CSA
REHABILITATION MANAGEMENT PLAN

Approvals

	Name	Position	Date
Originator	Michael Priest	Environment Manager	15/6/2025
Checked	Claire Brandt	Exploration Geologist	15/6/2025
Approved	Michael Priest	Environment Manager	15/6/2025

Revisions

	Date	Description	By	Check	Approved
1	10/04/2024	Update to MAC format and Guidelines	MP	HR	MP
2	14/6/2025	Update to include Exploration activities and MAC Copper template	MP	CB	MP

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Summary Table

Table 1

Name of Mine	CSA Mine
Rehabilitation Management Plan Commencement Date	1 August 2022
Rehabilitation Management Plan Revision Date and Version numbers	v.2 January 2024 V.3 June 2025
Mining Leases	CML5 expiry 24/06/2028 MPL1093 expiry 05/02/2029 MPL1094 expiry 05/02/2029
Exploration Leases	EL5693, EL5983, EL6223, EL6907, EL9587, EL9595, EL9596
Name of Lease Holder	Cobar Management Pty Limited
Date of Submission (date of upload onto website)	23/06/2025

1. PART 1 – INTRODUCTION TO MINING PROJECT

1.1 History of Operations

MAC Copper Limited (MAC) purchased the operating entity Cobar Management Pty Limited (CMPL) from Glencore in June 2023. MAC is a company that was formed to purchase assets and is focused on operating and acquiring metals and mining businesses in high quality, stable jurisdictions that are critical in the electrification and decarbonization of the global economy.

Cobar Management Pty Ltd (CMPL) operates the Cornish, Scottish and Australian (CSA) Mine located 11 km north of Cobar in western NSW. Mining has occurred intermittently on the CSA leases since the discovery of copper (Cu), lead and zinc in 1871. However, it was not until 1961 that a significant resource was proven by Broken Hill South Pty Ltd. Medium-scale mechanised underground mining subsequently commenced in 1965. The mine was acquired by Conzinc Riotinto Australia (CRA) in 1980 and sold to Golden Shamrock Mines Pty Ltd (GSM) in 1993. GSM was in turn acquired by Ashanti Gold Fields in the same year. The mine continued to operate until 1997 when the operation ran into financial difficulties and was placed in receivership. The mine was placed into care and maintenance on the 20th of January 1998.

Glencore committed to reopening the CSA Mine in February 1999 with underground and processing operations commencing in July 1999 following the purchase of the leases and site facilities. Prior to opening, concessions were obtained from the NSW Government, including the excision of three areas of concern from the lease: the North Tailings Storage Facility (NTSF); the subsidence hole and adjacent old spoil material; and a major coarse rejects stockpile (Big Mt Brown). As of June 2023, MAC Copper Limited (MAC) are the owners of CSA.

CSA Mine currently operates under the Consolidated Mining Lease No. 5 (CML 5 'CSA Mine') which is due for renewal on the 24th of June 2028. Two Mining Purpose Leases sit adjacent to CML 5 (MPL 1094 and MPL 1093). The total area of the CML 5 authority is 2,474 ha, with approximately 350 ha of this allowed for disturbance with the CSA Mine surface operations. Of the 350 ha of allowable site disturbance, 138 ha of disturbed land is excised from the lease, leaving approximately 212 ha of land that will require rehabilitation by the CSA Mine prior to mine closure if all the 212-ha remaining that is allowed for disturbance is exhausted at mine closure. Currently our total disturbance footprint is around 173 ha.

CMPL conducts exploration within CML 5 and on a further seven (7) exploration licences held within the Cobar region. All authorities are 100% owned and managed by CMPL (listed in
Table 3**)**. CMPL ensures that all undertaken exploration and rehabilitation works on these authorities is conducted in accordance with approved access agreements, approved work programs, approved Assessable Prospecting Operations and accompanying Rehabilitation Objectives and Completion Criteria and in accordance with the NSW Exploration Codes of Practice, Mining Act (1992) and supporting legislation.

1.2 Current Development Consents, Leases and Licences

See **Table 2** for details of the relevant consents, leases and licences at the CSA Mine.

Table 2 Development Consents

Approval Number	Description	Issue Date
DA No. 31/95	Development of Underground Mine Ore Treatment Plant and Tailings Dam and Associated Service Facilities	26/6/1998
2004/LDA-00038	Refrigeration Plant	18/11/2004
2006/LDA-00009	South Tailings Dam Extension	22/6/2006
2006/LDA-00012	Erection of Portable Buildings	6/7/2006
2007/LDA-00036	Upgrade of Workshop/ Storage Facility	10/8/2007
2009/LD-00035	Tailings Dam Wall Raise	7/4/2010
2013/LD-00037	South Tailings Storage Facility Upgrade (Stage 7)	27/9/2013
2014/LD-00015	Embankment Construction of South Tailings Storage Facility (Stage 8)	24/9/2014
2015/LD-00007	Installation of Steel Surface Fans	13/5/2015
2019/LD-00006	Stage 9 Wall Raise – Tailings Storage Facility	14/5/2019
2019/LD-00037	3 Mega Litre Raw Water Tank including associated pipelines and pump	18/3/2020
2020/LD-00012	Installed Surface Vent Fans	10/11/2020
2020/LD-00010	Installed Jameson Cell	10/11/2020
2020/LD-00013	Installed Diesel Generator	10/11/2020
2020/LD-00011	Installed Bulk Air Cooler at No. 1 Shaft	10/11/2020
2020/LD-00048	Waste Rock Stockpile	08/12/2020
2020/LD-00051	Processing Plant upgrade – Replace two SAG mills	10/12/2020
2020/LD-00052	Installation of Tailings and Copper Thickener	14/12/2022
2022/LD-00018	Paste Fill Plant Building	3/11/2022
2022/LD-00046	Perimeter Embankment Stabilisation Earthworks to Tailings Dam	14/2/2023
DA23/025 DA23/056 MOD	Extraction of Rock for Stage 10 Tailings Dam Wall Rise at Railway Dam Pit	22/8/2023
DA23/037	Perimeter Embankment Stabilisation Earthworks to Tailings Dam (Stage 10 Buttress)	19/9/2023
DA23/019	Stage 10 Wall Raise - Tailings Storage Facility	19/9/2023

Table 3 Mining Act Authorisations

Tenement	Holder	Details	Expiry Date
CML 5 (1992)	Cobar Management Pty Limited	The CSA Mine site. Licensed for Group 1 minerals (Sb, Cu, Zn, Pb, Fe, In, Au, Ge, Co, Cd, Bi & Fe minerals).	24/06/2028
EL 5693	Cobar Management Pty Limited	Exploration lease for Group 1 minerals	07/02/2027
EL 5983	Cobar Management Pty Limited	Exploration lease for Group 1 minerals	30/08/2027
EL 6223	Cobar Management Pty Limited	Exploration lease for Group 1 minerals	05/04/2029
EL 6907	Cobar Management Pty Limited	Exploration lease for Group 1 minerals	11/10/2027
EL 9587	Cobar Management Pty Limited	Exploration lease for Group 1 minerals	20/07/2029
EL 9595	Cobar Management Pty Limited	Exploration lease for Group 1 minerals	18/08/2029

EL 9596	Cobar Management Pty Limited	Exploration lease for Group 1 minerals	18/08/2029
MPL 1093	Cobar Management Pty Limited	Mining Purposes Lease for Water Harvesting. Not licensed for minerals.	05/02/2029
MPL 1094	Cobar Management Pty Limited	Mining Purposes Lease for Water Harvesting. Not licensed for minerals.	05/02/2029
AMA 1021	Cobar Management Pty Limited	Ancillary Mining Activity for the removal stockpiling or depositing of overburden ore or tailings.	24/06/2028
AMA 1026	Cobar Management Pty Limited	Ancillary Mining Activity for the removal stockpiling or depositing of overburden ore or tailings.	24/06/2028

Table 4 Other Relevant Approvals

Licence	Details	Expiry Date
EPL No. 1864	Environmental Protection License	30/06/2024
Workcover Licence XSTR100157	Workcover NSW Licence to store Class 1.1D, 1.1B and 5.1 explosives	08/04/2028
Radiation Licence No. 5061153	Licence to sell/possess radiation apparatus and/or radioactive substances or items containing radioactive substances RR761, RR1384, RR911, RR907, RR21459, RR12793, RR12484, RR8858, RR8859	20/10/2024
Refrigerant Trading Authorisation Certificate	Refrigerant trading authorisation under the Ozone Protection and Synthetic Greenhouse Gas Management Regulations 1995	28/11/2024
Water Access Licenses	WAL36335 and WAL36336 of the Macquarie and Cudgegong Regulated Rivers Water Source Sharing Plan & WAL28539 and WAL28887 of the Lachlan Fold Belt MDB Groundwater Source Sharing Plan	Perpetuity
Water Supply Works 85WA753710	Water Supply Works for Production Bores WB1 and WB2 of the Lachlan Fold Belt Groundwater Source	26/06/2026
2019/LD-00037	3 Mega Litre Raw Water Tank including associated pipelines and pump	27/03/2025

1.3 Land Ownership

Table 5 Land Ownership

Lot	DP	Parish	Property Name	Landholder	Land Tenure
1	1186316	Mopone	Red Tank	Cobar Management Pty Limited	Perpetual Western Lands Lease
1	41242	Kaloogleguy		Private Landholder 3	Road
1	864330	Cobar, Kaloogleguy and Mopone		Transport Asset Holding Entity of New South Wales	Railway
1	869585	Kaloogleguy		Essential Energy	
1	627670	Kaloogleguy		Essential Energy	
1	767218	Kaloogleguy		Minister for Public Works	

1	1105750	Kaloogleguy	Red Tank	Cobar Management Pty Limited	Perpetual Western Lands Lease
2	1105750	Kaloogleguy	Ascot	Private Landholder 1	Perpetual Western Lands Lease
22	870022	Kaloogleguy	Council around tip	Cobar Shire Council	
23	870022	Kaloogleguy	Red Tank	The State of New South Wales	Crown Land
24	870022	Kaloogleguy		The State of New South Wales	Crown Land
4277	766965	Kaloogleguy	Red Tank	Cobar Management Pty Limited	Perpetual Western Lands Lease
5414	768325	Mullimutt	Mopone	Private Landholder 2	Perpetual Western Lands Lease
6336	769222	Kaloogleguy	Red Tank	Cobar Management Pty Limited	Perpetual Western Lands Lease
7003	1117798	Kaloogleguy	Kaloogleguy Regeneration Reserve	The State of New South Wales	Crown Land
7303	1170965	Kaloogleguy		The State of New South Wales	Crown Land
7304	1170965	Kaloogleguy		The State of New South Wales	Crown Land
7316	1170625	Kaloogleguy	Kaloogleguy Regeneration Reserve	The State of New South Wales	Crown Land
7317	1170625	Kaloogleguy	Kaloogleguy Regeneration Reserve	The State of New South Wales	Crown Land
7301	1170965	Kaloogleguy	-	The State of New South Wales	Crown Land
7302	1170965	Kaloogleguy	-	The State of New South Wales	Crown Land

