confirm this is accurate?

Commented [DM69R68]: I can only find 2021 versions that seem formal / PDF. There are a ton of draft versions of this dated 2022

Commented [DM70R68]: Found Waste Rock Characterisation and Management Plan 2022_DraftforDPEApproval however dated April 2023 inside ???

Commented [MF71R68]: It was drafted assuming the 2023 plans would be finalised during 2023....
Can revert to last approved version To discuss

Commented [DM72]: Why does this section change structure?
No Ongoing Controls and Controls to be Implemented?

DRAFT

DRAFT

DRAFT

DRAFT

DRAFT

Controls to be Implemented

Current tailings management practices will continue to be implemented prior to the completion of processing operations.

Information on current strategies for capping and closure of the Tailings Storage Facility is presented in Section 9.2.4.

Table 14
Tailings Characterisation Test Results

Source	Available information	AMD characteristics
Girilambone project EA (1990)	Limited tailings characterisation (wt% S and wt% CaO)	4.4 wt%S [MPA = 135 kgH ₂ SO ₄ /t] wt% CaO [equivalent to ANC ¹ of 53 kgH ₂ SO ₄ /t] Therefore a NAPP ² of 82 kgH ₂ SO ₄ /t
Tritton EA (1998)	4 tailings samples tested for NAPP. Concluded that "tailings had potential to generate considerable levels of acidity".	NAPP ranged from 35 to 54 kgH ₂ SO ₄ /t [equivalent to 1.14 and 1.76 wt%S]
2006, unknown reference	2 tailings samples	NAPP of 230 to 430 kg H ₂ SO ₄ /t.
Constellation Geochemistry Assessment (RGS, 2022)	Considered 2 Tritton tailings samples as surrogate for constellation tailings	Total S of 7.84-8.01 wt%S ANC of 52-106 kgH ₂ SO ₄ /t NAPP _{CRS} of 153-157 kgH ₂ SO ₄ /t
Note 1: Acid-neutralising Capacity		
Note 2: Net Acid Production Potential.		
Source: After Table 7 of <i>Waste Rock Characterisation and Management Plan 2023</i> .		

6.2.1.10 Erosion and Sediment Control

Existing Environment

Erosion and sediment controls implemented at the Mine Site are described in detail in the *Water Management Plan 2023* and *Erosion and Sediment Control Plan – Tritton Mine 2015*. There are moderate risks to erosion and sediment control associated with the development and operation of the Mine. A *Soil Survey and Land Capability Report* prepared in February 2001 (GCNRC, 2001) included assessment of the physical attributes of the soil within the Mine Site and therefore the erodibility of the various soil units. In summary, assessment of particle size, dispersion percentage and dispersibility (through Emerson Aggregate Tests) concluded that the erosion potential was moderate to high if suitable groundcover was not maintained.

Ongoing Controls

The *Water Management Plan 2023* and the *Erosion and Sediment Control Plan – Tritton Mine 2015* incorporate specific design, construction and maintenance protocols for erosion and sediment control structures in accordance with the requirements of Landcom (2004) and DECC (2008).

Commented [NB73]: This is now incorporated into the water management plan

Commented [MF74R73]: The WMP just summarises the ESCP - and refers to it as the more detailed plan.

Commented [DM75R73]: ESCP should have "Tritton Mine" in title to avoid confusion with the other ESCPs

Commented [MF76]: No risks relating to erosion/sediment are rated higher than low in the RA.

Erosion monitoring of rehabilitated sections of the Tailings Storage Facility is undertaken annually to assess performance and identify remediation/management actions. Fixed monitoring locations established within rehabilitation and analogue sites have been established. At each location, fixed reference pegs are installed to allow for cross sectional measurement of observed rill/gullies. If erosion within rehabilitation monitoring locations is more than 30% higher than erosion monitoring sites, remediation activities will commence.

Controls to be Implemented

The *Water Management Plan 2023* and *Erosion and Sediment Control Plan – Tritton Mine 2015* will continue to be implemented throughout rehabilitation of the Mine Site.

Erosion and sedimentation risks are likely to change as areas of the Mine Site progress through the stages of rehabilitation. The Company will undertake periodic reviews of relevant management plans in consideration of landform and land use changes as part of the rehabilitation and closure planning process. Additional erosion monitoring locations may be established across the Mine Site, as required.

Temporary erosion and sediment control measures that may be implemented during high erosion-risk periods/activities include but are not limit to the following.

- Installation of sediment fencing and/or straw bale filters to manage impacts of increased sediment generation on existing water management infrastructure and other downstream environments.
- Use of relatively fast germinating/establishing temporary ground stabiliser species such as sterile and/or agricultural pasture species (depending on advice from revegetation specialists).
- Use of organic/synthetic mulches and/or surface binding agents.

6.2.1.11 Ongoing Management of Biological Resources for use in Rehabilitation

Seedbank Management

Management of stockpiled growth medium is described in Section 6.2.1.1.

Management of stockpile seedbanks includes the following.

- Stripping of vegetation with soils to maintain existing seedbanks and other biologically active components of soils.
- Stockpiling methods which promote plant development and growth and minimise soil loss.
- Regular pest and ~~disease~~-weed monitoring and management, including weed control, to reduce pressure from grazing and competition.

Management of existing vegetation and plant communities within and in the vicinity of the Mine Site helps maintain ecosystem resilience and productivity. As the sourcing of propagation material from locally occurring species form the basis of revegetation strategies for the Mine Site (excluding exotic pasture species), these activities form part of an overall risk management strategy for management of biological resources.

DRAFT

DRAFT

DRAFT

Commented [DM77]: I would qualify and target this to with during material placement and ground disturbance activities where high rainfall or strong winds are forecast. That way the weather and activity become a trigger.

Commented [MF78R77]: Noted. Potentially more suited to the detailed TARPS that were prepared last year.

Commented [DM79]: Again, why does this section deviates from the Ongoing and to be implemented controls format?

Commented [MF80R79]: Most is covered elsewhere and the remainder is not as substantial as other sections

Commented [DM81]: Why disease? I think this should be weed

DRAFT

DRAFT

DRAFT

Required Topsoil Depths

Current rehabilitation planning anticipates a minimum depth of 100mm of growth medium will be required for revegetation activities.

Propagation of Resources for Revegetation

Propagation of plant material will primarily be undertaken via germination of seed material, and primarily directly from material sown within areas undergoing revegetation.

Salvage and Storage of Habitat Structures

Salvage of habitat features for rehabilitation has progressively occurred over the development of the Mine Site. In general, habitat features such as tree hollows and large rocks have been directly relocated to non-disturbed areas of the Mine Site. Minor volumes of biological resources (i.e. woody material) have been stockpiled outside of key operational areas. Biological resource stockpiles are recorded in the Biological Resource Stockpile Register, including the location and type of stockpile as well as a photographic record. It should be noted that no specific rehabilitation objectives relate to fauna and/or fauna habitat.

During any further disturbance activities, any significant habitat features will be salvaged and in first instance placed directly within un-disturbed areas of the Mine Site. If direct placement is not practicable, resources will either be stockpiled in existing stockpile locations, or within a new stockpile and subsequently recorded within the Biological Resource Stockpile Register.

6.2.1.12 Mine Subsidence

Underground mining methods are modified to suit the grade and geometry character of the ore body, which will be determined over time as more data becomes available from drilling and development within the mineralisation.

Minor subsidence risk will remain for any underground mining operation however the depth of the orebody below surface and the nature of surrounding rock mass makes this extremely unlikely. The backfilling of mined stopes with waste and/or paste fill will further reduce the risk of subsidence due to mining.

6.2.1.13 Management of Potential Cultural and Heritage Issues

Existing Environment

Aboriginal Heritage

The *Cultural Heritage Management Plan 2023* includes locations of 13 scar trees and a single isolated site identified in previous surveys undertaken for the EIS (RWC, 1998). The scar trees were considered to be of 'possible' Aboriginal origin. Of the identified trees, only two were located in proximity of areas of mining disturbance. These items were considered to be of low Aboriginal heritage significance at the time of the surveys and have since been relocated prior to disturbance.

Aboriginal cultural heritage will continue to be managed under the existing *Cultural Heritage Management Plan 2023*. Existing management measures relating to Aboriginal cultural heritage will be continued until site relinquishment. Given the highly disturbed nature of the existing landscape it is not likely that any items of cultural significance remain to be located.

Commented [DM82]: Reference to the seed balance and procurement strategy, which is suppose to live in the guide to rehabilitation?

Commented [DM83]: Confused by the approach in this document to this topic. The TARP has items around the lack of this, but what quantity is required? Its already noted here that it is minor. Its a good practice, but tehre is only so much. I think how we treat this needs to be clearer if there are triggers around the volumes needed.

Commented [MF84R83]: References to biological resources in the TARP refer only to topsoil and propagation material, due to there not being any DA conditions regarding habitat creation or fauna targets etc.

The approach aims to present a best practice / best we can achieve considering the age of the mine and the minimal remaining development at the site.

Commented [DM85]: Actual name

Historic Heritage

Two-mine related relics (steel winch and headframe winder) have previously been identified in the vicinity of the former Bonnie Dundee Copper Mine site, including a steel winch and the remains of a headframe winder outside of its original context. Following a heritage significance assessment, neither of the relics qualified as heritage items (CWA&HS, 1997).