1.3.1 Land Ownership and Land Use Figure

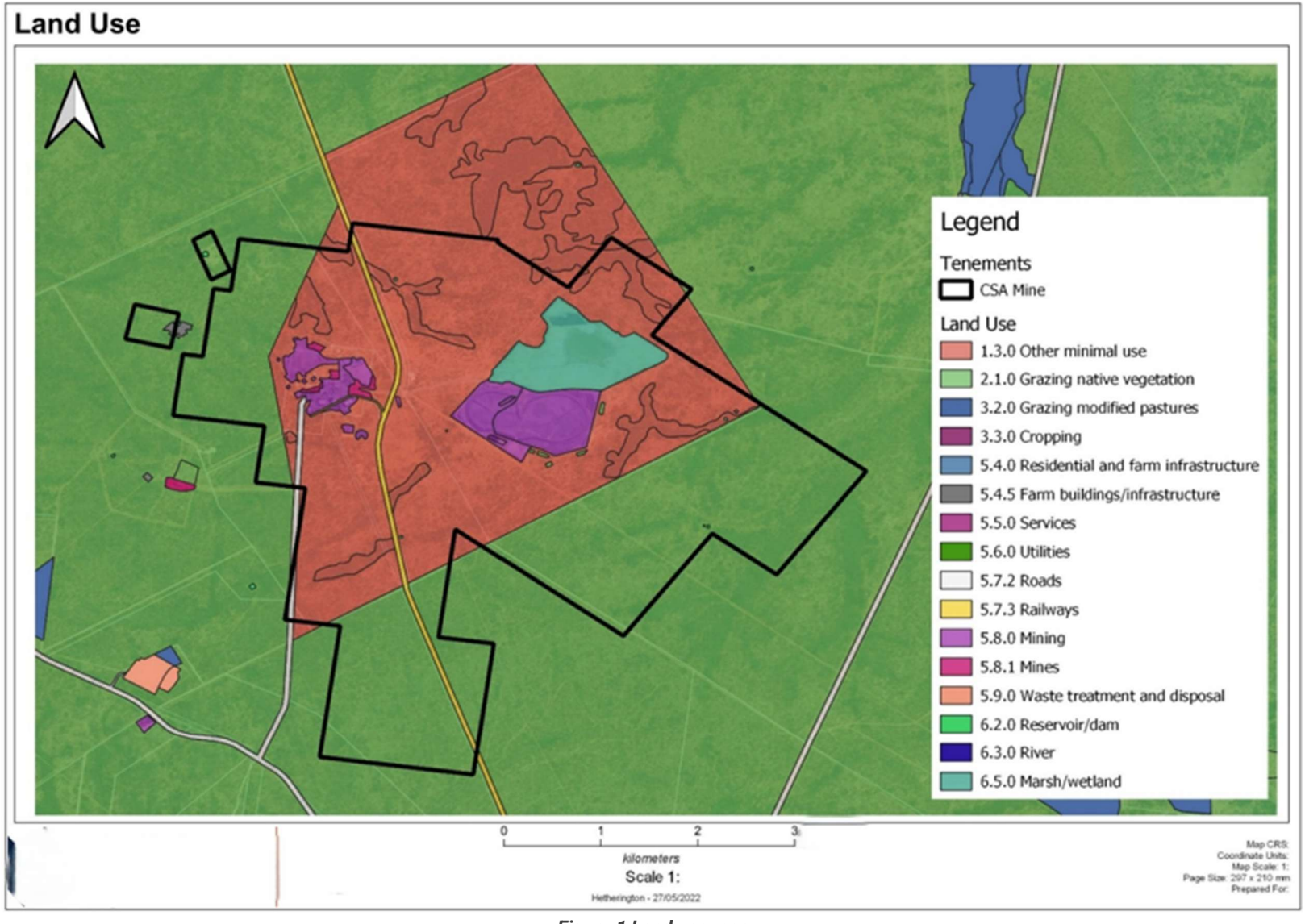


Figure 1 Land use map

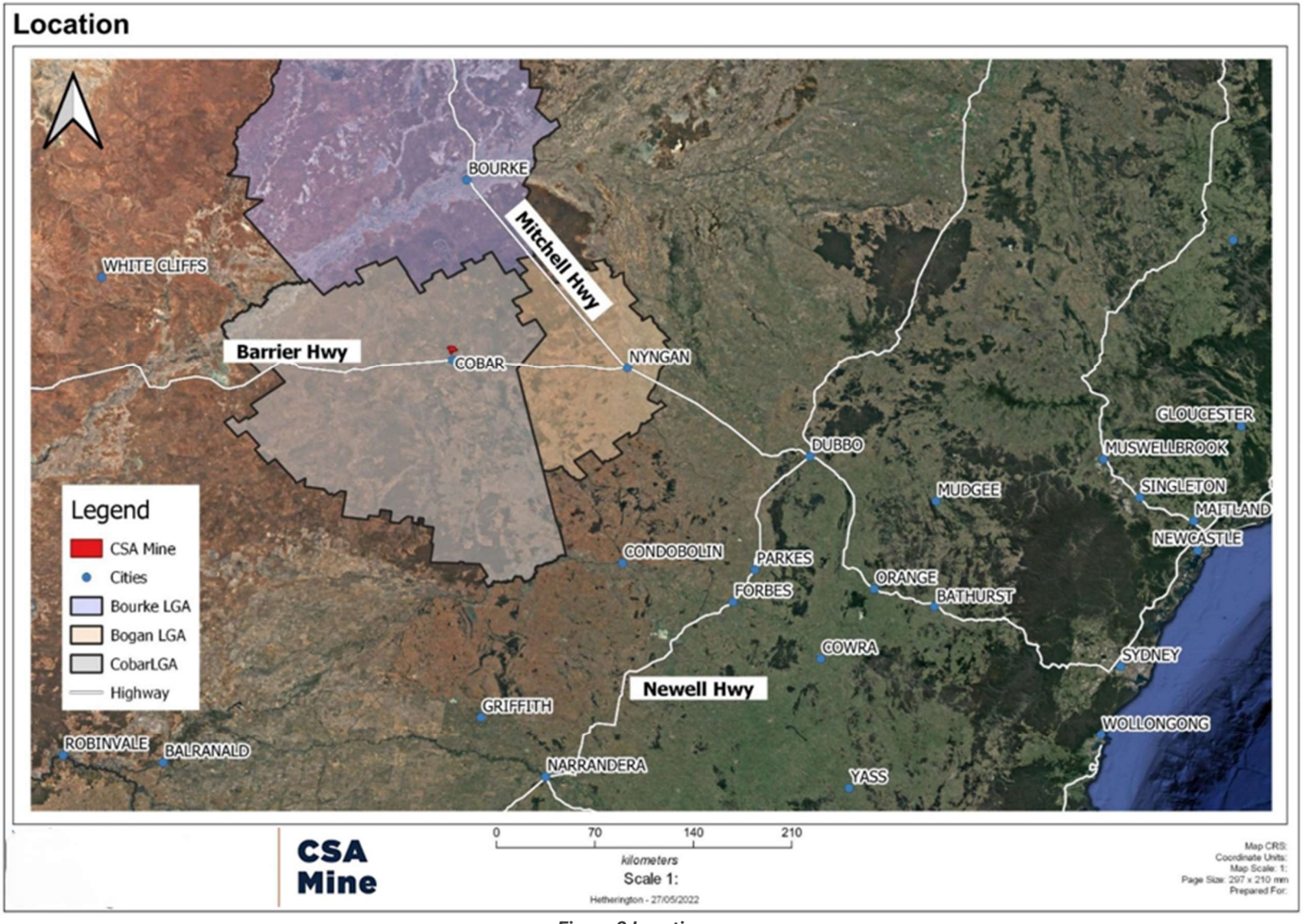


Figure 2 Location map

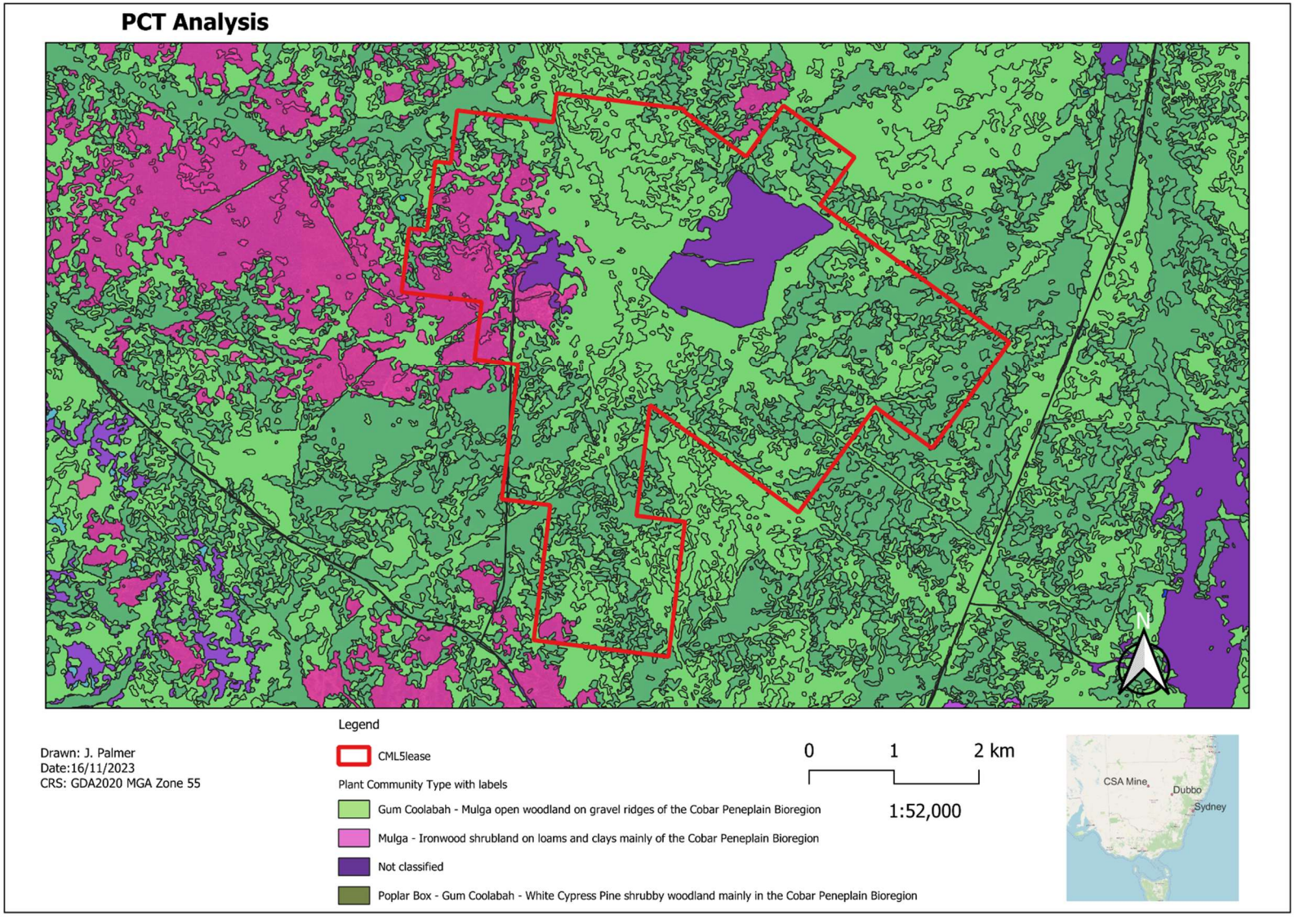


Figure 3 Vegetation analysis map

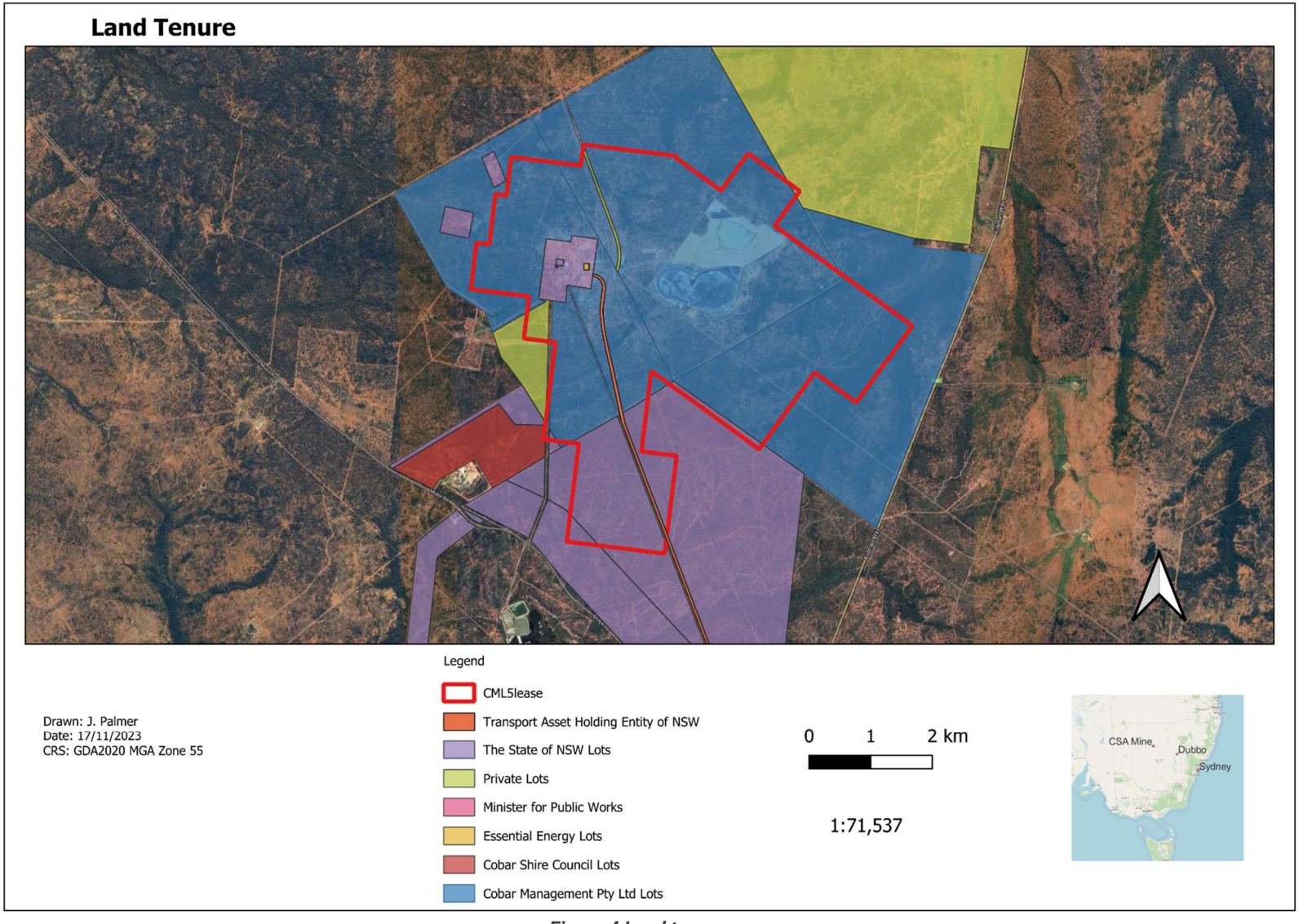


Figure 4 Land tenure map

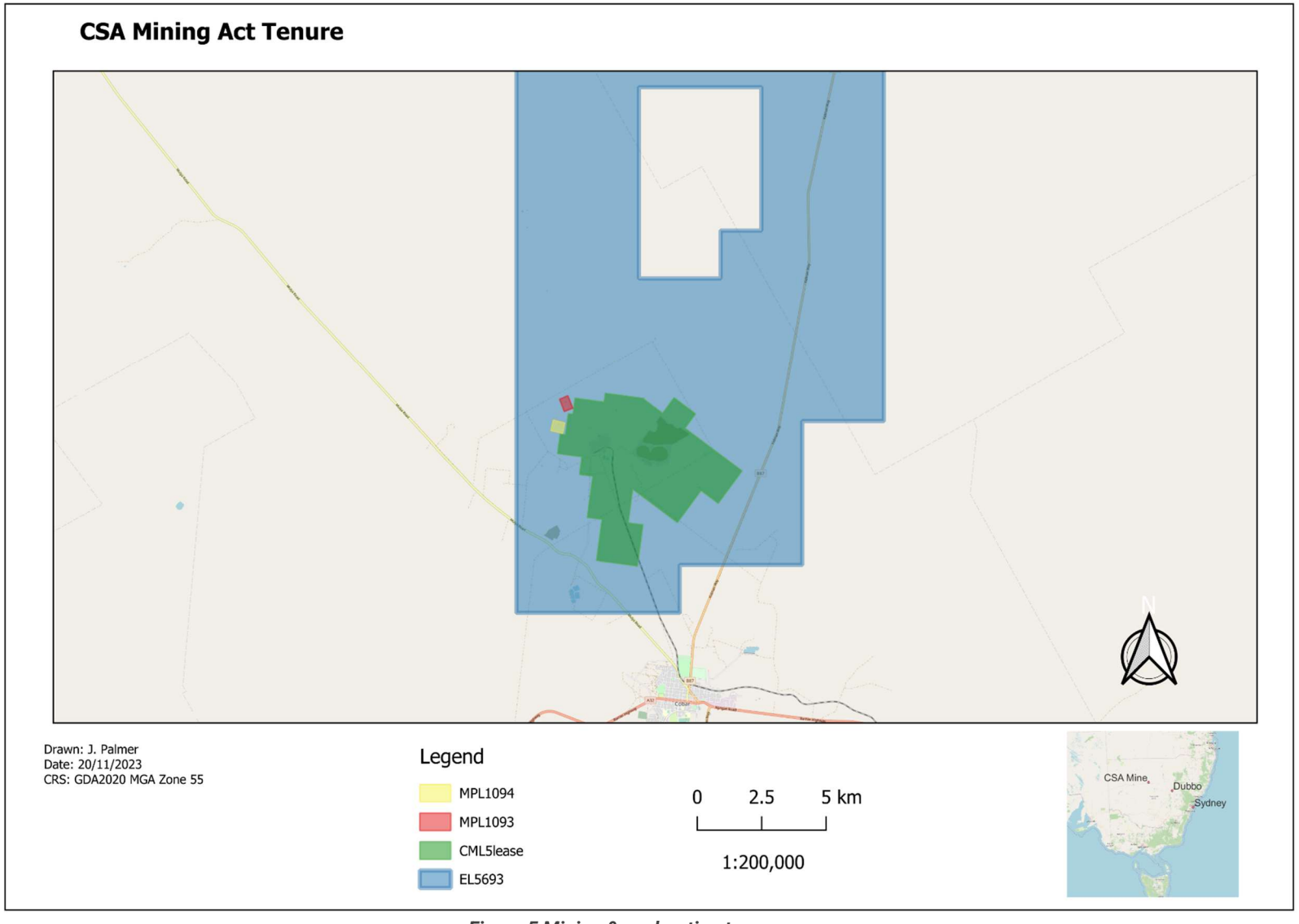


Figure 5 Mining & exploration tenure map

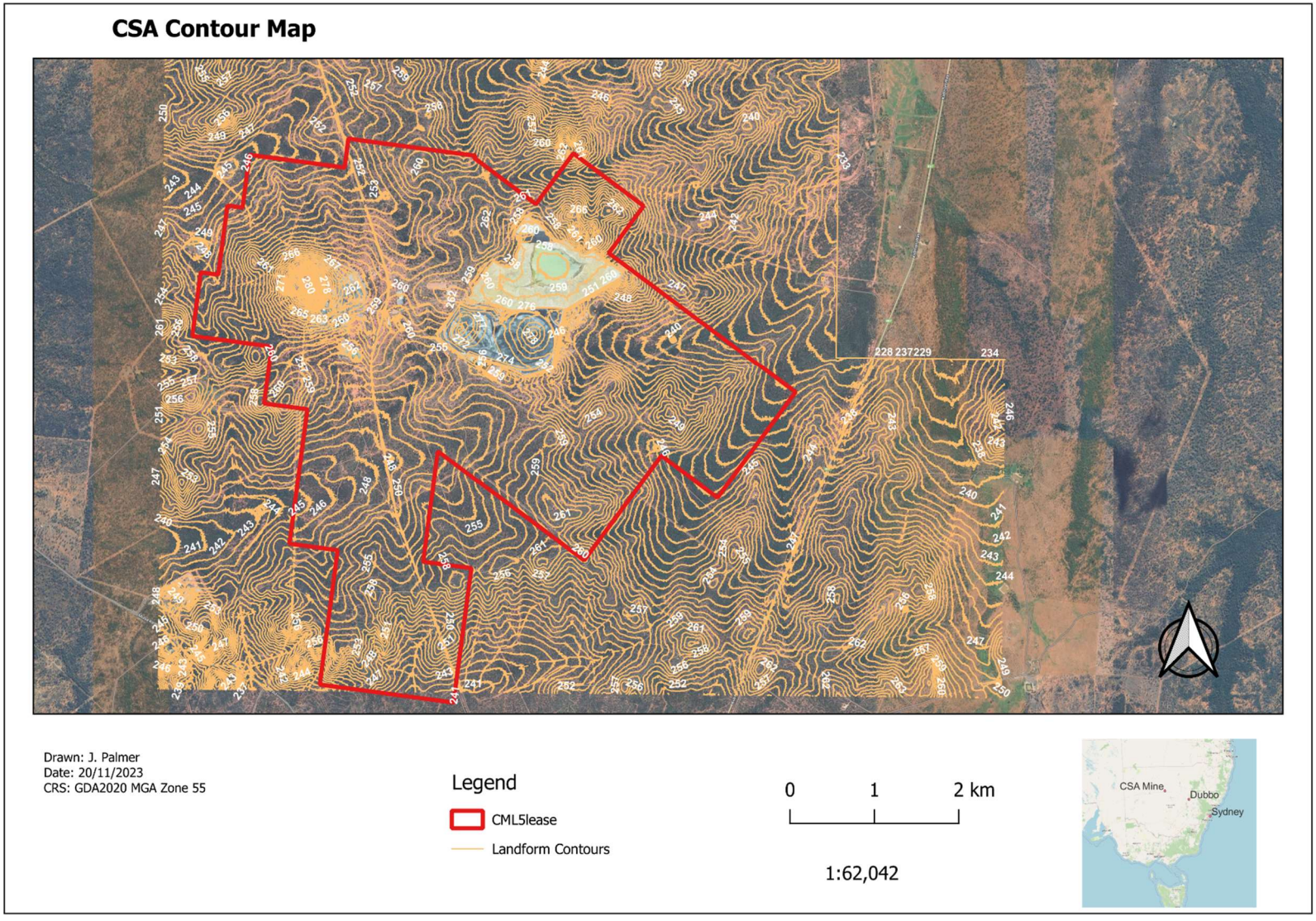


Figure 6 Contour map

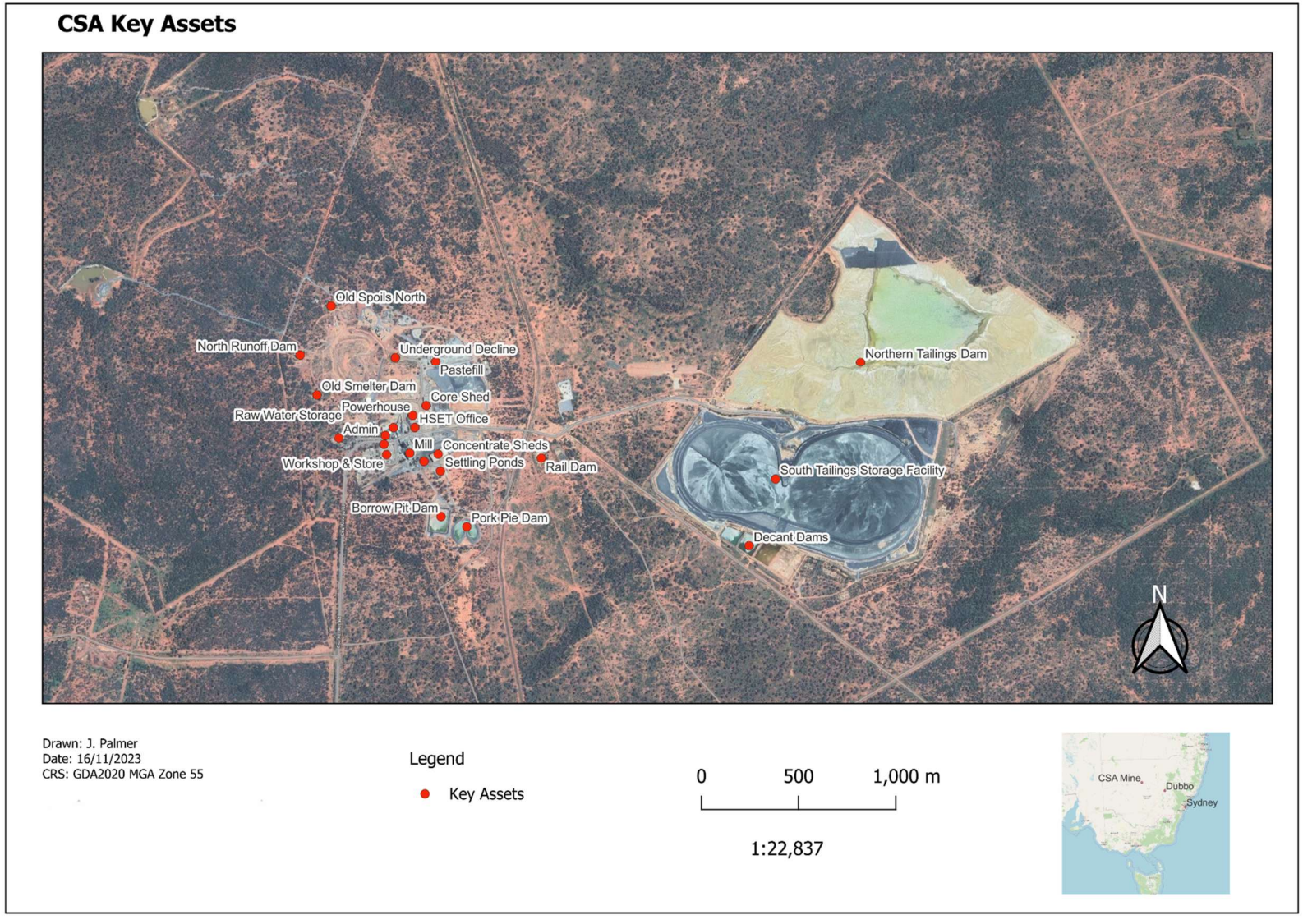


Figure 7 Key Assets map

2. PART 2 FINAL LAND USE

2.1 Regulatory Requirements for Rehabilitation

Regulatory requirements for rehabilitation at CSA Mine are listed in the **Table 6** below.

No final land use is specified or mandated in the development approvals for the CSA Mine.

Table 6 Regulatory requirements

Condition Relating to Rehabilitation	Source	Requirement	Entire site or specific domain	Timing requirement	Relevant section of the RMP which addresses this condition
Development Consents and associated Environmental Assessments					
Condition 2	DA No. 31/95	All future mine rehabilitation is subject to the requirements of the *Mining Rehabilitation and Environmental Management Plan* (REMP).	Entire Site		All
Section 2.7	SOEE for Continued operation of CSA Mine May 1995	Rehabilitation Objectives to support proposed end land use of *unimproved pasture grazing.* Long Term Objectives • To produce safe and final landforms • To control erosion • To ensure that the site does not become a source of pollution via seepage, runoff or dust • To eliminate any exposure hazard from residual chemicals or mining or processing wastes; and • To provide suitable conditions for establishment of a vegetation cover, where practicable and economically feasible Medium Term Objectives • To minimise the area of land requiring rehabilitation • To rationalise old earthworks and level those with no further use • To investigate rehabilitation techniques for those areas identified as potentially inhospitable to plant growth • To rehabilitate disturbed areas, where appropriate • To monitor rehabilitation success and determine the most appropriate rehabilitation techniques Short term objectives • To continue to involve relevant employees in implementing work described in the rehabilitation and monitoring plan and increase employee awareness of environmental impact thereby minimising future impacts	Entire Site		Part 4

		• To progressively contain and dispose of all surface water from disturbed areas within the lease • To progressively collect and dispose of any waste material that either poses an exposure hazard or comprises a potential source of pollution. • To maintain site drainage works • To rationalise laydown areas and waste storage areas and ensure that all materials are stored in designated areas • To continue to collect and dispose of any materials around site that are of no further use			
Condition 9	2006/LDA-0009	Topsoil is to be stripped from the tailings dam area and stored so as to provide suitable material to facilitate the rehabilitation of the area when tailings disposal is completed	Tailings Dam		Part 6
Condition 11	2006/LDA-0009	The native vegetation on the tailings dam site is to be removed and either stockpiled for future use or used for the rehabilitation of adjoining areas			Part 6
Condition 17	2009/LD-00035	Prior to commencing construction of the lift to the STSF, the proponent must prepare to the satisfaction of T & I NSW: • A variation to the Mining Operations Plan (MOP2008-2012) • A rehabilitation plan, which must include: (a) Detailed drawings and design information on the stormwater drainage of the completed STSF. This must include design options, the reason behind the preferred option and demonstrated evidence of industry best practice being applied to the drainage design (b) A detailed analysis of the methodology used to monitor the long-term structural stability of the STSF (c) Rehabilitation outcomes that are suitable for an agreed end land use and are demonstratively achievable through experience in comparable situations or site trials/research. (d) Objectives and measurable completion criteria. (e) Rehabilitation indicators to be used to monitor progression towards each completion criteria, including detailed information on how the indicator will be measured, monitored, reported and analysed and justification of why the indicator was chosen. (f) Suitable criteria to evidence that specific regulatory requirements under the mining lease conditions and project approval have been met. (g) Rehabilitation outcomes demonstrating progressive rehabilitation to the greatest practical extent.			Part 2 Part 4 Part 5
Section 4.12 – Environmental Safeguards	SEE - For the upgrade of a Life of Mine Tailings Storage Facility (2009)	• Early rehabilitation of disturbed areas • Topsoil from within footprint to be stockpiled during construction for rehabilitation • Maintain Rehabilitation Plan to progressively rehabilitate surrounding areas • Consideration and preparation of mine closure activities • Decommissioning of infrastructure and revegetation of tailings facility at time of mine closure • Return land to unimproved pasture grazing	Life of Mine Tailings Storage Facility		Part 4 Part 6

<table>
<tr><td></td><td></td><td>• Surrounding vegetation to remain undisturbed to preserve suitable refuge habitat
• Vegetation cleared will be relocated and spread over rehabilitation sites to salvage seed that is stored on the plants and encourage revegetation elsewhere</td><td></td><td></td><td></td></tr>
<tr><td>Condition 16</td><td>DA23/037 and DA23/019</td><td>The applicant must rehabilitate the site in accordance with the conditions imposed on the mining lease(s) associated with the development under the Mining Act 1992. The rehabilitation must be generally consistent with the proposed rehabilitation strategy described in the SoEE and must comply with the objectives in Table 1.

Table 1: Rehabilitation objectives
<table><tr><th>Feature</th><th>Objective</th></tr><tr><td>All areas of the site affected by the development</td><td>• Safe, stable and non-polluting
• Fit for the intended post-mining land use/s
• Establish the final landform and post mining land uses/s as soon as practicable after cessation of mining
• Minimise post-mining environmental impacts</td></tr><tr><td>Tailings Storage Facilities</td><td>• Tailings are contained within a structure that adequately mitigates risk of tailings and associated contaminants being released to the environment
• Structural integrity and final landform stability meeting industry accepted engineering guidelines for tailings facilities closure (ANCOLD and Global Tailings Standard)</td></tr></table></td><td>Entire site</td><td></td><td>Part 4</td></tr>
<tr><td>Section 6 Rehabilitation and Closure STSF</td><td>SoEE 2023– STSF Stage 10 Wall Lift and SoEE – STSF Perimeter Embankment Stage 10 Buttress</td><td>The closure strategy for the dam (and potential subsequent raises) is consistent with the established TSF closure strategy
• Tailings infrastructure removed
• TSF surface covered with 0.3m thick layer weathered rock
• Hard rock armour placed in drainage lines around TSF perimeter
• Vegetation plots formed at strategic layers across the rockfill layer, each plot approx. 30m*30m*2m deep, lined with a geomembrane and backfilled with subsoil and topsoil before planting vegetation
• Trial vegetation plots will be prepared during operation to demonstrate the effectiveness of this strategy
• Perimeter embankments will be reshaped for long term erosion and stability management
• Crest of embankments profiled to maintain water flow to outer edges of tailings mounds
• Downstream slope of embankments reshaped to form an unbroken concave slope (no berms)
• Hard rock armour placed at the toe of the slope and felled vegetation will be placed over the remainder of the slope
• Spillway modified to provide capacity to discharge peak flow resulting from a Probable Maximum Flood (PMF).</td><td></td><td></td><td>Part 6</td></tr>
<tr><td colspan="6">Mining Lease Conditions</td></tr>
<tr><td>Condition 13</td><td>CML 5 Conditions</td><td>(a) Land disturbed must be rehabilitated to a stable and permanent form suitable for a subsequent land use acceptable to the Director General and in accordance with the Mining Operations Plan so that –
• There is no adverse environmental effect outside the disturbed area and that the land is properly drained and protected from soil erosion</td><td>CML 5

MPL 1093

MPL 1094</td><td></td><td>All</td></tr>
</table>

		• the state of the land is compatible with the surrounding land and land use requirements • the landforms, soils, hydrology and flora require no greater maintenance than that in the surrounding land • in cases where revegetation is required and native vegetation has been removed or damaged, the original species must be re-established with close reference to the flora survey in the Mining Operations Plan. If the original vegetation was not native, any re-established vegetation must be appropriate to the area and at an acceptable density. • The land does not pose a threat to public safety (b) Any topsoil that is removed must be stored and maintained in a manner acceptable to the Director-General			
Condition 14	CML 5 Conditions	The lease holder must comply with any direction given by the Director-General regarding the stabilisation and revegetation of any mine residues, tailings or overburden dumps situated on the lease area.	CML 5		Part 6
Mining Regulation 2016		**Schedule 8A Standard conditions on mining leases**			
Part 2 Division 1		**Division 1 protection of the environment and rehabilitation**			
Clause 4	Mining Regulation 2016, Conditions of Title	Must prevent or minimise harm to the environment (1) 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			
Clause 5	Mining Regulation 2016, Conditions of Title	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 activities under the mining lease as soon as reasonably practicable after the disturbance occurs.	CML 5 MPL 1093 MPL 1094		Part 4
Clause 6	Mining Regulation 2016, Conditions of Title	Rehabilitation must achieve final land use (1) The holder of a mining lease must ensure that rehabilitation of the mining area achieves the final land use for the mining area. (2) The holder of the mining lease must ensure any planning approval has been obtained that is necessary to enable the holder to comply with subclause (1). (3) 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).	CML 5 MPL 1093 MPL 1094		Part 5

2.2 Final Land Use Options Assessment

Previous consultation dating back to 2011 included discussions and community meetings to consult with stakeholders and identify the community ideas toward the closure.

The meeting was attended by a range of community members including:

- Local graziers and residents
- Local Councillor
- President of the Cobar Business Association
- The Cobar media
- CMPL employees, and
- Representatives from neighbouring mines (i.e. Tritton and Peak Gold Mine)

Key issues that arose from the stakeholder meeting included:

- Creation of diversity in employment and training opportunities for youth whereby there are incentives for them to remain in the Cobar area
- Mitigation of the issue of people travelling out of the region to do their shopping by encouraging a variety of shops and retail outlets
- Enhance tourism to make Cobar a 'must see' location linked to a local icon (e.g. Dubbo has the zoo), and
- Recognition that Cobar's geographical isolation is an innate advantage that should be realised and promoted to the relevant industry

All feedback and suggestions resulting from the consultation described above were considered in the previous REMP which have been incorporated into this RMP. The alternative land use options suggested and discussed by stakeholders are displayed below and are currently not included in the final closure design. These options will be re assessed with community input prior to final closure of the CSA Mine and may require a development consent to be included as final land use.

Table 7 Previous alternate land use suggestions

	Infrastructure Area	Lands Impacted by Mining	Non-Operational Lands	Tailings Storage Facilities
Alternate Land-use Options	Training Centre: • Mining • Other	Gaol	Trial Plot for Agriculture on Rangelands	Waste Disposal linked to Encapsulation
	Defence training facility/military exercise	Waste Disposal Facility – Issues to Consider • Railway Access • Groundwater Consideration • Proximity to Underground Mine	Defence Training Facility/ Military Exercise	Research – Plant Bioaccumulation.
	Ammunition Production	Tourism linked to Mining		
	Abattoir for goats/piggery/kangaroos/tannery	Car testing Ground – Linked to Temperatures and Dirt Roads		
	Ethical slaughter of stock			
	Power Station – Solar/ Geothermal/ Link to availability of flat land, power, train line, sealed road.			

A meeting with representatives of the Department of Planning and Environment (DPE) was held on 21 September 2017, which included a site inspection and was attended by 3 officers. The proposed rehabilitation activities and experimental trials for the 2018-2020 MOP were discussed and the working areas of CML5 were inspected.

The NSW Environmental Protection Authority (EPA) confirmed EPA could not be involved in the MOP pre-submission consultation process. The Cobar branch of the NSW Local Land Services (LLS) also declined an invitation to discuss the proposed 2018-2020 MOP.

CMPL provided a copy of the Draft CSA MOP 2018-2020 to Cobar Shire Council (CSC) for their comment, but a response was not received.

On 14 November 2017, an advertised meeting was held in Cobar to present the 2018-2020 MOP to local residents and community members. The results of the 2011 stakeholder consultation were discussed, and any additional stakeholder comments and suggestions were sought for inclusion in the draft MOP. It was agreed by attendees that the future land use options and key issues identified in the 2011 consultative process were still broadly accepted as appropriate, and only two additional suggestions were raised:

- Possible support from CSA for increased day care in Cobar
- Consideration of the feasibility for the construction of a power station on CML5 prior to mine closure.

CSA was part of the Targeted Assessment Program (TAP) Audit Assessment program from the NSW Resources Regulator with a site visit being undertaken on the 24 June 2021. The assessment focused on how the final landform is being established to achieve sustainable rehabilitation outcomes, and to identify risks and assess performance of associated controls associated with landform establishment activities. Two notices were issued to CSA from the TAP Assessment that required a study on the conceptual final landform design of the STSF and to undertake an assessment of all rehabilitation material inventories.

Rehabilitation Objectives meetings were held between the CSA mine and the NSW Resources Regulator in July and December 2023 to discuss final land use and the rehabilitation objective statement. An outcome of these meetings has been the decision to have the final land use as a Native Ecosystem rather than Agricultural Grazing, as it is more amenable to the surround landscape and proposed rehabilitation outcomes.

Exploration consultation is undertaken in accordance with the Exploration's Consolidated Community Consultation Strategy (CSA-MIN-PRO-2047). Relevant stakeholder communications are undertaken as part of the access agreement and any consultation with the NSW Resource Regulator is undertaken during the Assessable Prospecting Operation (APO) application.

2.3 Final Land Use Statement

The final post-mining land use at the CSA Mine is **'A' Native Ecosystem**, which will include light intensity grazing. The final landscape intent is to return the rehabilitation to a similar form as the pre-mining landform configuration or surrounding Cobar Peneplain landforms.

The proposed final land use for exploration activities is 'A' Native Ecosystems (**Table 8**), unless otherwise requested by the landholder and approved in the APO by NSW Resources Regulator.

2.4 Final Land Use and Mining Domains

2.4.1 Final Land Use Domains

Final Land Use Domains are defined as land management units within the mine site, usually with unique operational and functional purpose, usually with similar geophysical characteristics. These domains are land management units characterised by a post-mining land use objective.