No items or locations of non-Aboriginal heritage significance have been identified within the Mine Site. It is not expected that rehabilitation of the Mine Site will present any risks to non-Aboriginal heritage.

Post-mining Heritage Obligations

No specific post-mining management obligations are or will be required following rehabilitation of the Mine Site.

Ongoing Controls

Management of heritage across the Tritton Copper Operations is undertaken in accordance with the *Cultural Heritage Management Plan 2023*, which identifies the key management structure and responsibilities for all personnel and contractors.

Key management measures relating to heritage include the following.

- Heritage training as part of site inductions for all personnel and contractors.
- Avoid disturbance of all known heritage sites within the Mine Site as far as practicable.
- Requirement for Surface Disturbance Permits prior to any disturbance, including vegetation removal.
- Exclusion of all activities within 50m of a known heritage site without specific approval from the General Manager.
- Implementation of an Unexpected Finds Protocol.
- Installation of temporary fencing/flagging around identified heritage sites within 50m of proposed disturbance areas.

Controls to be Implemented

During rehabilitation, management of heritage within the Mine Site will continue to be undertaken in accordance with the *Cultural Heritage Management Plan 2023*.

No specific management measures, assessments, or approvals are anticipated to be required as part of rehabilitation and relinquishment of the Mine Site.

6.2.1.14 Exploration Activities

No further surface exploration activities are anticipated to occur within the Mine Site prior to relinquishment. Notwithstanding the above, all exploration-related disturbance will be rehabilitated in accordance with relevant guidelines and industry best practice. This may include the following key activities.

- Removal and/or lawful disposal of all consumables and waste.
- Removal and/or lawful disposal of all consumables and waste.
- Removal of drill cores.
- Cap and rehabilitate all drillholes.
- Removal of all surface infrastructure and mobile plant.
- Visual assessment of residual disturbance/rehabilitation areas to identify potential contaminants.

Commented [DM86]: If this is not a thing and we have reference to the guidelines, then I don't think listing this selection of controls adds value. i.e. are these a commitment of the plan if we list controls?

Commented [MF87R86]: Yes, everything in this plan is a compliance/commitment. Mining Regs Schedule 8A Section 10.4.a. These are fairly standard controls - are there any changes needed to be included?

6.2.2 Decommissioning

6.2.2.1 Site Security

Access to the Mine Site is restricted by rural fencing. Fencing is inspected on a regular basis and access of public to the Mine restricted. Considering the remote location of the Mine Site and restricted access there will be minimal risk to public safety.

Commented [MF88]: I would like to include some kind of formalisation of retention of infrastructure into either MOD9 or somewhere else down the planning stage (perhaps the larger Tritton DA in the pipeline)

6.2.2.2 Infrastructure to be Removed or Demolished

Table 15 presents a list of the site features to be decommissioned to achieve the final land use, including identification of key management actions that may be required. While no conditional requirements for the decommissioning of specific infrastructure are included as part of the approval for the Mine, general commitments for the removal of key infrastructure are included as part of the EIS, as shown in **Table 3**. Notwithstanding, any infrastructure not required for the final land use will be subject to engineering assessments to identify potential risks associated with closure and decommissioning activities, where required.

Table 15
Requirements for Infrastructure to be Removed or Demolished

Page 1 of 2

Domain ¹	Assets	Decommissioning and Demolition Requirements	Key Actions Required
1 – Infrastructure Area	Roads: Including unsealed haul and access roads.	Access to the Mine Site will be retained, including the principal access road through the main operational area. All remaining roads will be rehabilitated.	None required.
	Buildings: Includes administration buildings, workshops and amenities as well as areas used for activities ancillary to mining such as container storage, equipment storage, carparks and graveyards.	All buildings to be removed or demolished will have all services disconnected before demolition and removal of rubble to the landfill facility located within the Mine Site.	Preliminary Contamination Assessment to identify potential unknown contamination (possible). Decommissioning / Integrity Assessment to confirm infrastructure for removal/retention (likely).
	Processing: Includes the three-stage crushing circuit, Processing Plant and Paste Fill Plant.	All processing infrastructure will be demolished/salvaged or otherwise removed following closure of the Mine Site.	Preliminary Contamination Assessment to identify potential unknown contamination (likely). Decommissioning / Integrity Assessment to confirm infrastructure for removal/relocation (likely).
	Mine Infrastructure: Including two existing ventilation fans and an emergency ladder escape way for underground mining operations.	<u>All surface infrastructure removed (excluding that required for cap). Demolition will involve decommissioning infrastructure and capping of voids with concrete and fill to ensure safety. Voids capped in accordance with guidelines.</u>	Engineering report for design of final capping (possible). Engineering Assessment prior to sign-off (likely)
	Other: ROM Pad and stockpiled material areas.	All stockpiled material removed as part of mining/processing/rehabilitation operations or placed underground within completed mining areas.	Preliminary Contamination Assessment to identify potential contamination from storage of PAF material (likely)
	Other: Landfill Includes area developed for purpose of waste placement. The landfill has been constructed with a clay liner with permeability no greater than 1×10^{-9} .	Waste material is placed in accordance with EPL 11254. Decommissioning will involve covering the surface with NAF waste rock and profiling of the final landform to be consistent with surrounding topography.	None required.
2 – Tailings Storage Facility	The Tailings Storage Facility has been constructed to an elevation of approximately 266m AHD (i.e. approximately 13m above the natural ground surface).	All pipes and infrastructure will be removed and disposed at an appropriate landfill facility and the surface of the Tailings Storage Facility appropriately shaped and covered.	None required..

DRAFT

DRAFT

Table 15 (Cont'd)
Requirements for Infrastructure to be Removed or Demolished

Page 2 of 2

Domain ¹	Assets	Decommissioning and Demolition Requirements	Key Actions Required
3 – Water Management Area	Clean Water Includes clean water diversions/drains, the Raw Water Dam, two sediment retention basins, the Environmental Pond and the Landfill Drainage Dam.	Drainage channels are for both clean water diversion and management of run-off. The Raw Water Dam is used for temporary storage of water sourced via the water pipeline from the Murrawombie Copper Mine (Raw Water Pond). The Environmental Pond is a natural water storage that captures clean water runoff and water for native fauna. The Landfill Drainage Dam is designed to capture any runoff from the Landfill area.	Contamination Assessment for Landfill Drainage Dam, Raw Water Pond, Landfill Drainage Dam, and sediment retention basin (possible). Engineering Assessment for Raw Water Dam, and sediment basins, and Environmental Pond to confirm suitability for retention (possible).
	Potentially Contaminated Water Includes the Containment Dam, Process Water Dam and any potentially contaminated water diversions/drainage.	The Containment Dam is used to capture runoff within infrastructure areas and the Waste Rock Emplacement. The Process Water Dam is used to temporarily store water using for processing activities. All potentially contaminated water storage structures will be removed from the final landform or decontaminated and rehabilitated for use a farm dam.	Contamination Assessment for Containment Dam and Process Water Dam (likely).
4 – Overburden Emplacement Area	Includes the Road Base Preparation Area and non-acid forming Waste Rock Emplacement.	None. Roads to be removed as per Infrastructure Domain.	None required.
5 – Active Mining Area (Box Cut and Decline)	Includes the box cut and decline underground mining infrastructure.	All access to underground workings will be removed or sealed.	Engineering report for design of final capping (possible). Engineering Assessment prior to sign-off (likely)
8 – Other (Topsoil Stockpiles)	Includes all stockpiles of topsoil and subsoil material preserved for rehabilitation activities.	All material removed during rehabilitation.	None required.
Note 1: Domains as shown in Figure 8			
Source: Tritton Resources Pty Ltd			

Commented [D89]: This is an old borrow pit that doesn't capture much in the way of runoff. Tritton needs to routinely fill it with raw water.

Commented [DM90R89]: We know it's not suitable, so I would remove from requiring an engineering assessment

Table 16
Requirements for Infrastructure to be Retained

Page 1 of 2

Domain ¹	Assets	Requirements for Retention	Key Actions Required
1 – Infrastructure Area	Roads: Including unsealed haul and access roads.	Access to the Mine Site will be retained, including the principal access road through the main operational area. <u>Minor internal roads may be retained to support post-mining land use.</u>	Engineering Assessment for the roads and intersection (access points) to be retained (possible).
	Buildings: Includes administration buildings, workshops and amenities as well as areas used for activities ancillary to mining such as container storage, equipment storage, carparks and graveyards.	<u>Any building/infrastructure identified as being suitable for retention to support post-mining land uses will need to be assessed for permissibility and safety/condition. Services such as electricity and water will be required to be similarly assessed prior to retention.</u> <u>All buildings to be removed unless required/capable of supporting post-mining land use. Electrical supply to be removed/retained per use requirements.</u>	Engineering Assessment for structures to be retained to identify risk/opportunities, as well as potential maintenance requirements. (likely). Confirmation of permissibility regarding retention of structures (likely). Modification of DA 41/98 to allow retention of structures (pending confirmation of existing permissibility).
	Processing: Includes the three-stage crushing circuit, Processing Plant and Paste Fill Plant.	<u>All infrastructure demolished or removed, including high-voltage electrical supply infrastructure. No infrastructure to be retained.</u>	None required.
	Mine Infrastructure: Including two existing ventilation fans and an emergency ladder escape way for underground mining operations.	<u>Capping of ventilation shafts in accordance with guidelines. Location of capped shafts clearly shown on appropriate plans.</u> <u>All surface infrastructure removed and ventilation shafts/access points capped to prevent inadvertent or unlawful access.</u>	Engineering report for design of final capping (possible). Engineering Assessment prior to sign-off (likely)
	Other: ROM Pad and stockpiled material areas.	No infrastructure to be retained.	None required.
	Other: Landfill Includes area developed for purpose of waste placement. The landfill has been constructed with a clay liner with permeability no greater than 1 x 10 ⁻⁹ .	Landfill capped in accordance with relevant guidelines. No other infrastructure retained.	None required.
2 – Tailings Storage Facility	The Tailings Storage Facility has been constructed to an elevation of approximately 266m AHD	All surface infrastructure such as pipelines removed from landform. Final landform shaped and capped in accordance with relevant capping design assessments/studies.	Capping and Closure Design (certain).