Rehabilitation objectives in this plan aim to provide a description of proposed rehabilitation outcomes within the individual domains in the mine site, as one domain may contain elements that require different rehabilitation.

Domains for the CSA Mine are detailed in **Table 8** and have been determined in consideration of the specific requirements of the mining location and local environment.

Table 8 Final Land use

Final Use Domain	Code
Native Ecosystem	*A*
Water Management Area (Excluding Final Void)	*G*

Native Ecosystem
Native Ecosystem is noted as much of the final landform. This aligns with the pre mining disturbance as open grasslands with pockets of large trees. This also aligns with community expectation in parallel with neighbouring graziers.

Water Management Area
All water management areas that are planned to be retained on site, will be retained until at least 3-5 years post mine closure, to collect any sediment that may run off the disturbed areas of the mine prior to achieving a successful

revegetation cover. Once the closure criteria for runoff water quality have been met, these facilities may be removed as required.

2.4.2 Mining Domains

Mining domains are the footprint of areas disturbed for mining-related activities. They have discrete geophysical and geochemical characteristics that will require specific rehabilitation treatments to achieve the final land use.

The mining domains that are identified at the CSA Mine are as identified in **Table 9**.

Table 9 Mining Domains

Mining Domains	Code
Infrastructure Area	*1*
Tailings Storage Facility	*2*
Water Management Area (Excluding Final Void)	*3*
Overburden Emplacement Area	*4*
Beneficiation Facility	*7*

Infrastructure

The Infrastructure Area includes all the buildings, structures and service lines present on the CSA Mine site. The major infrastructure on site is shown in **Figure 7** and comprises the following:

- No. 1 Shaft head frame, winder house, conveyors and ventilation fan
- No. 2 shaft and friction winder
- Ore conveyor from No. 2 shaft and ore bins
- Concentrator building including processing equipment
- Two concentrate storage sheds
- Tailings facility and associated pipelines
- Powerhouse (compressor and generator building)
- Core yard shed, first aid and mine rescue offices, change house and training building
- Workshop and stores buildings
- Paste fill plant and associated boreholes
- Metallurgy assay lab
- Refrigeration building
- Cement batching plan
- Administration building and car park

In addition, there are several smaller buildings and facilities around the site including the surface vehicle wash-bay, subcontractor stores and workshops, sceptic storage tanks, raw water tanks, various fuel and oil tanks and a range of smaller storage structures.

Services include a 132kv line from Dubbo terminating at the substation, a pipeline from the Cobar water supply, a rail spur line and on-site road infrastructure (including haul roads, load-out facilities and the main sealed access road to the Cobar-Louth Highway).

Water Management Area

Water Management Areas includes components of the network of dams that comprise the CSA Mine water management system that is in place to control the movement of water around the site. These include sedimentation, diversion, mine water and water supply dams but exclude TSFs.

The current surface water dams present around the mine and processing areas include:

- Pork Pie Dam (completed in 2004) for the storage of process water
- Borrow Pit Dam which receives most stormwater runoff from the mine
- The Old Mine Dams (North and South) and
- Railway dam
- Eleven other sub-catchment water storage dams

Tailings Storage Facility (TSF)
The Southern Tailings Storage Facility (STSF) is the only TSF currently active at the CSA Mine. It is noted that the North Tailings Storage Facility (NTSF) has been previously excised from the mining lease and is the responsibility of the Department of Regional NSW.

Waste Rock Management
Waste rock management areas exist at the surface of the CSA Mine where waste rock from underground mining operations is temporarily stockpiled. Currently, waste rock is stockpiled at the South Tailings Storage Facility and the previous excised area of Mt Brown.
AMA 1026 was approved in 2023 for the removal of waste rock that had been stockpiled previously on the Northern Tailings Facility (NTSF). This waste rock material will be screened and carted to the current STSF for future construction works.

Topsoil Stockpiles
Topsoil is produced during land clearing activities occurring at the site and stockpiled for future use in rehabilitation activities. There are 32 topsoil stockpile locations at the CSA Mine.

Exploration Sites
Exploration is conducted within the near mine surface environment of CSA and from Underground on CML5. Exploration sites are also located on other exploration licence authorities held by CMPL. All exploration activities are undertaken to support future mining production and/or development of stand-alone assets.

The exploration methods employed usually involve some level of surface disturbance, and the land is rehabilitated as soon as reasonably practicable after the exploration is completed. All rehabilitation work is completed in accordance with corresponding Land Access Agreements, APOs, RMPs, Site Disturbance Permits and Rehabilitation Objective Completion Criteria, as well as the NSW Codes of Practice, Mining Act (1992) and supporting legislation.

3. PART 3 - REHABILITATION RISK ASSESSMENT

A rehabilitation risk assessment was prepared in accordance with the NSW Resource Regulator's *Guideline – Rehabilitation Risk Assessment* and the Joint Australian and New Zealand Standard AS/NZS 31000:2009 Risk Management – Principles and Guidelines. A copy of the rehabilitation risk assessment is attached as *Appendix A – Rehabilitation Risk Assessment*.

The following rehabilitation risk assessments have been undertaken for all mining and exploration authorities held and managed by CMPL:

- Rehabilitation Risk Assessment undertaken prior to development of this Rehabilitation Management Plan
- Update of the rehabilitation risk assessment post MACs acquisition of CSA Mine.

The below **Table 10** shows a summary of the 'high' risks to rehabilitation after controls being in place, that were identified as part of the risk assessment. All risks that were identified are in the Rehabilitation Risk Assessment in Appendix A.

These identified high risks and risk controls from the Rehabilitation Risk Assessment were prepared in accordance with Clause 7 of Schedule 8A of the Mining Regulation is addressed in the Rehabilitation Management Plan and incorporated into rehabilitation practices. Further information on how each rehabilitation risk will be controlled can be found in the relevant section of the Rehabilitation Management Plan or the relevant site management plans.

Table 10 Summary of high risks and controls from Rehabilitation Risk Assessment

Risk	Risk Control	Application in Rehabilitation Management Plan
General		
Community non acceptance of rehabilitation - loss of social licence to operate	Maintain effective community and stakeholder engagement throughout term of project	4.2 Rehabilitation Objectives – Stakeholder Consultation
Rehabilitation criteria cannot be met - biodiversity and/or ecological	Set up and implement a quality control mechanism to ensure rehabilitation works are completed as per the required specifications	4.1 Rehabilitation Objectives 6.2 Phases of Rehabilitation and General Methodologies
Rehabilitation site becomes haven for feral/ kangaroos which affect rehabilitation results	Exclusion fence around rehabilitation site, Feral control program to manage kangaroos and goats as required in consultation with NSW Resources Regulator	4.1 Rehabilitation Objectives 6.2 Phases of Rehabilitation and General Methodologies
Active Mining Phase of Rehabilitation		
Handling and containment of geochemical and geotechnically unstable tailings and waste rock materials	Set up and implement a quality control mechanism to ensure rehabilitation works are per the required specifications Waste Rock Management Plan and TSF capping protocols to be developed and implemented Annual monitoring and project monitoring of waste rock quality	4.1 Rehabilitation Objectives 6.2 Phases of Rehabilitation and General Methodologies
Wind and water erosion	Landforms and covers designed for anticipated erosion forces. Sowing of native seeds that are hardy and appropriate for the local environment	4.1 Rehabilitation Objectives 6.2 Phases of Rehabilitation and General Methodologies
Landform Establishment Phase of Rehabilitation		
Stabilisation of landforms fails due to erosion	Undertake erosion modelling study landform designs to understand batter angles and water management requirements, implement water management control structures	6.2 Phases of Rehabilitation and General Methodologies 10 Intervention and Adaptive Management
Lack of availability of suitable materials for encapsulation or capping of adverse materials	Ensure materials characteristics and materials balance is completed during the mine plan and designed into ongoing operations Ensure waste rock targets are met and material stockpiled for future use	6.2 Phases of Rehabilitation and General Methodologies 10 Intervention and Adaptive Management
Landforms not designed for water management which allows for excessive erosion, which may affect landform integrity and sedimentation	Ensure final rehabilitation design parameters are engineer designed and developed during the feasibility study to be implemented into the active mine plan Undertake landform erosion study	6.2 Phases of Rehabilitation and General Methodologies 10 Intervention and Adaptive Management
Ecosystem and Land use Establishment Phase of Rehabilitation		
Failure of water management structures	Consideration in final landform designs as per engineer and Rehabilitation planning works	6.2 Phases of Rehabilitation and General Methodologies 10 Intervention and Adaptive Management
Ecosystem and Land use Development of Rehabilitation		
Re-disturbance of established areas	Mine planning to ensure rehabilitation areas are sterilised for both mining and infrastructure requirements prior to rehabilitation commencing. Topsoil stockpile locations to be located on sterilised areas so they don't need to be relocated during operations	6.2 Phases of Rehabilitation and General Methodologies 10 Intervention and Adaptive Management
Erosion and failure of landform, drainage and water management/storage structures	Undertake erosion modelling as part of rehabilitation planning, for appropriate batter/slope angles and water management requirements	6.2 Phases of Rehabilitation and General Methodologies 10 Intervention and Adaptive Management

4. PART 4 - REHABILITATION OBJECTIVES AND REHABILITATION COMPLETION CRITERIA

4.1 Rehabilitation Objectives and Rehabilitation Completion Criteria

The rehabilitation objectives for the CSA mine (CML5) have been uploaded on to the NSW RR portal and have been approved. Approval number is ROBJ0001181 for document *Approved Rehabilitation Objective Statement 16 Feb 2024*. These specific Rehabilitation Objectives' (ROBJ's) are detailed below in **Table 11**. The Rehabilitation Completion Criteria included in the table are still in draft and have not been submitted or approved by the NSW Resources Regulator.

For each exploration activity that will cause disturbance to the environment, an individual Site Disturbance Permit (SDP) and Exploration Rehabilitation Objectives and Completion Criteria (ROCC's) Report is developed. This report is completed with respect to CMPL's RMP and the Mining Act and supporting Regulations. This work directly supports the corresponding APO application that is sought from the NSW Resource Regulator as part of the approval process of each exploration project. These ROCC's are generally consistent with the broader CSA Mine site ROCC's but may vary slightly depending on the location, planned required disturbance, activity intensity and landholder requirements for each project. The Exploration ROCC's for Native remnant vegetation generally cover Removal of Infrastructure, Land and Water Contamination, Landform Stability, Bushfire, Water Quality and Native Revegetation.

4.2 Rehabilitation Objectives and Rehabilitation Completion Criteria – Stakeholder Consultation

Stakeholder consultation relevant to mine rehabilitation was conducted in 2023 with the NSW Resources Regulator on several occasions that included a site visit and two teams' meetings to discuss the Rehabilitation Closure Estimate, general rehabilitation requirements and the Rehabilitation Objectives Statement.

Consultation has been undertaken during 2022 and 2023 with Cobar Shire Council as part of the recent development approvals for the STSF Stage 10 lift and the Railway dam borrow pit.

Table 11 Rehabilitation Objectives and Rehabilitation Completion Criteria

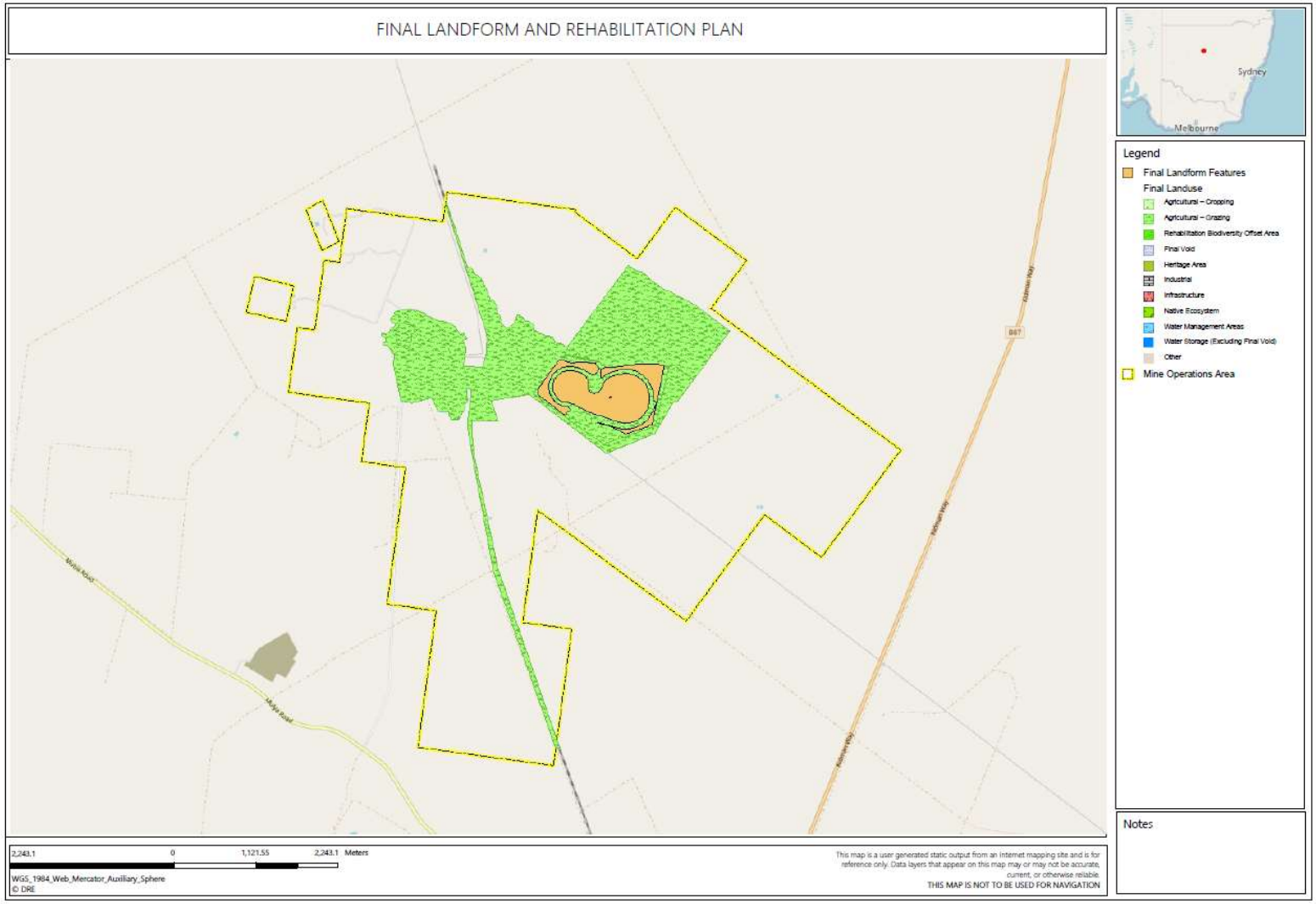
Final land use domain code	Final land use domain	Mining domain code	Mining domain	Rehabilitation objectives	Completion criteria	Performance indices	Validation methods
A	Native Ecosystem	1	Infrastructure Area	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as per of rehabilitation	Bushfire prevention controls in place such as fire breaks	Fire breaks in place	Rehabilitation monitoring report
		2	Tailings Storage Facilities	The vegetation composition of the rehabilitation contains species that are commensurate with native vegetation community of Poplar-box grassy woodland found in the local area	Rehabilitation contains a diversity of species comparable to analogue sites	Vegetation Monitoring -species richness	Rehabilitation monitoring report
				The vegetation structure of the rehabilitation is similar to that of native vegetation community of Poplar-box grassy woodland found in the local area	Rehabilitation area has vegetation structures (in progress) in line with Analogue sites	Vegetation Monitoring	Rehabilitation monitoring report
		3	Water Management Area	Levels of ecosystem function have been established that demonstrate the rehabilitation is self-sustainable	Rehabilitation areas are self-sustaining	Vegetation Monitoring – species self-recruitment	Rehabilitation monitoring report
		4	Overburden Emplacement Area	Impacts to groundwater regime are within range as per the 1995 DA	Groundwater level impacts within the range (1995 DA)	Groundwater Monitoring - SWL	Rehabilitation monitoring report
				Groundwater quality meets the requirements of the 1995 DA and EPL1864 and does not present a risk of environmental harm	Groundwater quality withing range (1995 DA)	Groundwater Monitoring - Quality	Rehabilitation monitoring report
		7	Beneficiation Facility	Soil contamination levels are similar to pre disturbance levels. There is no additional residual soil contamination on site that is incompatible with the final land use or that poses a threat of environmental harm	Contamination remediated and is compatible with final land use	Soil contamination testing	Rehabilitation monitoring report Soil test reports
				The final landform is stable for the long-term and does not present a risk of environmental harm downstream / downslope of the site or a safety risk to the public/stock/native fauna	Nil evidence of erosion	Erosion monitoring	Rehabilitation monitoring report
				Residual waste materials stored on site (e.g. tailings, coarse rejects and other wastes) will be appropriately contained / encapsulated so it does not pose any hazards or constraints for intended final land use.	Contamination remediated as required and or capped	Contaminated material treated and or capped	Remediation testing and report and engineer design or as built survey
				All infrastructure that is not to be used as part of the final land use is removed to ensure the site is safe and free of hazardous materials.	Removal of all infrastructure not required for final land-use	Infrastructure removed	Inspection report, photos
				All infrastructure that is to remain as part of the final land use will benefit from the relevant approvals (e.g. development consent and / or licence/lease/binding agreement, etc)	Infrastructure that remains is approved in DA	Infrastructure approvals in DA	Approval Document and Rehabilitation Report
				Runoff water quality from mine site meets the requirements of the 1995 DA for site and EPL1864, and does not present a risk of environmental harm	Water quality meets the set criteria	Surface Water Monitoring program	Rehabilitation monitoring report

G	Water Storage	3	Water Management Area	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as per of rehabilitation	Bushfire prevention controls in place such as fire breaks	Fire breaks in place	Rehabilitation monitoring report
				The vegetation composition of the rehabilitation contains species that are commensurate with native vegetation community of Poplar-box grassy woodland found in the local area	Rehabilitation contains a diversity of species comparable to analogue sites	Vegetation Monitoring -species richness	Rehabilitation monitoring report
				The vegetation structure of the rehabilitation is similar to that of native vegetation community of Poplar-box grassy woodland found in the local area	Rehabilitation area has vegetation structures (in progress) in line with Analogue sites	Vegetation Monitoring	Rehabilitation monitoring report
				Levels of ecosystem function have been established that demonstrate the rehabilitation is self-sustainable	Rehabilitation areas are self-sustaining	Vegetation Monitoring – species self-recruitment	Rehabilitation monitoring report
				Impacts to groundwater regime are within range as per the 1995 DA	Groundwater level impacts within the range (1995 DA)	Groundwater Monitoring - SWL	Rehabilitation monitoring report
				Groundwater quality meets the requirements of the 1995 DA and EPL1864 and does not present a risk of environmental harm	Groundwater quality withing range (1995 DA)	Groundwater Monitoring - Quality	Rehabilitation monitoring report
				Soil contamination levels are similar to pre disturbance levels. There is no additional residual soil contamination on site that is	Contamination remediated and is compatible with final land use	Soil contamination testing	Rehabilitation monitoring report Soil test reports
				The final landform is stable for the long-term and does not present a risk of environmental harm downstream / downslope of the site or a safety risk to the public/stock/native fauna	Nil evidence of erosion	Erosion monitoring	Rehabilitation monitoring report
				Residual waste materials stored on site (e.g. tailings, coarse rejects and other wastes) will be appropriately contained / encapsulated so it does not pose any hazards or constraints for intended final land use.	Contamination remediated as required and or capped	Contaminated material treated and or capped	Remediation testing and report and engineer design or asbuilt survey
				All infrastructure that is not to be used as part of the final land use is removed to ensure the site is safe and free of hazardous materials.	Removal of all infrastructure not required for final land-use	Infrastructure removed	Inspection report, photos
				All infrastructure that is to remain as part of the final land use will benefit from the relevant approvals (e.g. development consent and / or licence/lease/binding agreement, etc)	Infrastructure that remains is approved in DA	Infrastructure approvals in DA	Approval Document and Rehabilitation Report
				Runoff water quality from mine site meets the requirements of the 1995 DA for site and EPL1864, and does not present a risk of environmental harm	Water quality meets the set criteria	Surface Water Monitoring program	Rehabilitation monitoring report

5. PART 5 - FINAL LANDFORM AND REHABILITATION PLAN

5.1 Final Landform and Rehabilitation Plan

Figure 8 Final Landform and Rehabilitation Plan



6. PART 6 - REHABILITATION IMPLEMENTATION

6.1 Life of Mine Rehabilitation Schedule

Rehabilitation planning at CSA is documented in the Forward Plan and Annual Report. The current rehabilitation schedule is described in the Forward Program. Most of the existing surface disturbance and surface infrastructure is required for the effective operation of the mine site through to end of the mine life. This provides for minimal opportunity to undertake progressive rehabilitation but does give some time to undertake future planning and rehabilitation trials.

The CSA Mine Forward Program (FWP0001189 – Sunday 5 February 2023 to Wednesday 4 Feb 2026) outlines the short-term rehabilitation schedule. As the CSA Mine is currently in a mature stage (mid-mine phase) most of the disturbance has taken place but is still in active state of mining. Minimal areas have been available for progressive rehabilitation. Small areas which have had some form of rehabilitation will be monitored and managed as required. It is intended future stakeholder consultation will occur after the completion of future studies, which will be designed to inform or further extrapolate the rehabilitation objectives and to assist in the setting of rehabilitation completion criteria.

All surface facilities of the CSA Mine are currently required for the operational life of the mine. Opportunities for progressive rehabilitation are limited and will mainly involve future rehabilitation research, modelling and trials which will be completed to facilitate future rehabilitation planning and outcomes, this includes future landform modelling, and NTSF re use research.

6.2 Phases of Rehabilitation and General Methodologies

The CSA Mine aims to recreate stable rehabilitated landforms in areas disturbed by mining. The final landforms would be constructed to be stable in the long-term and integrate with the surrounding landscape. The new landforms will be revegetated with selected species of native and/or endemic vegetation that are both suitable to the physiographic and hydrological features of each landform.

This will be achieved through a series of conceptual phases of rehabilitation as described below in **Table 12**.

Table 12 Phases of Rehabilitation

Phase No.	Rehabilitation Phase	Example of Possible Measures
1	Active Mining	Topsoil and timber resources salvaged. Mine planning to incorporate and rehabilitation requirements, trials and closure planning documented
2	Decommissioning	Infrastructure removed, contamination remediated, electricity decommissioned, heritage buildings retained (pending DA approval).
3	Landform Establishment	Slope, drainage (characteristics, grade and density), substrate material characterisation, morphology, density, aspect.
4	Growth Medium Development	Physical, chemical and biological characteristics (organics, nutrients, soil biota etc.)
5	Ecosystem and Land Use Establishment	Species selection, species presence, and germination rate
6	Ecosystem and Land Use Sustainability	Floristics and structure, recruitment and recovery, fauna presence, growth, ecosystem resilience
7	Land Relinquishment	Demonstrate ultimate success of rehabilitation process. This may be biophysical or physical.

6.2.1 Active Mining Phase

a. Soils and Materials

The management of all topsoil on site is carried out in accordance with the CMPL *Topsoil Management Plan* which has been developed to ensure all topsoil handling, stockpiling and use is carried out in line with best practice techniques and Mining Lease conditions.

Topsoil Stripping
Topsoil stripping is preferentially avoided when the soil is water-saturated and therefore is preferably undertaken when the soil has been dry for extended periods. Prior to stripping, erosion controls are implemented to manage stormwater such as sediment basins, drainage works or sediment fences.

Topsoil recovery is carried out in accordance with the *Leading Practice Guidelines* "double stripping" method (DITR 2006), which recommends separate handling and management of topsoil and subsoil. Stripping depth is to a maximum of 100 mm. Where possible, topsoil is directly transported and laid on sites suitably prepared for rehabilitation or otherwise stockpiled on site.

Topsoil Stockpiles
Permanent stockpile height restrictions exist on site, with a maximum of 3m for topsoil stockpiles. CMPL encourages the establishment of vegetation on all topsoil stockpiles to enhance soil viability and minimise erosion losses. Cleared vegetation around project sites or surrounding areas is often spread over the topsoil stockpile sites to assist with revegetation.

Approximately 126,312 m^3 of topsoil is stockpiled in 32 locations at the CSA Mine. All existing topsoil will remain stockpiled until required for rehabilitation purposes on site.

b. Flora

The CSA Mine site is located within the Cobar Peneplain Bioregion, which is characterised by an undulating to hilly landscape with shallow, red earth soils where the vegetation is mainly open woodlands of Bimble box (*Eucalyptus populnea*), Red box (Eucalyptus intertexta) and White cypress (*Callitris glaucophylla*).

There is currently no planned further clearing to occur at the CSA mine site as it is an underground operation, and most of the surface disturbance has already been undertaken. A PVP 23PVP00258 was approved on 18 April 2013 for the clearing and management of Invasive Native Species (INS) over an area of approximately 2175 ha on CMPL land which is outside the active operational works footprint.

The most recent flora survey was conducted by EcoResolve over three separate occasions between August 2022 and May 2023 with the results reported in the Biodiversity Inventory Report, CSA Mine (BIR 2023). EcoResolve have also produced a Biodiversity Management Plan (BMP 2023) to accompany the BIR. The BMP has the purpose of guiding the management and monitoring of biodiversity values at the CSA Mine owned land around the site. There are no approvals conditions that mandate a BMP, but regardless CSA has committed to the BMP to enhance the monitoring and management of threatened species on land owned by CMPL including within the CML 5 boundary.

The Biodiversity Inventory Report (BIR) reported that through the extensive flora surveys, which were completed under the guidance of the BAM (Biodiversity Assessment Method), identified 3 plant community types.

These three plant community types were identified as:

- *PCT103 Poplar Box – Gum Coolabah – White Cypress Pine shrubby woodland*
- *PCT125 Mulga – Ironwood shrubland on loams and clays mainly of the Cobar Peneplain Bioregion*
- *PCT174 Mallee – Gum Coolabah woodland on red earth flats of the eastern Cobar Peneplain Bioregion*

These PCT's are not considered to be commensurate with any BC Act or EPBC Act listed EEC (Endangered Ecological Communities) due to the floristic composition within the canopy and mid storey stratums of each community not considered to meet key diagnostics associated with any current TEC (Threatened Ecological Communities) listings.

The vegetation community PCT103 occurring as low (7.6% of area), moderate (64.2% of area) and high (28% of area) condition scores, with the factors affecting the rating being decreased vegetation condition from clearing, disturbance and feral animal grazing. PCT125 and PCT175 both were rated as moderate condition.

There were no threatened flora species identified during the EcoResolve surveys.
Weeds
Weeds at the CSA Mine are managed through the CMPL *Weed Management Plan (PLN-019)*.

EcoResolve (2023) recorded four weed species. None of these species are listed as Weeds of National Significance or Local Priority Weeds for the Cobar Region. The weeds identified on site were:

- Onion Weed – *Asphodelus fistulosus*
- Saffron Thistle – *Carthamus lanatus*
- Horehound – *Marrubium vulgare*
- Common Sow thistle – *Sonchus oleraceus*

Weeds have not been noted as problematic in the past and no outbreaks have been recorded. Environmental personnel are trained in the identification and reporting of noxious weeds and regular inspections of the lease area are undertaken. If weed infestations are encountered, CMPL will employ species-specific management strategies as outlined in the *Weed Management Plan*.

c. Fauna

EcoResolve (2023) recorded a total of 73 fauna species onsite, which comprised of 45 species of birds, 8 species of mammals, 12 reptile species, 8 species of bats and 8 amphibian species. Six (6) threatened fauna species were recorded at the CSA mine site and a further five (5) feral fauna species identified.

Of the bird species observed there were four identified threatened species:

- Diamond Firetail – *Stagonopleura guttata*
- Grey-crowned Babbler – *Pomatostomus temporalis*
- Hooded Robin – *Melanodryas cucullate*
- Major Mitchell's Cockatoo – *Lopochroa leadbeateri*

Of the bat species identified (by use of anabat) there was one threatened species:

- Yellow-bellied Sheath tail Bat

Of the mammal species observed one threatened species was identified being:

- Kultarr – *Antechinomys laniger*

As identified in the flora section, there is minimal to no clearing currently planned to occur at the CSA site and the Flora and Fauna Management has been identified in the BMP (EcoResolve 2023).

Habitat values within the CSA mine site consist of hollow bearing trees, artificial dams, intermittent water bodies and ephemeral drainage lines, dead and fallen timber, native vegetation, mine shafts and foliage with various strata.

Vertebrate Pests

Vertebrate and feral pests are managed in accordance with the *CMPL Pest Animal Management Plan* and monitoring of them is included in the BMP.

EcoResolve (2022) identified five feral fauna species which are all common species in the Cobar area. The five species identified are:

- Rabbit – *Oryctolagus cuniculusl*
- House Mouse – *Mus musculus*
- Feral Goat – *Capra hircus*
- Brown Hare – *Lepus capensis*
- Feral Cat – *Felis catus*

d. Rock/Overburden Emplacement

All waste rock at CSA that comes to the surface has been assessed in accordance with the AMD Waste Rock Management Plan and is deemed to be NAF. Waste rock is only temporarily stockpiled on the surface at either the Mt Brown stockpile area or the STSF for future use in tailings facility construction or set aside for future rehabilitation purposes.

An AMA is also in place to remove waste rock from the excised Northern Tailings Storage Facility that was historically placed there, for construction works on the Southern Tailings Storage Facility.

e. Waste Management

The waste management requirements and processes for handling, storage, reuse, recycling and disposal of all major waste streams at the CSA is managed as per the CSA Mine Site Waste Management Procedure.

CMPL generates development waste rock when underground drives are established within the CSA Mine. Approximately 20% of all material handled underground is waste rock. Normally this waste rock is disposed of underground into mined out voids,

from which ore has been extracted. During periods where there is no storage capacity underground, CMPL hoists waste rock to the surface. The waste rock is hoisted by means of the existing ore handling system.

The current mine plan allows for the haulage to the surface of waste rock and stockpiling for future use during construction projects and rehabilitation works on site.

The AMD Waste Rock Management Plan seeks to geochemically characterise and manage mineral wastes to ensure that the risks associated with AMD are managed and minimised. This strategy will, ensure there is no future environmental concerns because of acid generation, and enable simpler mine lease rehabilitation and relinquishment.

Non-Mineral Wastes
Non-mineral waste from the CSA Mine is managed per the CSA Mine Waste Management Plan (Feb 2023). A licenced contractor is engaged to remove general wastes to the Cobar Shire Landfill for disposal and comingled recyclables, such as cardboard, paper, aluminium, plastic, glass, scrap metal, e-waste, tyres, printer cartridges and used batteries to processing plants in Dubbo for recycling.

Green waste is placed on exposed rehabilitation areas to assist with the establishment of growth media. Contaminated fill is disposed of at a designated area at the TSF. Hydrocarbon waste is recycled/reprocessed where possible after collection by a licenced contractor.

Exploration waste is managed as per the conditions of the APO, which generally include the removal of general wastes from the lease to be deposited in the Cobar Shire Landfill and for mineral wastes and sump clean outs to be taken back to the CSA site for disposal as part of the waste backfill of the mine.

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f. Geology and Geochemistry

The CSA deposit is located within the Cobar Basin of the Lachlan Orogen. Mineralisation at the CSA Mine is hosted within the Devonian-aged CSA Siltstone, a steeply dipping sequence of interbedded siltstone and sandstone turbidites. Ore is primarily chalcopyrite and is fault hosted within the sediments. Variable quartz, chlorite and talc occurs with mineralisation.

Waste rock which is hauled to the surface has been deemed to be NAF, as per the testing requirements in the AMD Waste Rock Management Plan. The testing requirements are completed as well as an assessment made by site geologists so that the mine schedule and mine plan incorporate the movement of waste rock that is NAF to come to the surface and any PAF to stay underground for use in stope backfilling.

g. Material Prone to Spontaneous Combustion

History has shown that there are no items which pose a high direct risk of spontaneous combustion at the CSA Mine. Two minor incidents have been recorded since reopening the CSA in 1999. Both incidents occurred on surface and involved smouldering Cu concentrate at the concentrate storage. Mineralogical assessment of the concentrate at the time failed to identify any contributing factors for these incidents. Whilst some Cu concentrate has shown signs of spontaneous combustion, it is considered a minor risk, and is easily prevented by regular hosing down, clean-up of the Ore Processing area and stockpile management including stock rotation.

h. Material Prone to Generating Acid Mine Drainage

The management of Acid Mine Drainage (AMD) is carried out in accordance with the CMPL Acid Mine Drainage Management Plan and the Classification and Management of Waste Rock Procedure.

The plans and procedures in place seek to geochemically characterise and manage mineral wastes to ensure that the risks associated with AMD are managed and minimised and ensure a consistent approach to waste rock management.

This strategy is strictly complied with to allow CMPL to meet its statutory obligations, ensure there is no environmental damage because of unplanned acid generation and enable the rehabilitation and relinquishment of the Mining Lease area.

All waste rock material types are geochemically tested for issues related to AMD and the potential for metal leaching. Only suitable, low-risk waste rock material is permitted to be hoisted and stockpiled on the surface. Geochemically unsuitable materials are integrated into mining activities. The selection of appropriate controls depends on several factors including the type and severity of expected environmental impacts and the opportunities and materials available. Pro-active management is recommended over-reactive management whenever possible.

Pro-active (preventative) measures to manage high-risk material include:

- Underground reuse to eliminate surface exposure (preferred management method)

- Encapsulation in tailings facilities
- Mixing / co-disposal with other inert material to reduce the acid-forming potential of the waste rock

Reactive (remedial) measures after AMD have developed would require:

- Covers (Soil and/or Water)
- Downstream recovery and treatment

i. Ore Beneficiation Waste Management (Reject and Tailings Disposal)

The STSF rehabilitation will be as per the *STSF Closure and Rehabilitation Plan update* (2022), which in summary requires shaping and capping of the STSF to allow free flow of runoff water and areas for revegetation establishment.