Commented [DM91]: Confused by this table for retention yet there is still talk of removals for numerous assets?
Feel the table needs a review and tidy up to be only retention.

Commented [MF92R91]: Have edited

Domain ¹	Assets	Requirements for Retention	Key Actions Required
	(i.e. approximately 13m above the natural ground surface).		

Table 16 (Cont'd)
Requirements for Infrastructure to be Retained

Page 2 of 2

Domain ¹	Assets	Requirements for Retention	Key Actions Required
3 – Water Management Area	Clean Water Includes clean water diversions/drains, the Raw Water Dam, two sediment retention basins, the Environmental Pond and the Landfill Drainage Dam.	All water management / storage infrastructure to be retained is suitable for post-mining land use.	Contamination Assessment for infrastructure to be retained (likely). Engineering Assessment for infrastructure to be retained to confirm suitability for retention (possible).
	Potentially Contaminated Water Includes the Containment Dam, Process Water Dam and any potentially contaminated water diversions/drainage.	All potentially contaminated water management / storage infrastructure not suitable for retention is removed.	Contamination Assessment to identify potential retention of infrastructure (possible) Engineering Assessment for infrastructure to be retained to confirm suitability for retention (possible).
4 – Overburden Emplacement Area	Includes the Road Base Preparation Area and non-acid forming Waste Rock Emplacement.	No infrastructure to be retained.	None required.
5 – Active Mining Area (Box Cut and Decline)	Includes the box cut and decline underground mining infrastructure.	Access to underground workings removed. Portal is sealed in accordance with guidelines. Final void is geotechnically stable. Access to final void prevented as far as practicable.	Engineering report for design of final capping (possible). Engineering Assessment prior to sign-off (likely). Geotechnical Assessment for final void stability (likely).
8 – Topsoil Stockpiles	Includes all stockpiles of topsoil and subsoil material preserved for rehabilitation activities.	No infrastructure to be retained.	None required.
All Domains	All assets/ infrastructure to be retained.	All assets are appropriately documented on all relevant plans / approvals / titles.	Decommissioning / closure report prepared by a suitably qualified persons. Sign-off from landowner(s) / responsible parties.

Note 1: Domains as shown in **Figure 8**

Source: Tritton Resources Pty Ltd

6.2.2.3 Buildings, Structures and Fixed Plant to be Retained

Figure 7 shows key infrastructure and structures to be retained as part of the final land use. Table 16 identifies key infrastructure to be retained including key actions required to support retention. All infrastructure to be retained will be surveyed and recorded on a plan (or suitable alternative) with a suitable caveat developed to provide that they are readily identifiable for future land holders.

Commented [MF93]: WP - move before tables 15 and 16

Commented [DM94]: Table 16 needs to be in this section

6.2.2.4 Management of Carbonaceous / Contaminated Material

Existing Environment

Risks to contaminated or polluted land principally relate to the potential for formation of acid sulphate soils or operational contamination relating to hydrocarbon and reagent management. Based on the above, the following areas/components of the Mine Site would have the potential for the occurrence of contaminated material (see Figure 2).

Commented [DM95]: Bioremediation Facility ... low to medium

- Workshop area (low-medium risk); and
- ROM Pad (high risk);
- Surge Pile (medium risk);
- Crushing and Screening Plant (low-medium risk);
- Processing Plant (low-medium risk);
- Processing Pond (low-medium risk);
- Sediment Dams (high risk);
- Bioremediation Facility (low-medium); and
- all other contaminated water management infrastructure (i.e. drains, Settling Pond) (low-medium risk).

Commented [DM96]: I would say Workshops and Processing are a solid Medium. There would be land contamination here already from hydrocarbons and reagents to some extent.

Ongoing Controls

Management of risks associated with handling, storage, and use of contaminated or otherwise hazardous material is undertaken in accordance with the following.

- *Waste Rock Characterisation and Management Plan 2023* – for the identification and management of PAF material.
- *Environmental Management Plan 2023* for general environmental management, including handling of hazardous material.
- *Water Management Plan 2023* and *Erosion and Sediment Control Plan 2015* – for identification and management of water management infrastructure.
- *Pollution Incident Response Management Plan*.

The Company has operated the Mine Site since 2003, and during the intervening period has not experienced significant issues relating to hydrocarbon management. Hydrocarbons and other chemicals are stored in specified areas on site, with hydrocarbons stored in bunded areas in accordance with the AS1940. Any identified contamination will either be remediated or removed prior to site relinquishment.

Controls to be Implemented

Contamination Assessment

Risk controls identified as part of the rehabilitation risk assessment include implementation of survey and testing within historical mining areas to identify unknown contamination risks, and contamination assessments within all known 'at risk' areas (see previous subsection), with all consequent remediation activities undertaken as required. Following remediation, validation sampling will be used to identify residual contamination and verification of the concentration of any detected compounds against relevant guidelines. [Further information is provided in Section 9.2.3.](#)

Removal and Management of Contaminated Material

Contaminated material identified in exceedance of relevant guidelines may be:

- treated in-situ;
- excavated for treatment either on-site or off-site; or
- excavated for disposal either on-site (e.g., for disposal of PAF) or at a licenced disposal vicinity.

If required, handling and treatment plans for contaminated material may be developed by or in consultation with suitably qualified persons.

Timing of Testing and Remediation Activities

In general, contamination assessments where risks are considered by the Company to be more known/understood, will be undertaken during the decommissioning phase of rehabilitation. Timing of any remediation activities will depend on the extent of contamination (i.e., volume/area of contaminated material, and any requirements for use of said material as part of landform development or growth medium development. The outcomes of the material balance within the Mine Site will be used to identify and prioritise any relevant contamination assessments, as required.

It is therefore not expected that contaminated land or pollution will present a risk to rehabilitation of the Mine Site.

6.2.2.5 Hazardous Materials Management

Existing Environment

The risks associated with hydrocarbon contamination have been addressed in relation to contaminated or polluted land (Section 6.2.2.4).

Ongoing Controls

Ongoing controls regarding the handling, storage, use and disposal of hazardous materials is undertaken in accordance with:

- [Environmental Management Plan 2023](#) for general environmental management, including handling of hazardous material; ~~and~~
- [Hydrocarbon and Chemical Management Plan 2021](#); and
- [Pollution Incident Response Management Plan](#).

Commented [DM97]: This section likely needs a future Management Plan around Contaminated Land Assessment and Remediation

Commented [MF98R97]: Have added a statement in Section 9.2.3

DRAFT

DRAFT

DRAFT

Commented [DM99]: I would say Hydrocarbon and chemical management plan 2021 is more relevant here than the EMP

Controls to be Implemented

Risk controls identified as part of the rehabilitation risk assessment include a hazardous materials assessment/audit to be undertaken prior to decommissioning of areas/infrastructure with relatively increased use/occurrence of hazardous materials. That assessment will be used to identify the location and volume of hazardous materials within the Mine Site, including a qualitative assessment of the condition of all storage infrastructure.

In summary, due to existing management measures implemented for hazardous material transport, handling and storage it is not expected that hazardous materials will present a risk to rehabilitation of the Mine Site.

6.2.2.6 Underground Infrastructure

Existing Environment

Underground infrastructure that will require specialist capping/closure includes the portal within the Box Cut and three ventilation shafts/emergency access/egress points.

Other infrastructure associated with underground mining generally includes pipelines, electrical transmission cables, communication lines, and other removable infrastructure such as rooms and emergency bunkers.

Controls to be Implemented

The portal decline will be sealed to prevent access in accordance with relevant guidelines. Existing security fencing will be retained during and after sealing and decommissioning to prevent unauthorised access to underground workings. Services and infrastructure associated with the vent rises will be disconnected and removed prior to the shaft being sealed, with temporary security fencing established during sealing works to prevent unauthorised access.

Salvageable infrastructure that can be relocated or sold will be removed where practicable. No specialist assessments or otherwise relating to salvageable infrastructure are anticipated to be required.

Groundwater levels within the underground workings will be left to return to natural levels. No discharge of groundwater is expected to occur, and no specific measures to manage groundwater accumulation in underground workings are considered necessary. Quarterly groundwater quality sampling will continue to be undertaken for a minimum of two years following cessation of mining operations.