The STSF rehabilitation is based around the following criteria:

- Tailings infrastructure decommissioned and area made safe
- Perimeter embankment and overall landform
    - Reshape outer slopes as required
    - Cover mine rock fill areas with a thin layer of topsoil
    - Crest of embankments profiled to maintain water flow to outer edge
    - Downstream slope shaped to form unbroken concave slope with no berms
- STSF Upper surface
    - Scarify, lime treatment and compaction
    - 300 mm thick compacted weathered rockfill layer
    - Establish vegetation plots at selected locations, with geomembrane lining and topsoil

j. Erosion and Sediment Control

Erosion and sedimentation processes have the potential to impact existing rehabilitated lands by reducing soil stability and vegetation establishment. The soils at the CSA Mine are dominated by red sandy loams with little structural development and are highly susceptible to erosion when bare.

Measures implemented in rehabilitation areas to minimise the impact of erosion and sedimentation include deep ripping of surface contour, the establishment of vegetation cover through either natural recruitment or direct seeding, the installation of sediment fences and the use of a mulch layer as ground cover material.

Site rehabilitation monitoring includes ongoing assessment of site erosion, particularly associated with revegetated areas. Depending on seasonal rainfall, some erosion can be expected until adequate vegetation cover is established, whether as minor gully erosion in the drainage lines or more widespread rilling on sloping ground.

Areas of erosion will be stabilised utilising appropriate techniques including but not limited to further revegetation sowings (including temporary cover species if required), earthworks (drain stabilisation or cut-off bunds) and/or the laying of geotextile materials.

Rehabilitation work usually involves bulk earthworks, such as reshaping and contouring, groundcover/erosion control, soil remediation, removal of contamination and seeding.

k. Ongoing Management of Biological Resources for Use in Rehabilitation

Topsoil is an extremely valuable resource for rehabilitation. It is a biologically active medium which provides the supply of seed and other propagules, micro-organisms and other key nutrients which assist in the formation of groundcover. However, the supply of topsoil in the Cobar region is limited and therefore must be correctly managed to ensure closure criteria and performance indicators are successfully achieved.

CMPL's Topsoil Management Plan provides guidance for the management and use of topsoil recovered from operations at the CSA Mine. The Plan addresses the recovery, transport and respreading of recovered topsoil either as direct lay or stockpiled for future use. The Plan also identifies the locations where this soil can be stockpiled and what management strategies will be put in place to ensure the physical and biological integrity of the stockpiles are maintained.

Stockpiled topsoil and any additional topsoil that may be recovered in the future will be used for future rehabilitation at the CSA Mine. Most of the stored soil is not likely to be used until rehabilitation works of the TSF begin when mining operations have ceased. Smaller projects in the nearer future which require smaller volumes of the topsoil will be sourced from existing stockpiles as required and with reference to management guidelines identified in this plan for the respreading of topsoil.

l. Mine Subsidence

The CSA Mine subsidence zone is located over 1 km laterally from the current stoping and development activities, in an area that has been excised from the Mining Lease since subsidence occurred prior to CMPL taking over the mine operations.

Due to the current mining operations being significantly deep in the mine and the implementation of modern mining techniques and ground support, it is very unlikely that there will be another failure through to the surface. The only open void of concern is located underground at 4 Level, just off the main decline. This underground stope has been open for approximately 30 years and is monitored periodically.

m. Management of Potential Cultural and Heritage Issues

Aboriginal cultural heritage is managed through CMPL Environmental Management System, which includes protection measures specified in the following plans:

- Exploration Environmental Management Plan (PLN-016); and
- Cultural Heritage Management Plan

Cultural Heritage

An investigation of available records reveals that the grant of Western Lands Lease 731 in perpetuity is a previous exclusive possession act under the provisions of the Native Title Act 1993 (Cth), and native title in the land was extinguished by that past dealing (DIPNR 2006). A Cultural Heritage Survey conducted by external consultants in 2007 (CEC 2007) did not identify any significant Aboriginal heritage at the CSA Mine.

Notwithstanding, CMPL is committed to maintaining good relationships with the traditional owners of the land (the Ngiyampaa people). Staff undertaking surface exploration activities are provided with information to allow them to recognise Aboriginal heritage sites or artefacts.

All locations where surface disturbance or exploration activities are planned e.g. proposed drill sites, roads and tracks etc, are checked prior to any disturbance activity for potential Aboriginal heritage sites.

In accordance with CMPL's Site Disturbance Permit-Pre-disturbance Baseline Study and Permit requirements, all disturbance permits include the condition that if any items of cultural heritage significance are found, all work must stop immediately and DECCW consulted to determine if an AHIP is required.

CMPL employees and contractors are instructed to notify the presence of sites of potential importance so that they may be further examined, and appropriate actions taken as a result of any findings. Sites are then documented and identified, with the appropriate department notified for confirmation of status and management advice.

Any Aboriginal archaeological finds, artefacts or information concerning Aboriginal sites that are passed on to CMPL are appropriately handled and reported to the NSW OEH within a reasonable time of being aware of the location or discovery. No Aboriginal place, object or relic is to be disturbed or damaged without the consent or authorisation of the OEH.
The Due Diligence Code of Practice for the Protection of the Aboriginal Objects (DECCW 2010) is utilised by the CSA Mine in the assessment of new projects and all exploration activities undertaken on the mining and exploration leases. The code outlines a 'Due Diligence' process to ensure there is no unintended harm to Aboriginal artefacts.

European heritage

Heritage items within CML5 are managed according to the relevant legislation and guidelines, namely the National Parks and Wildlife Act 1974, the Heritage Act 1977 and the Environmental Planning and Assessment Act 1979. Any heritage assessment required is also conducted in accordance with the Cobar Local Environmental Plan 2012 (LEP) (CSC 2012).
Identified European heritage sites on CML5 include:
Mining Quarters – the site of a miner's quarters erected in the 1960's is located approximately 400 m southwest of the CSA Mine administration building. The site once contained five houses and one swimming pool; these were removed after mine closure in 1998. The only remaining remnants are the bitumen road, some cleared areas with stockpiles of topsoil, and some garden beds that continue to grow exotic garden species.

"Eloura" – located 1.5 km from the CSA Mine site. This area shows s remnants of old rock gardens and buildings. Most of the older buildings were removed during mine upgrades in the 1950s and 1960s.

CSA Power House – contains five HSF8 Mirrlees diesel engines, manufactured in 1951 by Mirrlees, Bickerton and Day in Stockport, England. The five engines represent excellent examples of medium sized stationary engines of the mid-20th century and combined with the brush alternators they are an increasingly rare example of turbocharged technology fitted to diesel engines, a technology previously used to provide power in rural Australia. Recognising their heritage significance CMPL engaged specialist consultants in February 2011 to complete an archival recording of both the powerhouse and the engines consistent with OEH Guidelines (GML 2011). The Mirrlees diesel engines were subsequently placed on the National Trust of NSW Heritage Register in July 2011. This register however is non-statutory with no legal implications for their conservation

or restrictions on development. CMPL plans to retain the Mirrlees Engines in situ within the Powerhouse at the CSA Mine for the foreseeable future.

n. Exploration Activities

Exploration activities are conducted on all authorities held and maintained by CMPL (Table 3). Exploration activities which may be undertaken across the life of an Exploration Licence, or the Mining Lease include, but is not limited to:
Exempted Development:

- Data acquisition, literature review and research.
- GIS development and compilation of historic datasets
- Low impact field activities including prospect evaluation, soil, rock chip and/or stream sampling, geological and regolith mapping.
- Low impact geophysical surveys including Induced Polarisation (IP), Electromagnetic (EM), Magnetic, Gravity and Down-hole Electromagnetic (DHEM) surveys.
- Environmental baseline studies, monitoring programs and rehabilitation inspections.

Assessable Prospecting Operations or regional surveys:

- Seismic geophysical surveys.
- Airborne photography, magnetic, radiometric, gravity and EM surveys.
- Auger, Air Core and Rotary Air Blast (RAB) drilling programs.
- RC & Diamond drilling programs.

For Assessable Prospecting Operations or regional airborne surveys an Activity Impact Assessment must be tailored and completed for each exploration activity. Activities that are regarded to be high impact or occur within an Exempted Area or State Conservation Area, must obtain Ministerial Consent and also be approved by the NSW Resources Regulator. For each activity programme, a Site Disturbance Permit (SDP), Risk Assessment and Rehabilitation Objectives Completion Criteria (ROCC) must be completed. The SDP outlines the following:

- Baseline information on pre-existing land use, conservation values, land capability, extent of any pre-existing disturbance or land degradation, an assessment of biological resources
- A requirement to ensure photographs are taken pre and post the activity
- The final land use goals and ROCC's associated with each project
- The measures to be employed to manage biological resources such as timber, seeds and topsoil
- Description of rehabilitation methods and proposed schedules

The SDP and ROCC for a proposed exploration activity directly support the Assessable Prospecting Operation (APO) application that is made to the NSW Resources Regulator which provides authorisation for the activity to proceed within a defined time period. All disturbances resulting from exploration activities are rehabilitated to a stable and permanent form as identified in the Exploration Environmental Management Plan as soon as practicable after the sites are no longer required. The EMP and ROCC are developed and conducted in accordance with the Codes of Practice, Licence Conditions and any further requirements under the Mining Act and Mining Regulations.

At the closure of an approved exploration activity, CMPL will submit a Rehabilitation Completion application requiring approval by the NSW Resources Regulator to indicate the work and rehabilitation of disturbed areas is complete and that the Rehabilitation Objectives and Completion Criteria have been met. Subsequent site inspections on the disturbed work areas may be conducted by the CMPL Environmental Department to ensure rehabilitation is successful.

6.2.2 Decommissioning

The decommissioning stage at CSA will involve the shutting down of operations and turning off and removing all services and infrastructure. As the plant and underground are closed to commence decommissioning, they are flushed out/cleaned down and left in a state that is safe and manageable. Appropriately skilled and experienced contractors will be engaged to complete the full decommissioning process.

a. Site Security

Appropriate site security measures will be maintained throughout decommissioning and any active rehabilitation operations to ensure public and employee safety.

No public access to the Mine Site will be permitted. This includes ensuring there is adequate site fencing to prevent unauthorised access to the site, with clear site signage and warning entry signs at all entrances. This also included ensuring that all excavations and openings have been securely covered and fenced off prior to leaving site.

b. Infrastructure to be Removed or Demolished

Prior to the commencement of any demolition and decommission works, approval may be sought from the Cobar Shire Council, as required under the State Environmental Planning Policy. All decommissioning is to be undertaken in accordance with the best proposed method as shown by assessments and studies, to be undertaken closer to the end of the mine life.

Depending on the demand for industrial infrastructure post mining by non-mining operators, the following infrastructure may be decommissioned:

- No 1 shaft head frame, winder house and ventilation fan
- No 2 Shaft and friction winder
- Ore Processing area - including Ore conveyor from No 2 shaft and four ore bins, Concentrator building and semi-autogenous grinding (SAG) mills, two Concentrate storage sheds, tailings pipelines and associated tailings storage facility
- Backfill Plant and associated boreholes
- Metallurgy Assay Lab
- Refrigeration Plant
- Surface vehicle wash-bay
- Powerhouse (Air Compressors and redundant Electricity Generators building)
- Core Yard shed
- First Aid and Mines Rescue offices, Change House and Training Building
- Maintenance, Contractor and Mining Offices
- Store Warehouse and Surface Workshop
- Administration building and associated car park
- Roadways and a railway line
- Additional buildings and infrastructure occupied by on site contractors include the Secoroc/Atlas-Copco workshop, the EDMS workshop and cement batching plant, and the Dyno Nobel yard
- Septic storage tanks; and Electrical and phone services (transmission lines, switchyards, sub stations and phone lines)
- Water supplies (dams, pump stations, potable pipelines, non-potable/dust suppression pipelines)
- Fuel farm and fuel storage facilities and
- Road infrastructure- haul roads, mine access roads, and load out facilities

Progressive and final decommissioning will include the following:

- Disassemble, demolish and remove structures where relevant
- Removal of demountable buildings including offices and storage sheds
- All masonry and concrete associated with bulk hydrocarbon storage will be cleaned, demolished and disposed by burial
- Removal and/or remediation of contaminated wastes and soil
- Remove concrete pads and footings where relevant
- Separation of saleable items
- Reuse or recycle materials (e.g., steel and concrete) where practicable, or dispose of
- appropriately
- Disconnect and terminate services where relevant
- Retained infrastructure to be assessed in context of safety in terms of transfer of ownership and potential future users
- Access tracks will be ripped, topsoiled if required and revegetated
- Cobar Council are provided with plans indicating the nature and location of buried services
- Current domestic services such as telephones, water reticulation, power reticulation and sewers will be decommissioned and if appropriate removed
- Assessment of demand for the 132Kv powerlines and substation
- Assessment of the demand for the water supply pipeline and storage tanks
- Decommission the rail spur (i.e. remove the junction section of rail, place signage and fence out)
- Main gate to be secured and kept locked
- Potential heritage items will be assessed and once assessed in terms of safety may be given /sold to local museum or interested parties

c. Buildings, Structures and Fixed Plant to be Retained

Current approvals do not state that any infrastructure is to remain onsite post closure and the current plan is for all infrastructure to be demolished or removed from site.

Cobar Shire Council has indicated in the past that it may be beneficial for Cobar to retain some infrastructure including the headframe and the decline for historical and tourism purposes.

In addition to retaining potential heritage and tourism items, some services, such as the 132kv powerline (which currently also services Endeavor Mine) and substation may also remain. Prior to final decommissioning, CMPL will liaise with the electricity supplier (Essential Energy) notifying of intentions to close the site. Following discussions, it is likely that the 132Kv powerline and the substation would stay, as they serve other users, although some of the assets (e.g. switch gear and transformers) may be changed. Essential Energy is also likely to require continuing access to that infrastructure.
All remaining structures will be assessed to determine the structural integrity prior to reaching the final stages of rehabilitation.

d. Management of Carbonaceous/Contaminated Material

Contaminated material is managed under the Site Contamination Register. Contaminated studies have been undertaken to determine contamination levels. These studies will be used to develop appropriate remediation or removal techniques in conjunction with consultants or contractors experienced and licenced in this field.

e. Hazardous Materials Management

Hazardous Material are managed under the Dangerous Goods and Hazardous Substances Management Plan. Hazardous materials onsite are small in quantity and will be removed and disposed of appropriately.

f. Underground Infrastructure

All underground equipment and infrastructure will be decommissioned and removed or salvaged where possible.
Shafts No's 1 and 2 will be capped prior to demolition/removal of the headframe and associated structures. The method of capping will be determined in the final Closure Plan prior to site decommissioning. The Decline Portal will also be secured, and some form of heavy-duty security barrier constructed. A securely locked access gate may be included in the gate frame for any future safety, geological observation or tourist entry, but these details will be covered in the final decommissioning closure plan after discussion with the relevant authorities and interested stakeholders.

The shaft headframes and ore bin conveyors will be stripped of saleable components which will be salvaged and sold prior to demolition. Other steel and recyclable metals will be broken down to transportable dimensions, separated by scrap type and sold.

6.2.3 Landform Establishment

a. Water Management Infrastructure

Most of the water management infrastructure associated with the operation of the CSA mine is not intended to remain post closure apart from marginal sediment capture/ control structures. The water management dams/sediment basins that will be retained for rehabilitation are to provide for the capture and management of surface run off and sedimentation during the rehabilitation phases. These dams will be desilted as required and maybe kept as stock water dams post closure if required.

b. Final Landform Construction: General Requirements

The proposed final landform at the CSA Mine will be designed to reflect as close as possible the original pre-mining landform and drainage characteristics of the area and will empathise with the adjoining landform. The surrounding topography in the Cobar region is characterised as flat to gently undulating with a few scattered hills.

The surface of most of the site is relatively flat and will be rehabilitated with similar landform shapes to the surrounding areas, taking account for any erosion management structures required.

c. Final Landform Construction: Reject Emplacement Areas and Tailings Dams

The only major landform that will remain on site after closure is the tailings dam, for which three final landform options are considered. Based on the presently available information, the preferred option for the STSF is a crescent shaped domed structure with suitable tailings surface treatment and a well-defined surface drainage system. Further investigations and design work is planned to determine the most appropriate STSF rehabilitation and closure methodology. The STSF has two more planned lifts with a further approximately 10 yr. active life cycle.

The STSF final surface will predominately be a domed structure that will be shaped to minimise water pooling and manage erosion. Areas of higher slope may have any salvaged timber replaced and ripped along the contour to protect the surface and minimise the potential of erosion and landform failure.

d. Final Landform Construction: Final Voids, Highwalls and Low Walls

Not applicable.

e. Construction of Creek/River Diversion Works

Not applicable.

6.2.4 Growth Medium Development

The SGM 2022 – *Rehabilitation Material Assessment* report details the materials characterisation of site available rehabilitation media and materials inventories that are available onsite. This report also discusses other options for rehabilitation media.

Materials characterisation
Materials characterisation was undertaken in 2022 by SGM Environmental on soil, weathered rock, NAF waste rock and PAF tailings, to assess the type of material available for rehabilitation, especially on the STSF.

Topsoil
Soil fertility is low with slight to moderate alkalinity. It has low nutrient content which may limit plant growth, but however the CEC cation exchange capacity of most soil profiles is suitable as it increases nutrient availability and buffering capacity of soil to acidification.

NAF waste rock
Fertility of NAF waste rock is similar to the topsoil i.e low; however, CEC is also low. It means nutrient availability and buffering capacity to acidification is reduced. The pH is moderately alkaline and may limit micronutrient availability. Erosion potential is similar to soil i.e non-sodic (ESP <6%) with excess salinity.

Weathered rock
Weathered rock fertility is low. pH is similar to NAF waste rock i.e moderately alkaline. Salt sensitive plant growth would be limited because of very high salinity. Erosion potential is low based on sodicity, electrochemical stability index (ESI), and excess salinity

Material Inventory
A review of the rehabilitation material inventory was done by SGM and was updated in SGM 2022.

From SGM 2022 there is approximately 126,312 m^3 of topsoil stockpiled on site at CSA.

The volume of waste rock stored on the surface varies as it is used for construction purposes at the STSF.
AMA1026 on the NTSF allows for the removal of the 87,000 m^3 waste rock stockpile for construction and rehabilitation purposes. The majority of the NTSF waste rock will be used for buttressing the STSF stage 10 lift.

Further rehabilitation media can be sourced form a borrow pit which has been approved by Cobar Shire Council adjacent to the STSF for the extraction of waste rock for construction and rehabilitation purposes.

6.2.5 Ecosystem and Land Use Establishment

The CSA site is relatively flat with the only area of slope being the tailings facility area. Most of the disturbed lands will be revegetated with native seeds and if climatic conditions allow small areas of tube stock will be used. The use of tube stock will most likely occur in year 2 or 3 of rehabilitation, this allows for the soil matrix to settle and establish itself, providing a better rooting zone for the tube stock establishment. The planting of tube stock at this time reduces the need for establishment watering as the soil already has the required plant available water for establishment.

CSA have commenced rehabilitation of some small areas which will be monitored for seed success and recruitment from soil seed banks. This will guide the longer-term seed collection program.

With the known climate of western NSW rehabilitation of the site may be spread over several years to reduce the potential of failure due to dry conditions or similarly may be progressed quicker to take advantage of favourable conditions.

The rehabilitation program will consist of the following concepts which will be refined as new information or ideas are developed.

- Replacing topsoil or growth media
- Respreading any salvaged timber or soil ameliorants
- Mechanical spreading of seeds at pre-determined rates- if required for slopes, ripped along the contours with dozer at the same time

- Cover crops are currently not considered but may be used if deemed beneficial
- Following in approx. yr. 2 or 3 tree species will be seeded with something like a Burford seeder and potentially also planted using tube stock if required
- Tube stock may require some amount of watering during the initial establishment phase, pending local weather events at the time. Tube stock would be preferentially planted in localised clumps to make any watering campaign more efficient

Seed will be sourced based on specialist recommendations and based on the local species that are associated with the local vegetation communities, namely the PCT103, *Poplar Box-Gum Woodland-White Cypress Pine shrubby woodland.*

Weed and Feral management will be undertaken as per the relevant management plans.

6.2.6 Ecosystem and Land Use Development

Rehabilitation monitoring will be used to define/determine management requirements for the rehabilitation areas. The monitoring will also include analogue sites, so the management requirements are commensurate with undisturbed areas.

The rehabilitation monitoring program will include:

- Weed infestation
- Feral Animal activity (numbers or damage)
- Evidence of erosion, integrity of water management structures
- Success of establishment and vegetation cover
- Success of any planted tube stock
- Reworks or maintenance requirements

6.3 Rehabilitation of Areas Affected by Subsidence

The only subsidence zone on the CSA site is Mt Brown, which has been excised from the CSA Mining lease and is the responsibility of the NSW government.

7. PART 7 - REHABILITATION QUALITY ASSURANCE PROCESS

The rehabilitation quality assurance process will be developed based on progressive rehabilitation learnings and best practice rehabilitation. In line with requirements and best practice rehabilitation management the rehabilitation phase status of each domain will be updated in the Forward Program and reported annually in the Annual Report.

The rehabilitation quality assurance process will ensure that:

- Rehabilitation materials are being collected and preserved as required for later use
- Rehabilitation is being implemented, and rehabilitation techniques are being followed per current methodologies and schedules
- Rehabilitation risks are being addressed as required through each stage and any new risks identified and controlled as required

***Table** 13 Rehabilitation Quality Assurance*

Phase	Quality assurance process	Responsibility for implementation	Method of documenting and recording process	Method and timeframe for reviewing process
Active Mining/Exploration	•Site Inspections – weeds, pests, erosion, topsoil stockpiles, projects works and associated waste i.e. drilling muds, spoils •Pre Clearance surveys •Develop materials balance for rehabilitation •Implement environmental monitoring program •Project Management	Environment team Survey Project team	Site inspection records Annual Reporting and Forward Program Weed and Pest Management documented Exploration Reporting (SDP & ROCC, APO, Rehabilitation Completion)	Annual Report and forward program Site monthly reports
Decommissioning	Inspections and decommissioning reports Contaminated soils and hazardous materials assessment Validation testing for contamination areas	Closure engineer Environmental Officer	Decommissioning reports – photos and work log Soil samples and hazardous material reports Waste management documents/ records Monthly rehabilitation works report	Annual Report Projects reports
Landform Establishment	Landform design and survey report of as-built structures Regular visual inspections Soil testing and recording depth of capping materials Stockpile and weed management	Surveyor Environmental team	Landform survey report Documentation of visual inspections Monitoring and any independent inspection or geotechnical reports Monthly rehabilitation works report	Annual Report Project Reports
Growth Medium Establishment	Site records and survey of re spread of topsoil, subsoil, soil ameliorants, any ripping or compaction undertaken, Soil testing results for application of lime or other ameliorants Weed Management	Environmental Officer/ Surveyor	Monthly rehabilitation works report Documentation of visual inspections	Annual Report
Ecosystem and Land Use Establishment	Monitoring results for natural seed germination effectiveness, Regular visual inspections Collected seed viability testing and recording of seeding event if required, Ongoing scheduled rehabilitation monitoring including comparison with analogue sites Weed and pest Management	Environmental Officer / Ecological Consultant	Rehabilitation monitoring report Documentation of visual inspections Monthly rehabilitation works report	Annual Report
Ecosystem and Land Use Development	Regular visual inspections, Register of any maintenance undertaken including weed and feral management Ongoing rehabilitation monitoring	Environmental Officer Ecological Consultant	Rehabilitation monitoring report Documentation of visual inspections Monthly rehabilitation works report	Annual Report

8. PART 8 - REHABILITATION MONITORING PROGRAM

The rehabilitation monitoring program compares the progress of rehabilitated landforms towards fulfilling long-term land use objectives by comparing a range of ecological performance indicators and resultant completion criteria against areas of remnant vegetation not impacted by mining activities (analogue or reference sites). These analogue sites are representative of the desired final land use, landscape and vegetation assemblage, and serve to provide a goal or target for rehabilitation.

8.1 Analogue Site Baseline Monitoring

Analogue sites are a core component of the rehabilitation monitoring program at the CSA Mine and have been previously monitored annually and at the same time as the rehabilitation areas to establish baseline data. Grazed analogue sites previously located outside the boundaries of the CML5 mining lease were established within the lease boundaries in 2017. These sites have been included in all LFA/EFA monitoring program that was undertaken annually between 2011 and 2019 to collect baseline data. These analogue sites will be monitored again every 2 or 3 yrs. to maintain the baseline data and knowledge of the existing environment.

Use of Analogue Sites
The rehabilitation monitoring program compares the progress of rehabilitated landforms towards fulfilling long-term land use objectives by comparing a range of ecological performance indicators and resultant completion criteria against areas of remnant vegetation not impacted by mining activities (analogue or reference sites). These analogue sites are representative of the desired final land use, landscape and vegetation assemblage, and serve to provide a goal or target for rehabilitation.

8.2 Rehabilitation Establishment Monitoring

Rehabilitation establishment monitoring involves a monitoring program that is systematic and repeatable and is designed to collect both qualitative and quantitative data from permanent monitoring sites to assess the rehabilitation performance against performance indicators, the rehabilitation objectives and completion criteria.

The program will consist of using a blend of LFA and EFA on both analogue and rehabilitation sites using the LFA/EFA methods (as described below) and permanent photo points.

Monitoring is currently planned to be undertaken annually for 3-5 yrs. post rehabilitation then triennially out for a further 10 yrs and then as required out to relinquishment, pending outcomes of the success of the rehabilitation.

Results from the monitoring program will be used to determine if there are any emerging risks in the rehabilitation and to identify trends that may assist future rehabilitation such as plant density establishment or different species establishment success.

Methodology
Methodology for analysis of analogue sites involves a combination of the following procedures with can be replicated over any vegetation community or rehabilitation area to allow a comparison of similar communities:

Methodology for analysis of analogue sites involves a combination of the following procedures which can be replicated over any vegetation community or rehabilitation area to allow a comparison of similar communities:

- Landscape Function Analysis (Tongway and Hindley 1997)
- Ecosystem Function Analysis (Tongway and Hindley 2004; Randall 2006)
- Visual Assessment of revegetated areas
- Soil Analyses
- Weeds and Vertebrate Pest Species monitoring

Landscape Function Analysis
Landscape Function Analysis (LFA) is a methodology used to assess key indicators of ecosystem function including landscape organisation and soil surface condition as measure of how w ell the landscape retains and uses vital resources. The indicators used quantify the utilisation of the vital landscape resources of water, topsoil, organic matter and perennial vegetation in space and time.

LFA methodology collects data at two “nested” spatial scales.
At coarse scale, landscape organisation is characterised. Patches and interpatch, indicators of resource regulation, are mapped at the 0.5 to 100 m scale from a gradient-oriented transect (making sense of landscape heterogeneity); and

At fine scale, soil surface assessment (soil "quality") examines the status of surface processes at about the 1- m scale, with rapidly assessed indicators on the patches and interpatch identified at coarse scale.
Ecological Assessment of Revegetated Areas

A monitoring technique will be developed and implemented that provides an assessment of various landscape contributors and provides quantitative data that measure changes in:

- vegetation structure, composition, survival and habitat complexity (Ecosystem Function Analysis – EFA).
- Presence of exotic weeds and feral animal species; and
- Disturbance factors

Permanent transects and photo-points will be established to record changes in these attributes over time

Soil Analyses
Soil sampling is done as part of the LFA and rehabilitation monitoring assessment. Soil samples are undertaken using standard soil sampling techniques with a core sampler within the monitoring quadrat. Soil samples are to be sent to an accredited laboratory for analysis. Soil analyses consist of assessing the following parameters: pH, sodicity, Electrical Conductivity, Electrochemical Stability Index, plant available nutrients, cation balance, soil organic matter content and soil texture.

Weeds
An integral part of a weed control program is to determine if the control methods being implemented are effectively reducing the population size and density of target weeds. Any treated areas will be inspected and mapped using GPS and GIS to monitor treatment success and determine if follow -up treatment is required.

Monitoring inspections take the form of vehicle-based surveys to detect the presence of weed infestations. The distribution and density of identified weed infestations are evaluated with particular reference to areas where previous weed control works may have been implemented.

Opportunistic sightings of weed species by mine staff are reported to environmental staff to ensure prompt and effective weed management.

Vertebrate Pests
Vertebrate pest monitoring is undertaken across the site on an annual basis using the following techniques:

- Monitoring inspections – fresh diggings, warrens, scats in areas where rabbits and/or goats have been previously recorded
- Mine staff feedback on visual sightings and/or damage caused by pest animal species e.g. warrens, diggings and animal sightings
- Information gained from previous control program; and
- Remote sensing cameras which may be placed in areas of known pest animal activity.

8.3 Measuring Performance Against Rehabilitation Objectives and Rehabilitation Completion Criteria

The rehabilitation objectives for CSA (**Table 11**) have been accepted and will be used as the basis for developing the rehabilitation completion criteria.

The data, results, and trends identified through the rehabilitation monitoring and inspections will be used to assess against the rehabilitation objectives and once accepted the rehabilitation objectives.

Results for these comparisons will be used to identify any rehabilitation deficiencies, which will be addressed through the relevant TARPS or management plans.

9. REHABILITATION RESEARCH, MODELLING AND TRIALS

9.1 Current Rehabilitation Research, Modelling and Trials

Sugar Cane Mulch trials
Rudimentary sugarcane field trials commenced in January 2023, with this project considered to be ongoing for the foreseeable future in order to gain the best understanding of long-term effects of soil amelioration. The aim of these trials was originally to assess what proportion of sugarcane mulch to existing soil would provide the best capacity for water retention, indicating improved soil structure.

The methodology entailed four samples, kept in intermediate bulk containers (1,000 L containers), each being filled with differing ratios of sugarcane mulch to original soil (taken from sites emulating typical soil in areas to be rehabilitated). It was intended that water be poured in at regular intervals and taps at the base of the IBCs be opened to assess how much of said water was retained and how much was able to pass through. After a period of increased rainfall, it was found that leaving these trials to assess for overall self-seeding ability in each sample was a more effective way to assess soil amelioration success.

These trials were revisited in November 2023, and it was found that the 1:1 sugarcane mulch to soil (using representative existing site soil) ratio showcased the best results as a plant growth medium. Re-assessment of the success of self-seeding of these trials will occur every 6 months.

9.2 Future Rehabilitation Research, Modelling and Trials

Future rehabilitation trials will be based around determining the most appropriate, successful and cost-effective method of rehabilitating the STSF and any other future Tailings facilities at CSA.

These trials will include a review of existing information to build up a strategy for future trials and research that may include

- Reassessment of the tailing's column and capping trials
- Trial vegetation plots to determine seeding success for various native species and differing soil treatments
- Modelling final landform designs for stage 10 and stage 11 final design heights
- Direct seeding trials into tailings
- Investigation into the effectiveness of the tailings Hardpan for rehabilitation
- Upscaling of the sugar cane mulch trials

10. INTERVENTION AND ADAPTIVE MANAGEMENT

A Trigger Action Response Plan (TARP) has been developed to provide for adaptive management of rehabilitated areas and set parameters and actions that can be implemented in the event of poor performance or unexpected results from the rehabilitation monitoring program.

The following TARP as **Table 14**, identifies the proposed contingencies/strategies in the event of unexpected variations or impacts to rehabilitation outcomes in regard to the final land use Category 'A' Native Ecosystem. Where necessary rehabilitation procedures and methodology may be varied and updated in correspondence from both monitoring result outcomes and trigger responses.

Table 14 Tigger Action Response Plan

Rehabilitation Risk	Triggering	Actions/Response	Measure/Monitor response	Notification/ reporting
General				
Community/stakeholder non acceptance of rehabilitation - loss of social licence to operate	Official complaints from relevant stakeholders	Update community and stakeholder engagement to address issue	Feedback from stakeholder	Annual Rehabilitation Report
Rehabilitation criteria cannot be met - biodiversity and/or ecological	Rehabilitation Monitoring indicates that the completion criteria cannot be net	Reassess rehabilitation to determine failure point and seek assistance from industry specialist to rectify and develop remedial action plan- which may also require review of the rehabilitation criteria	Rehabilitation Monitoring Reports	Annual Rehabilitation Report
Rehabilitation site becomes haven for feral/ kangaroos which affect rehabilitation results	Rehabilitation Monitoring /Rehabilitation Inspections determine excessive impact from ferals on rehabilitation areas	Review and update the pest management process and exclusion fencing to ensure feral activity minimised	Rehabilitation Monitoring Reports	Annual Rehabilitation Report
Active Mining Phase of Rehabilitation				
Handling and containment of geochemical and geotechnically unstable tailings and waste rock materials	Testing or inspection's identify material that is PAF or not	Set up and implement a quality control mechanism to ensure rehabilitation works are per the required specifications	Waste rock testing procedure	Annual Rehabilitation Report
Wind and water erosion	Monitoring of landform progression identifies instability/unacceptable movement (actual or potential) in final landform Monitoring or environmental assessment reveals wind and water erosion (actual or potential) in final landform	Stabilise the substrate and increase organic matter by using sterile cover crops or applying mulch e.g. seed bearing native pasture hay in alternating rows Suitably qualified geotechnical engineer to assess any instability and provide a range of recommendations to remediate the instability	Rehabilitation monitoring reports, visual inspections	Annual Rehabilitation Report
Landform Establishment Phase of Rehabilitation				
Stabilisation of landform fails due to erosion	Monitoring of landform progression identifies instability/unacceptable movement (actual or potential) in final landform	Suitably qualified geotechnical engineer to assess any instability and provide a range of recommendations to remediate the instability	Rehabilitation monitoring reports, visual inspections	Annual Rehabilitation Report
Lack of availability of suitable materials for encapsulation or capping of adverse materials	Lack of material available as identified prior or during rehabilitation	Review characteristics of adverse materials and capping requirements Review materials budget and assess alternative options	Rehabilitation monitoring reports, visual inspections	Annual Rehabilitation Report
Landforms not designed for water management which allows for excessive erosion, which may affect landform integrity and sedimentation	Excessive erosion become evident or build-up of sediment material	Review capping material and vegetation cover and consult with relevant industry specialists to provide appropriate recommendations for remediation	Rehabilitation monitoring reports, visual inspections	Annual Rehabilitation Report

Rehabilitation Risk	Triggering	Actions/Response	Measure/Monitor response	Notification/ reporting
Ecosystem and Landuse Establishment of Rehabilitation				
Failure of water management structures	Excessive erosion become evident or build-up of sediment material	Suitably qualified geotechnical engineer to assess any instability and provide a range of recommendations to remediate the instability	Rehabilitation monitoring reports, visual inspections	Rehabilitation monitoring reports, visual inspections
Ecosystem and Landuse Development of Rehabilitation				
Re-disturbance of established areas	Change of planning for surface infrastructure – such as tailings dam	Review alternate options as part of planning process Salvage any rehabilitation material if possible	Mine planning or projects planning meetings	Annual Rehabilitation Report
Erosion and failure of landform, drainage and water management/storage structures	Excessive erosion become evident or build-up of sediment material	Suitably qualified geotechnical engineer to assess any instability and provide a range of recommendations to remediate the instability	Rehabilitation monitoring reports, visual inspections	Rehabilitation monitoring reports, visual inspections

11. REVIEW, REVISION AND IMPLEMENTATION

Reviews are conducted to assess the effectiveness of the procedures against the objectives of the RMP.