6.2.3 Landform Establishment

6.2.3.1 Water Management Infrastructure

Infrastructure to be Retained

Key mining-related water management infrastructure to be retained is identified in **Table 17**.

Table 17
Water Management Infrastructure

Structure	Retained or Removed	Treatment / Action Required
Containment Dam	Removed	Contamination Assessment.
Process Water Dam	Removed	Contamination Assessment.
Raw Water Dam	Removed (unless safe to retain)	Contamination Assessment. Engineering Assessment, including spillway design (if retained).
Landfill Drainage Dam	Removed (unless safe to retain)	Engineering Assessment, including spillway design (if retained).
Environmental Pond	Retained	Engineering Assessment, including spillway design.
Sediment Dam 1	Retained	Contamination Assessment. Engineering Assessment, including spillway design.
Sediment Dam 2	Retained	Contamination Assessment. Engineering Assessment, including spillway design.
Diversion Drain 1	Retained	Contamination Assessment.
Diversion Drain 2	Retained	Contamination Assessment.

Several pre-Mining farm dams are located within the Mine Site that have not been impacted by Mine-related activities (excluding surface water monitoring) will be retained to support final land use. As these structures have not been impacted by mining, no rehabilitation activities are required.

It is expected that water management infrastructure will be one of the final areas to be rehabilitated and subject to the ongoing requirements of the Company's other operations.

All potentially contaminated water storage structures will be removed from the final landform or decontaminated and rehabilitated for use as a farm dam. The water pipeline infrastructure will be removed from the Raw Water Pond and the dam profiled and filled. The lining of the Containment Dam and Process Water Dam will be removed, and the area assessed for contamination. Any contaminated material will be removed to the Tailings Storage Facility. The Containment Dam will be retained in the final landscape as a farm dam. The Process Water Dam will be backfilled and profiled consistent with use for grazing. The Containment Dam and Environmental Pond will be retained in the final landscape for use as a farm dam.

Confirmation of the water management and water storage infrastructure required and/or suitable for the final landform and land use will form part of the Post-closure Water Management Strategy (see Section 9.2.2).

6.2.3.2 Final Landform Construction: General Requirements

The proposed final landform of the Mine Site is shown on **Plans 1** and **2**, and consists of:

- water management/storage infrastructure (see Section 6.2.3.1)
- a capped TSF (see Section 6.2.3.3);
- a final void (see Section 6.2.3.4); and
- a generally safe, stable, and non-polluting landform.

DRAFT

DRAFT

DRAFT

Commented [D100]: I note this RMP doesn't mention dam in the ML impacted by previous mining activities worked on by DL&WC, is there a need to?

Commented [DM101R100]: I guess do we have clear records of the contamination prior to our mining?

Commented [MF102R100]: First I have heard of this. Assume it's the dam to the north west? Was there an ML for the historic works that Tritton took over? If so - then it is Tritton's problem. This applies even if the lease has expired. Rehabilitation liability lies with who ever holds a lease, or who held it when it expired.

The following presents an overview of the general requirement of the key design aspects of the above.

Geotechnical

Geotechnical-related risks to rehabilitation of the Mine Site include stability of the TSF embankments, and stability of final void walls.

The design and construction of the TSF is undertaken in accordance with detailed engineering assessment/design reports prepared by suitably qualified persons. The design of the embankments is determined based on results from extensive geotechnical and geochemical testing of embankment and tailing materials. Operational performance/stability is monitored and assessed during active mining, and any unstable embankments are identified and repaired during operational phases in consultation with relevant Government agencies.

The geotechnical stability is a critical factor of the design of the Box Cut and is monitored regularly as part of ongoing operational monitoring. Monitoring data is used to confirm predicted performance and identify potential modes or points of failure.

During the landform establishment phase of rehabilitation, additional geotechnical assessments may be undertaken to identify risks and/or opportunities relating to long-term geotechnical stability of the final landform.

Geochemical

Geotechnical constraints relating to rehabilitation of the Mine Site are identified in Sections 6.2.1.6 and 6.2.1.8. In summary, geochemical constraints are not considered to present a significant risk during landform establishment.

Erosion

The principle erosion-related risk in regard to the final landform will be the long-term erosional stability of the Tailings Storage Facility.

In consideration of the recommendation of O’Kane (2018, 2023), design of the final capping for the Tailing Storage Facility includes utilisation of a store and release cover system, with channelised drainage systems to support drainage of excess rainfall. The final slope of the capped landform will be approximately 1° to 3° to encourage infiltration and functioning of the store and release cover. Channelised drains would utilise low permeability liners and coarse rip-rap armour to prevent scouring of the channel over time.

Erosion modelling will also form part of Landform Evolution Modelling undertaken as part of rehabilitation planning (see Section 9.2.5)

Visual Amenities

The final landform of the Mine Site will be generally consistent with the surrounding landscape and capable of supporting native ecosystem and agricultural grazing. Excluding the Tailing Storage Facility embankments and the final void, the gentle slopes of the final landform will be relatively consistent with the pre-mining landscape. Impacts to visual amenity are not considered to be a significant risk due to the location of the Mine Site, and prevalence of native vegetation.

6.2.3.3 Final Landform Construction: Reject Emplacement Areas and Tailings Dams

No reject emplacement areas are proposed to be retained as part of the final landform.

Conceptual capping designs (see Section 6.2.1.1) are considered capable of supporting the proposed final land use. In summary, waste rock located within the NAF Waste Rock Emplacement will be used to cap the Tailing Storage Facility. The remaining surface will be rehabilitated to mixed native grassland consistent with the surrounding landscape. The intended design of the capping of the Tailings Storage Facility will be to limit as far as practicable the potential for infiltration of water into the facility. The current conceptual capping design utilises a traditional store and release covers system. Further information on the conceptual capping design for the Tailings Storage Facility is presented in Section 9.2.4.

The long term land use strategy for the Tailings Storage Facility is to return the land to light grazing and native vegetation (native grasses) conservation, though agricultural capacity will remain limited by environmental conditions. The Tailings Storage Facility will be capped with approximately 400mm to 900mm NAF waste rock material, covered with a layer of topsoil and shaped to support a store and release cover system. This rehabilitation strategy is consistent with advice received regarding closure of the Heap Leach Pads at the Murrawombie Copper Mine (O’Kane, 2018) (see **Appendix 2**). The Conceptual Cover and Landform Design was prepared with consideration of local geology, climatic conditions and management available capping materials. As these are all similar factors for the Tritton Copper Mine, the conclusions of the O’Kane Consulting advice are assumed to similarly apply to closure of the Tailings Storage Facility (O’Kane, 2023). Revegetation will involve seeding with shallow rooted native grass species to provide a stabilising groundcover. All livestock and feral species will be restricted from the Tailings Storage Facility, to limit grazing pressures, until such time as vegetation is suitably established. Erosion and sediment controls will be implemented to allow drainage of excess surface water. A geotechnical assessment of the final landform will be undertaken prior to relinquishment to confirm the final stability of all terminal faces and domain slopes.

6.2.3.4 Final Landform Construction: Final Voids, Highwalls and Low Walls

The final void will have a maximum depth of approximately 25mbgl or 249m AHD. The total area of the final void as a final land use domain is approximately 2.2ha.

The final void will be secured by a safety bund, fenced and access restricted through a lockable gate. Clean water diversions will be established to divert clean water from entering the void. All access to underground workings will be sealed or otherwise made inaccessible.

6.2.3.5 Construction of Creek / River Diversion Works

No creek or river diversions are proposed as part of the rehabilitation works and closure of the Mine Site.

DRAFT

DRAFT

Commented [DM103]: The issues of trees establishing is an elephant in the room and not touched on here. Do we need to commit to ongoing management for removal of trees and shrubs?

Commented [MF104R103]: Agree - but suggest we leave it till we get closer to final design of the cap with Okane

DRAFT

DRAFT

DRAFT

DRAFT

6.2.4 Growth Medium Development

Material Characterisation

Risk controls identified as part of the rehabilitation risk assessment include geochemical characterisation of growth medium and capping materials during stripping. Further testing may be implemented to identify risks and opportunities relating to material characterisation such as fertility, erodibility, and the potential use of ameliorants, if required.

Ameliorants and Strategies

Depending on the results of existing or future material characterisation assessments, amelioration and/or selective handling strategies may be required to be developed and implemented.

Amelioration, if required, may include the use/application of fertilisers and/or organic matter. In consideration of the proposed final land use for the Mine Site, largely consisting of agricultural grazing, typical agricultural products and machinery will likely be highly applicable and therefore no specialist strategies or equipment is anticipated to be required.

Erosion and Sediment Control

Ongoing monitoring and management of existing surface water management infrastructure during all phases of rehabilitation will help to ensure that all necessary infrastructure is functioning as intended/required.

Temporary erosion and sediment controls that may be used during establishment of groundcovers are identified in the *Erosion and Sediment Control Plan – Tritton Mine 2015* and may include the use of sediment fencing, straw bale filters.

The application of mulches, including plant matter or Hydromulch, may be required during periods of elevated erosion risk. In general, rehabilitation scheduling will be undertaken in consideration of long-term meteorological patterns to determine optimal timing for key activities and as such, the application of mulches is not anticipated to be required outside of exceptional circumstances.