The RMP may be reviewed and if necessary revised due to:

- Any modification to the Mining Lease (CML5), Environment Protection Licence (EPL1864) and Development Consent conditions (No. 31:95)
- Deficiencies being identified
- Results from the Monitoring and Review Program
- Recommendations resulting from the Monitoring and Review Program
- Changing environmental requirements
- Improvements in knowledge or technology become available
- Change in legislation that is relevant to the mine rehabilitation
- Change in the activities or operations associated with the CSA Mine operation
- Research and trials producing data which can be used to establish, modify and monitor the rehabilitated area and
- Where a risk assessment identifies the requirement to alter the RMP

12. APPENDIX A – REHABILITATION RISK ASSESSMENT

Area	Potential Risks	Risk Rating	Controls	Likeli - hood	Conse - quences	Risk Rating
General						
1	Insufficient skills and experience of rehabilitation personnel	Moderate	Develop adequate RMP and rehabilitation protocols- set out QA plans and procedures to follow Utilise services of experienced rehabilitation consultants and **upskill existing staff**	Unlikely	Minor	Moderate
2	Lack of clearly defined responsibilities	High	Rehabilitation protocols and QA procedures continually reviewed and incorporated into Life of Mine Plan Utilise experienced rehabilitation consultants/contractors Regular project meetings, inspections/audits and consultation	Possible	Minor	Moderate
3	Insufficient funding for or prioritisation of rehabilitation activities	Moderate	Initial trials and ongoing progressive rehabilitation to be implemented as soon as area available to commence Internal budgeting mechanism to provision for rehabilitation expenditure Rehabilitation legal commitment of lease conditions Have areas planned and ready to utilise projects equipment during down time	Unlikely	Minor	Moderate
4	Community non acceptance of rehabilitation - loss of social licence to operate	High	Maintain effective community and stakeholder engagement throughout term of project	Possible	Moderate	High
5	Green House Gas emissions - increased	Moderate	Use modern properly maintained equipment Capping of open areas and implementation of revegetation should reduce GHG emissions Rehabilitation generally occurs when mining ceased and GHG already greatly reduced onsite	Unlikely	Negligible	Low
6	Ground Disturbance	High	Site inductions to include environmental component, clearing areas and access tracks clearly mapped Implement and utilise surface disturbance permits for entire site (completed well by exploration department)	Possible	Minor	Moderate
7	Air Quality -Dust	Moderate	Limit machinery movement during high dust risk events such as high wind Use of dust suppression such as water carts Continued use of existing dust monitoring network Rehabilitation generally occurs when mining ceased, and dust already greatly reduced onsite	Unlikely	Minor	Moderate
8	Noise	Moderate	As per EMP noise monitoring protocol and ongoing monitoring Rehabilitation generally occurs when mining ceased, and noise already greatly reduced onsite	Rare	Minor	Low
9	Rehabilitation occurs at much slower rate than anticipated	High	Rehabilitation planning, budgeting and execution to take into consideration, adverse weather events and timing Progressive rehabilitation	Possible	Minor	Moderate
10	Legislation, rehabilitation expectations change	Moderate	Review of closure criteria against any legislation changes if/as required	Unlikely	Minor	Moderate
11	Rehabilitation criteria cannot be met - biodiversity and/or ecological	High	Set up and implement a quality control mechanism to ensure rehabilitation works are completed as per the required specifications	Possible	Moderate	High
12	Analogue rehabilitation sites disturbed or damaged	High	Ensure no inadvertent access to analogue sites, signage and maybe fencing	Possible	Minor	Moderate

13	Rehabilitation doesn't support proposed final land use	High	Undertake rehabilitation trials, design and commence progressive rehabilitation as early as possible to rectify or implement any learnings Manage and mitigate against INS- Invasive Native Scrub	Unlikely	Minor	Moderate
14	Infrastructure remains onsite creating health, safety and/or environmental liability - ROBJ's have stated all infrastructure to be removed.	Moderate	Site access locked during rehabilitation; all infrastructure removed as per ROBJ's or made safe if determined that some infrastructure stays for alternate uses	Unlikely	Minor	Moderate
15	Rehabilitation site becomes haven for feral/ kangaroos which affect rehabilitation results	Very High	Exclusion fence around rehabilitation site, Feral control program to manage kangaroos and goats as required in consultation with NSW Resources Regulator	Possible	Moderate	High
16	Unplanned/ early project closure	High	RCE bond and internal financial provisioning as well as closure plans in place. Progressive rehabilitation and rehabilitation trials	Unlikely	Moderate	Moderate
Active mining phase of rehabilitation						
1	Biological resource salvage and maintenance through clearing, salvage and handling practices	High	Topsoil Management Plan - Topsoil and timber management methodology to ensure minimum damage, compaction, mixing of products or adverse impacts during stripping, storing and replacement programs Appropriately trained and experienced earthmoving/Rehabilitation contractors Consider suggestions from Rehabilitation monitoring reports	Possible	Minor	Moderate
2	Clearing in adverse seasonal and weather conditions when salvaging biological resources	High	Ensure mine planning includes seasonality requirements for environmental works such as clearing and topsoil removal Ground Disturbance Permit and Topsoil Management Plan	Unlikely	Minor	Moderate
3	Adverse geochemical/chemical composition of materials such as overburden, processing wastes, subsoils and topsoil and imported cover materials	High	Ensure materials characteristics and materials balance is completed and managed for ongoing into operations Annual monitoring and project monitoring of waste rock quality	Unlikely	Moderate	Moderate
4	Handling and containment of geochemical and geotechnically unstable tailings and waste rock materials	High	Set up and implement a quality control mechanism to ensure rehabilitation works are per the required specifications Waste Rock Management Plan and TSF capping protocols to be developed and implemented Annual monitoring and project monitoring of waste rock quality	Possible	Moderate	High
5	Wind and water erosion	High	Landforms and covers designed for anticipated erosion forces. Sowing of native seeds that are hardy and appropriate for the local environment	Possible	Moderate	High
6	Adverse surface and groundwater quality and quantity	High	Set up and implement a rehabilitation quality control mechanism and ongoing monitoring regime to ensure rehabilitation works are per the required specifications	Unlikely	Minor	Moderate
Decommissioning phase of rehabilitation						
1	Impacts on heritage items	High	Site inductions to include environmental component, heritage items have been removed from site under permit Surface disturbance permits and comply with Heritage Management Plan Known Aboriginal heritage sites have been previously removed under permit	Unlikely	Moderate	Moderate
2	Hazards associated with retained infrastructure	Moderate	Retained infrastructure to be made safe and stable and identify any potential for contamination. Care and maintenance/ rehabilitation to ensure integrity of infrastructure ROBJ's state currently all infrastructure to be removed	Rare	Negligible	Low
3	Exposure or access to underground workings	High	Restrict access to UG workings via fencing and signage	Unlikely	Moderate	Moderate
4	Contamination resulting from associated activities (e.g. storage/use of hydrocarbons, Spillage)	Moderate	Hydrocarbon Management and Spill Response to be part of induction process QA process in place for removal of hydrocarbon wastes offsite Bunded storage or double skin requirements for storage of hydrocarbons	Unlikely	Negligible	Low

5	Generation of material waste and waste products from the demolition process	Moderate	Waste management and QA process developed and implemented for site demolition and contractor management, material properly disposed of considering reuse, recycle opportunities	Unlikely	Minor	Moderate
6	Surface water accumulation in TSF, voids or backfill area	Moderate	Set up and implement a quality control mechanism to ensure rehabilitation works are per the required specifications Surface Water Management Plan	Unlikely	Minor	Moderate
7	Unauthorised access to rehabilitation areas	High	Induction and site protocol in relation to access of rehabilitation areas especially TSF or other no-go areas Signage and bunding as required Regular inspections and education program for site personnel	Possible	Minor	Moderate
Landform establishment phase of rehabilitation						
1	Stabilisation of landforms fails due to erosion	High	Undertake erosion modelling study landform designs to understand batter angles and water management requirements, implement water management control structures	Possible	Moderate	High
2	Lack of availability of suitable materials for encapsulation or capping of adverse materials	Very High	Ensure materials characteristics and materials balance is completed during the mine plan and designed into ongoing operations Ensure waste rock targets are met and material stockpiled for future use	Possible	Moderate	High
3	Final landform unsuitable for final land use (e.g. large rocks present affecting cultivation, settlement and surface subsidence leading to extended ponding)	High	Ensure final rehabilitation design parameters are engineer designed and developed during the feasibility study to be implemented into the active mine plan Annual monitoring as part of rehabilitation monitoring, include erosion monitoring or Lidar	Unlikely	Minor	Moderate
4	Landforms not designed for water management which allows for excessive erosion, which may affect landform integrity and sedimentation	High	Ensure final rehabilitation design parameters are engineer designed and developed during the feasibility study to be implemented into the active mine plan Undertake landform erosion study	Possible	Moderate	High
5	Landform aspect not suitable for intended target plant species	High	Closure plan to include landforms like the surrounding landscape and local species selection Review, research and trials for rehabilitation species mix, or landform design parameters	Unlikely	Minor	Moderate
Growth medium development phase of rehabilitation						
1	Physical and structural properties of substrate not stable or suitable for plant growth	High	Material characterisation undertaken during mining. Fit for purpose equipment utilised for topsoil handling	Unlikely	Moderate	Moderate
2	Topsoil compaction in stockpiles	High	Ripping topsoil stockpiles Selecting fit for purpose and appropriate machinery to strip topsoil	Unlikely	Minor	Moderate
3	Subsoil and topsoil deficit for rehabilitation activities	High	Mine planning and projects to include rehabilitation materials requirements including stripping depth, stockpile locations and dimensions Review of the materials characteristics parameters for the topsoil and subsoil to design any amelioration requirements	Unlikely	Minor	Moderate
4	Substrate inadequate to support revegetation or agricultural land capability (e.g. lack of organic matter, nutrient deficiency, lack of soil biota, adverse soil chemical properties, exposed hostile geochemical materials and any other factors impeding the effective rooting depth)	High	Initiate rehabilitation trials as soon as practicable to test rehabilitation parameters Topsoil management procedures to be developed and implemented (update CMPL Topsoil Management Plan 2011)	Possible	Minor	Moderate
Ecosystem and land use establishment phase of rehabilitation						
1	Lack of availability and quality of target seed resources, including genetic integrity	High	Progressively develop a secure seed store of rehabilitation species Undertake pre-clearance surveys during mining and projects operations and establish analogue (reference) sites in non-disturbed areas to establish baseline data, to allow the development of rehabilitation monitoring criteria and performance targets	Unlikely	Minor	Moderate

2	Poor seed viability, seed dormancy	Moderate	Ensure seeds purchased are from a reliable source and undertake tests for viability. Ensure seed storage is appropriate. Develop procedures for breaking seed dormancy during seed sowing efforts	Unlikely	Minor	Low
3	Damage to seed through revegetation process	Moderate	Use appropriate techniques and equipment for seed sowing during rehabilitation	Rare	Minor	Low
4	Poor quality tube stock	Low	Plan so tube stock is grown specifically for the project, use a reputable native plant nursery	Rare	Negligible	Low
5	Weed and feral pest infestation associated with both introduction and control (or lack thereof)	High	Monitor and treat as required. Weeds are a coloniser species and can assist early in rehabilitation as a ground cover to protect the soil from erosion Careful management of topsoil stockpiles during operations Pest management including exclusion fences	Possible	Minor	Moderate
6	Adopting inappropriate or inadequate rehabilitation techniques, including equipment fleet	High	Initiate rehabilitation trials as soon as practicable to test rehabilitation parameters Select appropriate equipment and necessarily skilled contractors	Unlikely	Minor	Moderate
7	Inappropriate revegetation species mix for targeted final land use	Moderate	Seed selection based on local endemic species and from rehabilitation trial results, based on the PCT's as identified in the Eco Solve Biodiversity Inventory Report 2023 and as per the ROBJ's	Unlikely	Negligible	Low
8	Poor establishment of target species and limited species diversity	Moderate	Seed selection based on local species and during rehabilitation trials Refine trials and species selection	Unlikely	Negligible	Low
9	Weather and climate influences affect the germination and establishment of the revegetation	High	Cobar is in a low rainfall area and the local environment is adaptive to drought periods, progressive rehabilitation over a sequence of years aimed to spread the rehabilitation risk over successive years	Unlikely	Minor	Moderate
10	Failure of water management structures	High	Consideration in final landform designs as per engineer and Rehabilitation planning works	Unlikely	Moderate	High
11	Unavailability of areas for revegetation in optimal seasonal conditions	Moderate	Progressive rehabilitation will ensure coverage during optimal seasons; seed collection and topsoil replacement may be expediated during optimal conditions	Unlikely	Minor	Moderate
12	No habitat structures for colonisation or use	Moderate	Include the salvage of timber as rehabilitation resource into the rehabilitation methods	Unlikely	Negligible	Low
Ecosystem and land use development of rehabilitation						
1	Weather and climate influences adversely impacting rehabilitation success	High	Progressive rehabilitation as well as the ability to go back and re-seed areas that haven't established effectively Incorporate final rehabilitation requirements into the current site climate change Risk Assessment Include exclusion fencing in final rehabilitation planning	Unlikely	Minor	Moderate
2	Long term detrimental water quality and quantity issues (AMD, Salinity) are causing contamination	High	Rehabilitation technical reports to identify capping requirements of potentially contaminating materials Ongoing water monitoring requirements for surface and groundwater	Unlikely	Minor	Moderate
3	Damage to rehabilitation (fauna, stock, vandalism, fire etc.)	High	Fencing and feral management plan to be incorporated into the rehabilitation and care and maintenance program Site security, signage Bushfire Management Plan	Possible	Minor	Moderate
4	Re-disturbance of established areas	High	Mine planning to ensure rehabilitation areas are sterilised for both mining and infrastructure requirements prior to rehabilitation commencing. Topsoil stockpile locations to be located on sterilised areas so they don't need to be reshifted during operations	Possible	Moderate	High
5	Insufficient establishment of target species and limited species diversity	Moderate	Rehabilitation trials and progressive rehabilitation to determine appropriate seed mix Comparisons with analogue sites	Unlikely	Minor	Moderate

6	Limited vegetation structural development and habitat for targeted fauna species	Moderate	Rehabilitation trials and progressive rehabilitation to determine appropriate seed mix	Unlikely	Minor	Moderate
7	Erosion and failure of landform, drainage and water management/storage structures	Very High	Undertake erosion modelling as part of rehabilitation planning, for appropriate batter/slope angles and water management requirements	Possible	Moderate	High
8	Lack of infrastructure to support intended final land use (e.g. dams, fences etc.)	High	Rehabilitation planning during operations to include rehabilitation materials requirements including end land use	Unlikely	Minor	Moderate
Mine subsidence affected areas - potential surface disturbance from UG collapse						
1	Extended water ponding	Moderate	Surface water management and structures implemented	Unlikely	Negligible	Low
2	Subsidence cracking - interconnective cracking with UG workings, Sink holes	High	Mine Backfill management to ensure stopes are continually backfilled	Unlikely	Minor	Moderate
3	Impacts to surface water features, water uses or impacts on tree roots	High	Surface Water Management Plan Repair or rectify drainage features as required	Unlikely	Negligible	Low