Growth Medium Establishment

Deep ripping of in-situ substrates will be implemented where required to promote water infiltration and encourage root penetration and development. Ripping will occur along contours to reduce erosion risks on sloped landforms, where practicable. Topsoils/subsoils will be placed within or adjoined to areas undergoing rehabilitation and material will be spread and shaped using appropriate machinery such as bulldozers and graders. Tillage of surfaces to integrate substrates and promote water infiltration may be implemented where required.

Seasonal Considerations

Table 18 presents a summary of the regional climate statistics, as recorded at the Nyngan Airport AWS (051039), located approximately 47km southeast of the Mine Site. An AWS is located near the town of Girilambone (and the other mines within the Tritton Copper Operations) and approximately 20km northeast; however, that station (Girilambone (Okeh) AWS Site No. 51164) has only been operational since 2017 and therefore long term seasonal information cannot be determined at this time.

Commented [DM105]: Where is mulch, biological or rock, addressed?

Commented [MF106R105]: Rock mulch has not been brought up previously. Have added very light details of the current 'trial' in 9.1.

Commented [MF107R105]: Mulch as a topsoil aid may need to be addressed down the line, but currently outside the scope of this RMP

In summary, average temperatures are higher throughout December to March when mean temperatures are above the annual average. Rainfall follows a similar distribution, with above annual average rainfall (36.8mm) occurring in January, February and March. Average 9am show more seasonal variation compared to windspeeds at 3pm. Average 9am and 3pm windspeeds are higher than the annual average from October to March, and from September to February, respectively.

Table 18
Regional Climate Statistics

Statistics	Jan	Feb	Mar	Apr	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max Temp (°C)	34.4	33.4	30.6	25.7	20.7	17.1	16.5	18.5	22.7	26.7	30.1	25.8
Mean Min Temp (°C)	19.6	19.3	16.5	11.9	7.8	5.0	3.8	4.7	7.8	11.5	15.1	11.7
Mean Rainfall (mm)	51.2	46.3	41.9	34.2	35.6	33.8	28.7	29.5	27.6	34.2	36.0	445.6
Mean 9am Wind Speed (km/h)	13.6	13.3	12.9	10.9	9.6	8.7	9.2	10.3	12.6	13.7	13.8	11.8
Mean 3pm Wind Speed (km/h)	12.8	12.0	12.0	10.8	10.5	11.2	12.1	13.1	14.1	14.2	13.4	12.4

Source: Bureau of Meteorology Climate Data Online – Nyngan Airport (051039), accessed 17/03/2023

Consideration of long-term regional, and short-term local meteorological patterns will be undertaken during the planning of key rehabilitation activities, such as during landform establishment and growth medium development. In general, as rainfall is relatively consistently low, impact from high rainfall events is not anticipated to present significant risks to rehabilitation outside of extreme weather conditions.

Should adverse conditions delay vegetation establishment, the following management and mitigation measures may be implemented by the Company.

- Increase frequency/scope of routine/targeted inspections.
- Apply measures to increase soil water holding capacity such as mulch.
- Apply additional growth medium if erosion of existing material is considered unacceptable.
- Commission additional specialist reports/assessment to ascertain scope of potential impacts and identify any remedial actions, such as supplementary planting or revision of target species selection.

6.2.5 Ecosystem and Land Use Establishment

A Revegetation Strategy, including a Seed Collection and Procurement Strategy, is currently being prepared for the Company by DnA Environmental (DnA) have prepared a Revegetation Strategy (DnA, 2023), presented as Appendix XX. These documents will be used to guide ecosystem and land use establishment at the Mine Site. The following subsections present a summary of the Revegetation Strategy that will be applied to the ecosystem and land use establishment phase of rehabilitation.

6.2.5.1 Seasonal Considerations

Long-term regional climate statistics are described in **Table 18** and Section 6.2.4.

Due to the regional and local climate conditions of the Mine Site, drought conditions are likely to occur at least partially throughout rehabilitation. Drought conditions have the potential to impact rehabilitation activities through the following.

- Reduced ecosystem functioning and resilience within existing plant communities can reduce the total quantity and overall viability of propagation material such as seeds. In addition, herbivory impacts may be greater as systems are less able to regenerate.
- Elevated temperatures reduce in-situ seedbank material through increased metabolism and consequently reduced viability.
- Permanent water sources such as the Environmental Pond within the Mine Site may attract elevated numbers of herbivorous pests.
- Delays to and failure of germination.
- Increased plant mortality during vulnerable periods (i.e., reduced root depth/density).

Notwithstanding the above, the use of naturally occurring species that are adapted to local conditions (see Section 6.2.5.3) will increase the resilience of the revegetated landscape of the Mine Site and reduce reliance on external inputs.

6.2.5.2 Revegetation Methodology

Revegetation Using Seeds

DnA (2023) has identified a combination of revegetation methods that may be used for revegetation at the Mine Site, summarised as follows.

- Seed sowing of a mix of species identified in **Table 19**, using:
 - hand broadcasting;
 - seed spreaders;
 - brush-matting;
 - hydro-mulching; and / or
 - aerial sowing using helicopter or plane.
- Direct seed application, facilitated by strategic planning for seed collection to occur simultaneously with final landform completion to provide the following benefits:
 - seed can be directly distributed onto revegetation areas;
 - long-term storage not required;
 - no drying or processing of seed required;
 - native seeds are adapted for natural burial; and

Commented [DM108]: Drones?

- need for pre-treatments is reduced as the seed is allowed to weather and germinate naturally when conditions are optimum.
- Seed-bearing native pasture hay application, to provide the following benefits:
 - effective in early stope stabilisation for highly sodic and dispersive soils (refer Section 6.2.1.1) (DnA, 2023);
 - accelerates soil and ecological development and function;
 - decomposition of hay provides nutrients and organic matter required for sustaining microbial function and plant growth;
 - provides immediate soil surface protection and protection against erosion; and
 - provides an additional source of local grassland seed.

To ensure adequate seed availability for rehabilitation activities, a *Seed ~~Balance~~-Collection and Procurement Strategy* will be conducted, which will include a seed inventory and forecast, supported by a seed collection and procurement strategy to ensure that an adequate seed collection schedule is in place (see Section 9.2.1).

Revegetation Using Tubestock

A combination of the seeding and planting techniques will be utilised by the Company for revegetation of the Mine Site. Tubestock will be ordered, as required, in accordance with the Revegetation Strategy (DnA, 2023).

Tubestock of tree and shrub species will be planted in accordance with the Revegetation Strategy (~~Appendix XX~~) and summarised as follows.

- Where practicable, local provenance seed will be collected and supplied to a local and qualified nursery provider at least six to twelve months prior to planting to allow adequate propagation time. Other sources of material may be required to be used depending on availability of resources.
- Tubestock will be at least 25cm in height and have a well-established root system.
- Planting will be undertaken by an experienced planting team between April and August after suitable rainfall events have resulted in suitable soil moisture conditions.
- Where practicable, plants will be watered in on the day of planting to settle soil around the root ball and remove voids which would otherwise increase the rate of moisture loss around the plant. Watering in will take place no more than 24 - 48 hours post planting.
- During the three to six month establishment period, the frequency of watering will depend on the prevailing climatic conditions at the time of planting and thereafter. Watering will be frequent enough to maintain adequate soil moisture to prevent water stress and repressed growth during establishment.

DRAFT

DRAFT

DRAFT

Commented [DM109]: Need to clarify need for site nursery

Commented [MF110R109]: Do you mean in the document or internally?

Commented [D111]: Are you sure you want to commit to this? I note the Council are growing plants in a nursery which may present an opportunity.

Commented [DM112R111]: Agreed

Commented [MF113R111]: Have added text for flexibility

DRAFT

- On average, the density of mature tubestock will be 150 stems per hectare accounting for up to 50% mortality. The density of juvenile or shrub trees will be approximately 600 shrubs per hectare.
- Tubestock will be planted approximately 8 to 12m apart.

6.2.5.3 Target Species

Table 19 presents an indicative and non-exhaustive list of species identified by DnA (2023) that may be used during revegetation of the native ecosystem and agricultural grazing areas of the Mine Site (refer Figure 7). The species listed in Table 19 represent those which have been identified within analogue sites as being representative of the target vegetation types. While all species listed are suitable for revegetation of native ecosystem and agricultural grazing areas, favourable key species have been identified.

Table 19
Murrawombie Copper Mine Rehabilitation Species List

Page 1 of 3

Growth Form	Scientific Name	Common Name
Trees	<i>Acacia doratoxylon</i>	Currawang
	<i>Acacia excelsa</i>	Ironwood
	<i>Brachychiton populneus</i>	Kurrajong
	<i>Callitris glaucophylla</i>	White Cypress Pine
	<i>Eucalyptus intertexta</i>	Gum Coolibah
	<i>Eucalyptus populnea</i>	Bimble Box
	<i>Eucalyptus viridis</i>	Green Mallee
	<i>Geijera parviflora</i>	Wilga
Shrubs	<i>Acacia deanei</i>	Deane's Wattle
	<i>Acacia decora</i>	Western Silver Wattle
	<i>Acacia hakeoides</i>	Hakea Wattle
	<i>Acacia oswaldii</i>	Miljee
	<i>Dodonaea viscosa subsp. cuneata</i>	Wedge-leaf Hopbush
	<i>Dodonaea viscosa subsp. mucronata</i>	A Hopbush
	<i>Eremophila deserti</i>	Turkey Bush
	<i>Eremophila longifolia</i>	Emubush
	<i>Eremophila mitchellii</i>	Budda
	<i>Eremophila sturtii</i>	Turpentine
	<i>Senna artemisioides subsp. filifolia</i>	Punty Bush
	<i>Senna artemisioides subsp. X artemisioides</i>	Silver Cassia
	<i>Senna artemisioides subsp. zygophylla</i>	Senna
Sub-shrubs	<i>Atriplex semibaccata</i>	Creeping Saltbush
	<i>Atriplex spinibractea</i>	Spiny-fruit Saltbush
	<i>Atriplex stipitata</i>	Mallee Saltbush
	<i>Chenopodium desertorum</i>	Mallee Goosefoot
	<i>Enchylaena tomentosa</i>	Ruby Saltbush

Commented [GU114]: JB should these be split up to reflect the actual lists for domains that relate to this RMP ? eg grasses for native ecosystem and trees, shrubs and grasses for 'agricultural' (and to meet the suggested communities (see previous sections)

Commented [MF115R114]: Yes, but that can be a task for the Seed Balance and Procurement Strategy

Commented [MF116R114]: I am also not a fan of the key species column - need to confirm what this actually means for implementation on the ground.

Commented [DM117]: Would using exotic cover crops be seen as not compliant with this? Do they need to be mentioned? Will be implicit with hydromulching

Commented [MF118R117]: Language of opening sentence is loose enough to allow variation.

Commented [DM119]: Was this removed?

Commented [MF120R119]: yes

DRAFT

DRAFT

Growth Form	Scientific Name	Common Name
	<i>Maireana microphylla</i>	Eastern Cottonbush
	<i>Maireana villosa</i>	Blue Pearlbush
	<i>Ptilotus sessilifolius</i> var. <i>sessilifolius</i>	Crimson Foxtail
	<i>Ptilotus spathulatus</i>	Pussy Tails
	<i>Salsola australis</i>	Buckbush
	<i>Sclerolaena muricata</i>	Black Roly Poly
	<i>Sclerolaena parviflora</i>	Mallee Copperburr

Table 19 (Cont'd)
Murrawombie Copper Mine Rehabilitation Species List

Page 2 of 3

Growth Form	Scientific Name	Common Name
Herbs	<i>Brachyscome ciliaris</i> var. <i>ciliaris</i>	Variable Daisy
	<i>Calotis cuneifolia</i>	Purple Burr Daisy
	<i>Calotis lappulacea</i>	Yellow Burr Daisy
	<i>Chrysocephalum apiculatum</i>	Common Everlasting
	<i>Convolvulus erubescens</i>	Australian Bindweed
	<i>Einadia nutans</i>	Climbing Saltbush
	<i>Erodium crinitum</i>	Blue Storksbill
	<i>Glycine tabacina</i>	Variable Glycine
	<i>Leptorhynchos tetrachaetus</i>	Beauty Buttons
	<i>Maireana enchylaenoides</i>	Wingless Fissure Weed
	<i>Minuria leptophylla</i>	Minnie Daisy
	<i>Oxalis perennans</i>	Yellow Wood-sorrel
	<i>Portulaca oleracea</i>	Pigweed
	<i>Ptilotus polystachyus</i>	Long Tails
	<i>Ptilotus spathulatus</i>	Pussy Tails
	<i>Rhodanthe corymbiflora</i>	Small White Sunray
	<i>Rhodanthe floribunda</i>	Common White Sunray
	<i>Sida corrugata</i>	Corrugated Sida
	<i>Sida cunninghamii</i>	Ridge Sida
	<i>Solanum ellipticum</i>	Velvet Potato Bush
	<i>Solanum ferocissimum</i>	Spiny Potato Bush
	<i>Swainsona microphylla</i>	Poison Swainson-pea
	<i>Vittadinia cuneata</i>	Fuzzweed
	<i>Vittadinia pterochaeta</i>	Rough Fuzzweed
	<i>Vittadinia sulcata</i>	A Fuzzweed
	<i>Wahlenbergia stricta</i>	Tall Bluebell
	<i>Xerochrysum bracteatum</i>	Golden Everlasting
Grasses	<i>Anthosachne [Elymus] scabra</i>	Common Wheatgrass
	<i>Aristida behriana</i>	Bunch Wiregrass
	<i>Aristida jerichoensis</i>	No. 9 Wiregrass

DRAFT

DRAFT

DRAFT

DRAFT

Growth Form	Scientific Name	Common Name
	<i>Aristida ramosa</i>	Threeawn Grass
	<i>Austrostipa scabra</i>	Speargrass
	<i>Bothriochloa macra</i>	Red Grass
	<i>Chloris truncata</i>	Windmill Grass
	<i>Chloris ventricosa</i>	Tall Windmill Grass
	<i>Cynodon dactylon</i>	Couch
	<i>Digitaria divaricatissima</i>	Umbrella Grass
	<i>Enneapogon intermedius</i>	Nineawn
	<i>Enneapogon nigricans</i>	Black Niggerheads
	<i>Enteropogon acicularis</i>	Curly Windmill Grass

Table 19 (Cont'd)
Murrawombie Copper Mine Rehabilitation Species List

Page 3 of 3

Growth Form	Scientific Name	Common Name
	<i>Eragrostis parviflora</i>	Lovegrass
	<i>Eragrostis setifolia</i>	Neverfail
	<i>Eriochloa creber</i>	Cup Grass
	<i>Monachather paradoxus</i>	Bandicoot Grass
	<i>Panicum effusum</i>	Hairy Panic
	<i>Paspalidium constrictum</i>	Knottybutt Grass
	<i>Rytidosperma caespitosum</i>	Wallaby Grass
	<i>Sporobolus caroli</i>	Fairy Grass
	<i>Themeda triandra</i>	Kangaroo Grass
	<i>Thyridolepis mitchelliana</i>	Mulga Mitchell Grass
	<i>Walwhalleya subxerophila</i>	Cane Panic

6.2.5.4 Management of Emergent Vegetation

Management measures to be implemented for protection of emergent and/or juvenile vegetation may include:

- exclusion of vehicles and stock from revegetation area;
- increased monitoring frequency to identify effectiveness of revegetation methodologies and for early identification of potential risks; and
- increased frequency of weed and pest monitoring and controls prior to, during, and following vegetation establishment to ensure pest pressure is kept to a minimum while vegetation is more at-risk.

DRAFT

6.2.6 Ecosystem and Land Use Development

6.2.6.1 Weed and Pest Management and Monitoring Program

Weeds are currently managed through the protocols contained within the *Weed Management Plan 2023*, involving bi-annual controls that include spraying and physical removal of weeds, where necessary. Feral animals are monitored through regular visual inspections and reactive measures such as short-term baiting programs.

While weeds and non-native fauna are a risk to revegetation success, it is expected that they will continue to be managed until such time as the completion criteria are met and ML1544 relinquished. It is anticipated that weeds and non-native fauna will remain in the final landform, however the pervasiveness of species will be consistent or below that of the surrounding landscape.

6.2.6.2 Environmental Management and Monitoring Program

Surface Water

Risks to surface water quality principally relate to pollution through failure of the Tailings Storage Facility, sediment-laden runoff or hydrocarbon spills and acid mine drainage. The surface water management system including the locations of sediment dams and a description of the surface water monitoring program is provided in the *Water Management Plan 2023* and *Erosion and Sediment Control Plan – Tritton Mine 2015*, while management of potentially acid forming materials is described in the *Waste Rock Characterisation and Management Plan 2023*. Subject to the continued implementation of these plans, residual risks to rehabilitation are considered to be minor.

The Tailings Storage Facility is regularly monitored and has been constructed to limit the risk of failure. As a result, the risk to surface water quality remains moderate (principally based on the potential consequences of these impacts), however the likelihood of an event occur is limited as much as practically possible.

Groundwater

The Company has prepared a *Remedial Action Plan: Tailings Storage Facility (ML1544) 2013* (RAP) (Environmental Strategies, 2013) in response to monitored increases in the standing water level within the Tailings Storage Facility. Investigations associated with preparation of the RAP found evidence of groundwater mounding beneath the Tailings Storage Facility, but no evidence of contamination of the groundwater through interaction with the Tailings Storage Facility. The final conclusions of the RAP were that the naturally occurring groundwater mounding was consistent with the higher mass of the Tailings Storage Facility materials compressing the aquifer. No remediation was considered necessary as remediation pumping of groundwater from beneath the Tailings Storage Facility was found to be having a neutral effect on the groundwater setting.

The Company currently holds groundwater access licence 31090 for dewatering of the underground workings at the Mine Site.

Based on the conclusions of the *Remedial Action Plan: Tailings Storage Facility (ML1544) 2013* and the ongoing monitoring of the groundwater setting specified in *Water Management Plan 2023* the risk to groundwater quality remains moderate (principally based on the potential consequences of these impacts). The Company considers that the likelihood of an event occurring has been limited as much as practically possible.

6.2.6.3 Revegetation Management and Monitoring

Ecological management of rehabilitated lands will consist of regular monitoring, review and response to identify any revegetation and maintenance requirements to achieve final land use. Monitoring will consist of a combination of regular visual inspections undertaken by Company personnel and semi-regular formal monitoring assessments undertaken by suitably qualified persons. The Company will undertake a photo-point and annual monitoring program for all rehabilitated areas of the Mine Site as they are progressively rehabilitated. The Company will report the results of the monitoring program in the Annual Rehabilitation Report. All information collected by Company personnel will be made available during formal monitoring assessments, if required.

In response to outcomes of the monitoring program, the Company will undertake maintenance or remedial works as required, which will be reported on in the Forward Program. These may include the following.

- Earthworks or stabilisation measures to repair erosion;
- Repair drainage structures and de-silt sediment control structures;
- Additional seeding or planting;
- Application of fertilisers and/or mulches;
- Application of gypsum or lime to control pH and improve soil structure;
- Fencing maintenance and repair;
- Irrigation system maintenance and repair;
- Bushfire management; and
- Implementation of weed and pest control measures.

6.2.6.4 Land Management and Infrastructure Maintenance

Site infrastructure including roads, security and stock-proof fencing, safety bunds and signage will be inspected on an annual basis. Additionally, infrastructure vulnerable to erosion (e.g. unsealed roads, safety bunds, clean water diversions will be inspected following significant rainfall events (i.e. $\geq 25\text{mm}$ within 24 hours).

Summarised The results of infrastructure inspections as well as records of annual infrastructure maintenance activities and costs will be included as part of an Annual Rehabilitation Report until relinquishment.

Commented [DM121]: Do these have to be directly included?
Can outcomes or summaries not be provided?

6.3 Rehabilitation of Areas Affected by Subsidence

No incidences of mine subsidence have been identified as occurring within the Mine Site or as a result of mining operations associated with the Mine. As outlined in Section 6.2.1.12, subsidence represents a low risk to rehabilitation at the Mine Site. As such, no specific subsidence-related management and maintenance programs are required at the Mine.

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 3** 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 require for operational purposes. Consequently, it is noted that rehabilitation progress through the planned rehabilitation phases will not occur concurrently across all mining subdomains identified in **Figure 8**.

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 3**.

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 3** 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 3** for the Company and Mine personnel with regards to rehabilitation operations.

Table 20
Key Roles and Responsibilities

Page 1 of 2

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.

DRAFT

Commented [DM122]: Where is appendix 3?

DRAFT

DRAFT

DRAFT

DRAFT

DRAFT

Table 20 (Cont'd)
Key Roles and Responsibilities

Page 2 of 2

Role	Responsibility
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. • 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 11**). Rehabilitation monitoring will focus upon determining whether progress towards achieving the relevant performance indicators and completion criteria presented in **Table 12** are being achieved. **Table 12** 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 9** and described in **Table 20**.

The Poplar Box Grassy Woodland sites (the “Woodland Reference Sites”) were established in 2017 to primarily provide reference sites for rehabilitation of the 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. 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 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**).

DRAFT

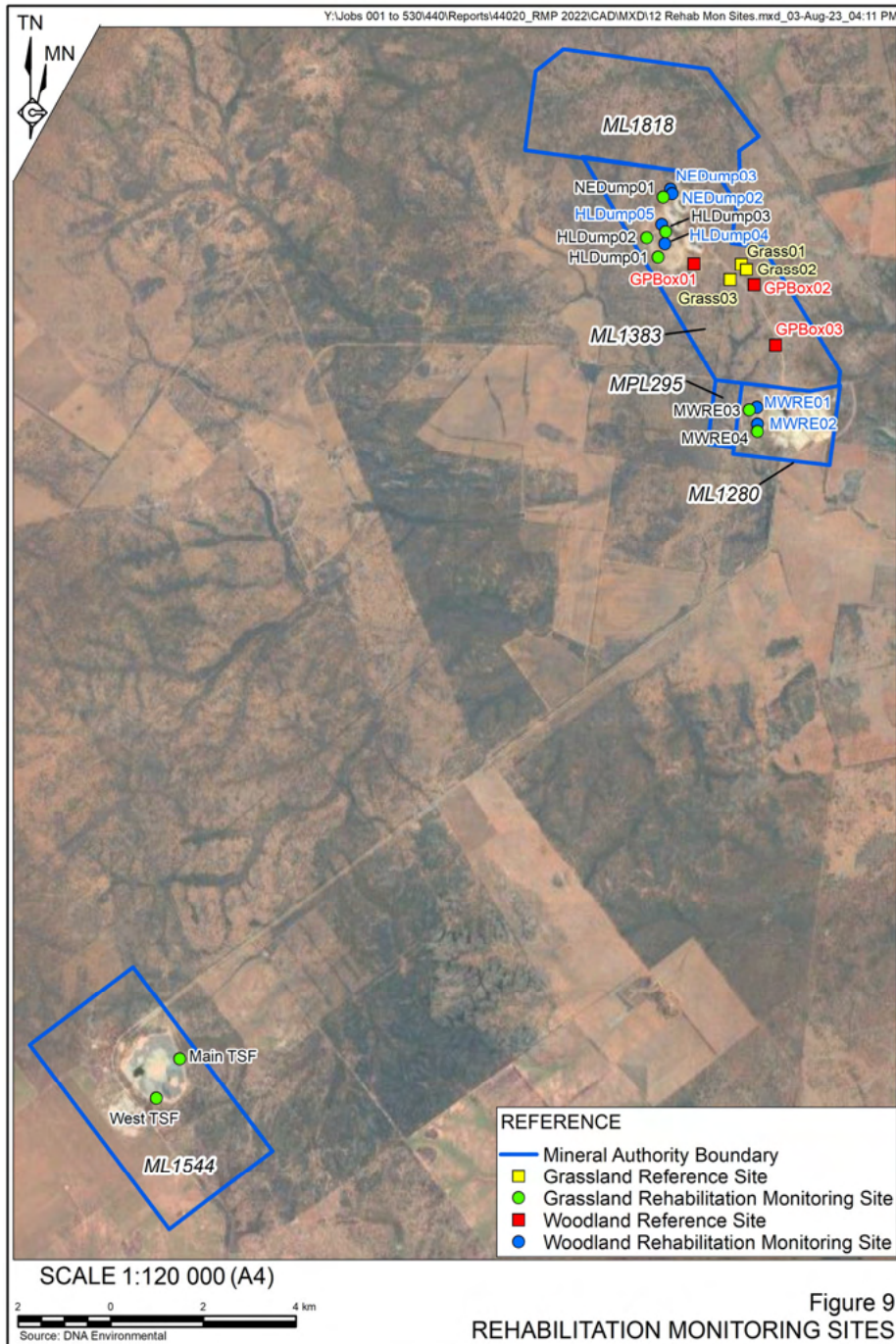
Table 21
Analogue Reference Sites

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	55486760	0	3	55486759	55486906	95
		6544987	6545006			6544996	6544986	
	Grass02	55486862	55486882	2	88	55486873	55486867	181
		6544876	6544876			6544877	6544827	
	Grass03	55486509	55486490	3	235	55486500	55486481	326
		6544648	6544637			6544640	6544688	
Poplar Box Grassy Woodland								
Agricultural - Grazing	GPBox01	55485732	55485726	3	188	55485728	5548683	276
		6545004	6544988			6544995	6545007	
	GPBox02	55487026	55487010	1	212	55487020	55486983	302
		6544541	6544526			6544533	6544565	
	GPBox03	55487491	55487476	2	227	55487483	55487456	318
		6543242	6543231			6543235	6543276	

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.

DRAFT



DRAFT

DRAFT

DRAFT

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

Commented [DM123]: Sections like this I would love to see tabulated for easier reference and use.

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 Environmental 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 1 m 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 summarised in the Annual Rehabilitation Reports 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 given mine within the Tritton Copper Operations will generally be applicable to rehabilitation operations across all of the Company's mine sites as:

- the relative proximity of the four 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 relatively consistent across all four sites;
- the target vegetation community types are similar across all sites and are based on analogue sites in the vicinity of Girilambone;
- all sites are likely contain similar contaminating and hazardous material types which will need to be addressed; and
- the same rehabilitation methodologies will be applied across all sites, where practicable.

9.1 Current Rehabilitation Research and Trials

9.1.1 Minor Rehabilitation Trials

~~9.1.1.1 Exclusion Fencing Trial~~

~~A small scale field trial on the western embankment of the Tailings Storage Facility is currently being conducted to assess the effectiveness of excluding grazing on rehabilitation outcomes. The exclusion fencing was erected in 2020 and rehabilitation monitoring was conducted in 2020 in conjunction with site wide rehabilitation monitoring. The sites will continue to be monitored to evaluate the benefits for installation of exclusion fences around the perimeter of the Tailings Storage Facility. The Company is currently trialling a rock mulch on the northern batter of the TSF. The aim of the trial is to assess the suitability of rock mulch for controlling erosion of the batter surface.~~

Commented [D124]: This has not been maintained and is in poor condition. I wouldn't include this unless there is intent to maintain it.

9.2 Future Rehabilitation Research and Trials

9.2.1 ~~Seed Balance and Procurement~~ Collection 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-Collection~~ 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-Collection~~ 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.

Commented [MF125]: Is there any reports/communication on this to back it up?

Commented [D126R125]: Only GIS files. It would be easy for formalise this going forward.

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 Tailings Storage Facility 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; 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.

Depending on the outcomes of the Land Contamination and Hazard Assessment, a specific management plan may be required to manage risks associated with contaminated materials during mine closure.

9.2.4 Tailings Storage Facility Capping Detailed Design

Objective

Identify a suitable and practicable final landform for the Tailings Storage Facility.

Overview

The Company is in the process of developing capping designs for key landforms across the Tritton Copper Operations. As discussed in Sections 6.2.1.1 and 6.2.3.3, the *Murrawombie HLF Cover System and Landform Design* (O’Kane, 2018) was prepared for the Murrawombie Mine’s Heap Leach Pads, which includes detailed design parameters for the construction and maintenance of the capped landform. The *Tritton Mine – Closure TSF Cover System Suitability Assessment* (O’Kane, 2023) states that based on the underlying assumptions of the geological and geotechnical characteristics of O’Kane (2018) are suitable for the Tailings Storage Facility.

Based on the above, the Company will engage a suitably qualified person(s) to prepare a site-specific detailed design report for the Tailings Storage Facility. The anticipated scope of the detailed design report includes:

- confirmation of the functional design of the capped final landform (i.e. store and release);
- consideration of risks and opportunities associated with long-term consolidation/settling of deposited tailings, including likelihood of occurrence;
- identification of water management infrastructure required to support the nominated capping design (e.g., surface drains, spillways, dams);

DRAFT

DRAFT

DRAFT

- design parameters the capped landform, including capping and growth medium, and for key surface water management infrastructure.

In addition to the above, further geochemical/geotechnical testing of available material may be required to be undertaken to confirm suitability for use in rehabilitation and capping. This may also include field trials to assess performance and practicalities of concept/proposed designs and construction methods. If further assessments/trials are undertaken, this RMP and the *Forward Program* will be updated once the scope of the assessments has been determined, and the Company will include regular reporting as part of the *Annual Rehabilitation Report*.

The Company anticipates that the *Tailings Storage Facility Capping Detailed Design* will be complete by end of Q4 2025. The results of the *Tailings Storage Facility Detailed Concept Design* will be used for landform modelling (see Section 9.2.5.).

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 suitable qualified person(s) to undertake landform evolution modelling (LEM) on the key final landform elements of the Tritton Copper Operations, i.e. waste rock emplacements and heap Leach Pads of the Murrawombie and North East Mines, and the Tailings Storage Facility within the Mine Site 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.

9.2.6 Other research and trials

The Company may undertake additional research, trials, and/or investigations to address rehabilitation for the Mine. This may include targeted waste rock characterisation assessments and trials for application of hydromulch/hydroseed for difference landforms within the Tritton Copper Operations.

Commented [DM127]: Rock mulching been done on TSF north batter

Commented [MF128R127]: Have added to 9.1

DRAFT

DRAFT

DRAFT

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.

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

Page 1 of 6

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. Senior Management provide signoff.
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.	Suspension of production of road base material. Review and refine material handling practices to maximise recovery of NAF material. Consider alternative sources of capping material within the Tritton Copper Operations.

Commented [DM129]: A RACI and senior management signoff is needed here

Commented [DM130]: Isn't this already the case at Tritton?

Commented [MF131R130]: Not formally - only with my very rough calcs which are not based on an actual capping design

DRAFT

DRAFT

Table 22 (Cont'd)
Trigger Action Response Plan

Page 2 of 6

Rehabilitation Risk	Potential Adverse Outcome	Trigger	Response
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.
			Confirm permissibility of required changes, and identify any potential impacts to water licencing requirements.
Adverse geochemical/chemical composition of materials such as overburden, tailings, heap leach, subsoils and topsoils etc	Insufficient material growth medium available for rehabilitation.	Contamination assessments undertaken during decommissioning phase identify potential or actual contamination of stockpiled rehabilitation resources.	Engagement of suitably qualified person(s) to identify scale of contamination and identify remedial actions, if required. Review materials balance to identify potential impacts to overall available resources. If required, undertake remediation of contaminated material, or investigate alternative material sources.
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 Tailings Storage Facility	Failure of landform. Exposure of adverse geochemical material.	Geotechnical assessment of waste rock and/or tailings 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.

Table 22 (Cont'd)
Trigger Action Response Plan

Page 3 of 6

Rehabilitation Risk	Potential Adverse Outcome	Trigger	Response
Landform Establishment Phase of Rehabilitation (Cont'd)			
		Engineering assessments identify potential or actual risk of failure of final landform.	Depending on level of inherent risk, reduce or cease operation of the Tailings Storage Facility. 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 Tailings Storage Facility.	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.

DRAFT

DRAFT

Table 22 (Cont'd)
Trigger Action Response Plan

Page 4 of 6

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 NAF 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.
Surplus of rehabilitation material resulting in incomplete salvage of material from NAF Waste Rock Emplacement.	Final landform no suitable for final land use.	Materials balance identifies potential or actual surplus of material stockpiled within NAF Waste Rock Emplacement. Significant surplus of material identified following rehabilitation of Mine Site.	Review closure planning to identify potential for relocation of material to other sites within Girilambone Complex. Investigate potential for retention of infrastructure to support continued processing of material for use as road base until material is exhausted and areas are subsequently rehabilitated. If to be retained, engage suitably qualified person(s) to identify final landform design requirements to ensure final landform is safe, stable, and non-polluting. Ensure adequate resources are available for final rehabilitation of retained landform.

Table 22 (Cont'd)
Trigger Action Response Plan

Page 5 of 6

Rehabilitation Risk	Potential Adverse Outcome	Trigger	Response
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.
		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.

DRAFT

DRAFT

Table 22 (Cont'd)
Trigger Action Response Plan

Page 6 of 6

Rehabilitation Risk	Potential Adverse Outcome	Trigger	Response
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 identify 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.
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.

Commented [DM132]: If this has been identified, then I don't think the monitoring is the issue. Propose removing

Commented [DM133]: As above

11. Review 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 Amendment / Review Triggers

Trigger	Review
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 ML1544.	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 23**, 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 3** 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;~~

DRAFT

DRAFT

DRAFT

Commented [DM134]: Section 7 already covers the RQAR, why additional items here?

Commented [DM135]: Hold Up. During what phase? Major concern with this and how large this register will be and its duplication and administration. Is this requirement from Guideline Rehabilitation Records? My understanding is this is records to be kept, not that they must live in this register.

Commented [DM136R135]: Super keen to see appendix 3

DRAFT

DRAFT

DRAFT

- the latest map of contamination at the Mine Site; and

details of any additional rehabilitation measures and/or risk controls implemented within individual subdomains during rehabilitation operations. Further details of the Rehabilitation Quality Assurance Register are available in Section 7.

12. References

- Central West Archaeological & Heritage Services (CWA&HS) (1997). *Heritage Significance Assessment*.
- Countrywide Ecological Service (CES) (1998). *Fauna Surveys between 1 and 5 October 1996*.
- Department of Environment and Climate Change (DECC) (2008). *Managing Urban Stormwater*
- DnA Environmental (DnA) (2020). *Murrawombie Rehabilitation Monitoring Report (Final)*. Prepared for Aeris Resources, January 2021.
- DnA Environmental (DnA) (2023). *Rehabilitation Strategy* (Draft, in prep.)
- EnviroKey (2010). *Field Surveys (February 2010)*.
- Environmental Strategies (2013). *Remedial Action Plan: Tailings Storage Facility (ML1544)2013 (RAP)*.
- Geoff Cunningham Natural Resource Consultants (GCNRC) (2001). *Soil Survey and Land Capability Report*. Prepared February 2001.
- Geoff Cunningham Natural Resource Consultants (GCNRS) (1998). *Flora Surveys (October 1996)*.
- Landcom (2004) and Department of Environment and Climate Change (DECC) (2008). *Managing Urban Stormwater: Soils and Construction (the Blue Book), Volume 1 and Volume 2E - Mines and Quarries*.
- O’Kane Consultants Pty Limited (O’Kane) (2018). *Murrawombie HLF Cover System and Landform Design*.
- O’Kane Consultants Pty Limited (O’Kane) (2018). *Tritton Mine – Closure TSF Cover System Suitability Assessment*.
- Office of Environment and Heritage (OEI) (2012). *Land and Soil Capability Assessment Scheme*
- R.W. Corkery & Co. Pty Limited (RWC) (1998). *Girilambone Copper Project Environmental Impact Statement*.
- R.W. Corkery & Co. Pty Limited (RWC) (1998). *Tritton Copper Project Environmental Impact Statement*.
- R.W. Corkery & Co. Pty Limited (RWC) (2014). *Environmental Assessment*.
- R.W. Corkery & Co. Pty Limited (RWC) (2015). *Mining Operations Plan*.
- RGS Environmental Pty Ltd (RGS) (2020). *Murrawombie Laboratory Scale Heap Leach Neutralisation Trial*. Prepared by for Aeris Resources Limited and Santos Limited. 26 February 2020.
- RGS Environmental Pty Ltd (RGS) (2022). *Constellation Geochemistry Assessment*.
- Tritton Resources Pty Ltd (1998). *Environmental Assessment*.
- Tritton Resources Pty Ltd (2007). *Statement of Environmental Effects*.