

Noise and Vibration Management Plan

Doc No: TRL-HSET-PLN-0029		Title: Noise and Vibration Management Plan		
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Noise and Vibration Management Plan

Document Control

Rev	Description	Prepared By	Approved By	Date
0	New management plan format and content	J. Burton	S. Martin	6/5/2025
0.1	Updated to include regulatory agency consultation / feedback and administrative changes related to the Tritton Development Consent – Modification 9.	J. Burton	W. Olson	24/11/2025
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1.2	Removal of the Out of Hours Work Protocol as a stand alone document	J. Burton	W. Olson	23/4/26
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Definitions

The following acronyms and definitions are used in this NVMP.

AS/NZS	Australian Standards/New Zealand Standards.
ATP	Avoca Tank Project – a mining project associated with the North East Copper Mine.
Attended Noise Monitoring	Noise monitoring conducted (in person) by a technician who assesses noise sources and levels using a calibrated meter.
Bogan River	The ultimate receiving environment for runoff waters from the catchment in which the TRL mining operations are located.
Community Consultative Committee	A committee composed of representative community members whose role it is to be consulted and provide feedback on key issues regarding TRL's mining operations.
Competent manner	Possessing the requisite knowledge, skill, and judgment for the task or duty; exercising those attributes appropriately in the particular circumstances; performing the task with reasonable care, diligence, and timeliness; meeting the standard that a reasonable person in that role would expect.
CP	Constellation Project, an approved state significant project (SSD-41579871) owned and operated by Tritton Resources Limited
DA	Development Application – formal requests for permission to carry out development activities under specific conditions.
Day	The period from 7 am to 6 pm on Monday to Saturday, and 8 am to 6 pm on Sundays and Public Holidays.
dB(A)	A-weighted decibels, a unit that accounts for the human ear's varying sensitivity to different frequencies of sound.
dB(L)	B(L) stands for decibels on a linear scale, meaning sound levels are measured as they are, without any frequency weighting.
DPHI	NSW Department of Planning, Housing and Infrastructure.
Drivers Code of Conduct	The drivers code of conduct sets out the minimum accepted standards for operating heavy mining related (road registered) vehicle on public roads in the vicinity of Tritton Copper Operations.
EIS	Environmental Impact Statement – document assessing environmental impacts and proposing mitigation measures.
EMS	Environmental Management Strategy – Overarching / framework environmental management document for Tritton.
Environment	Environment means components of the earth, including— (a) land, air and water, and (b) any layer of the atmosphere, and (c) any organic or inorganic matter and any living organism, and (d) human-made or modified structures and areas, and includes interacting natural ecosystems that include components referred to in paragraphs (a)–(c).
EPA	NSW Environmental Protection Authority.
EPL	Environment Protection Licences – issued under the NSW Protection of the Environment Operations Act 1997.
Evening	The period from 6 pm to 10 pm.

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Harm	Harm to the environment includes any direct or indirect alteration of the environment that has the effect of degrading the environment and, without limiting the generality of the above, includes any act or omission that results in pollution.
Incident	A set of circumstances that causes or threatens to cause material harm to the environment.
INX	A commercial document control, incident investigation and action management system adopted and used by TRL.
JHA	Job Hazard Analysis - a systematic process that identifies potential hazards associated with specific job tasks or activities to improve workplace safety and environmental management.
LA1,	LA1 noise refers to the A-weighted noise level that is exceeded for 1% of the measurement period. It's considered a measure of the maximum noise levels experienced during the measurement.
LA10,	A noise level which is exceeded 10 % of the time. It is approximately equivalent to the average of maximum noise levels.
LA90	Commonly referred to as the background noise, this is the level exceeded 90 % of the time.
LAeq(15min)	Equivalent continuous sound pressure level (measured over a 15 minute period).
LAMax	The highest noise level reached in a given time period.
Material harm	Harm to the environment is material if— • it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or • it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000 (or such other amount as is prescribed by the regulations), and • loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment. For the purposes of this Part, it does not matter that harm to the environment is caused only in the premises where the pollution incident occurs.
MCM	Murrawombie Copper Mine – a copper mining operation operated by Tritton Resources under Mining Lease 1280.
ML	Mining Lease – a legal right to extract minerals within a specified area.
NECM	North East Copper Mine – a mining site operated by Tritton Resources, part of the North East Mine operations.
Night	The period from 10 pm to 7 am on Monday to Saturday, and 10 pm to 8 am on Sundays and Public Holidays.
Preliminary Hazard Analysis	A Preliminary Hazard Analysis (PHA) is an initial safety assessment that identifies potential hazards and risks early in the design or planning stages of a system, process, or project.
Risk Assessment	A risk assessment is a systematic process of evaluating the potential risks that may be involved in an activity; including an assessment of consequence and likelihood.
RMP	Rehabilitation Management Plan – strategic plans for land rehabilitation required by Standard Mining Lease Conditions.

Sensitive Receiver	Refers to a location or area that is particularly vulnerable to the impact of noise, pollution, or other environmental disturbances.
Surface Blasting	Blasting conducted in surface locations such as an open pit or on the surface of the land.
Surface Disturbance Permit	An internal permit required for clearance or disturbance of land to ensure that environmental impacts are minimised.
TCM	Tritton Copper Mine – a copper mining operation owned by Tritton Resources located near Nyngan, NSW.
TRL	Tritton Resources Limited – the company / business entity managing the Tritton Copper Operations.
TSF	Tailings Storage Facility – a site for storing waste materials from mining after the extraction of valuable minerals.
Underground Blasting	Blasting conducted in underground environments where the release of blast related energy and emissions are generally contained by the earth.
WRE	Waste Rock Emplacement – areas designated for storing waste rock extracted during mining.

1. INTRODUCTION

Tritton Resources Limited (TRL), a wholly owned subsidiary of Aeris Resources Limited operates the Tritton Copper Mine (Mining Lease (ML) 1544), the Girilambone Copper Mine complex (including the Murrawombie Copper Mine (ML 1280), North East Copper Mine (ML 1383) and the Avoca Tank Project (ML 1818)) and the Constellation Project. The Mines are located west and north-west of Nyngan, in the Bogan Shire Council Local Government Area (LGA) within the central west region of New South Wales. The location of the five mining operations is provided in Figure 1.

These sites are collectively referred to as 'Tritton Copper Operations'.

1.1. Purpose

The purpose of the Noise and Vibration Management Plan (NVMP) is to describe the key risks and compliance requirements as they relate to the management of noise emissions from construction sources, operational sources, and noise and vibration from blasting activities at the Tritton Copper Operations. The NVMP outlines the key management strategies and actions to meet regulatory requirements and mitigate and manage potential risks.

1.2. Relationship to Environmental Management System

The NVMP forms part of the overall Environmental Management Framework at Tritton Resources Limited (TRL). The Environmental Management Framework is further described in the Environmental Management Strategy (EMS) (TRL-HSET-PLN-0023) which includes alignment with the AS/NZS ISO 14001:2016 - Environmental Management Systems. The EMS broadly includes the following key aspects:

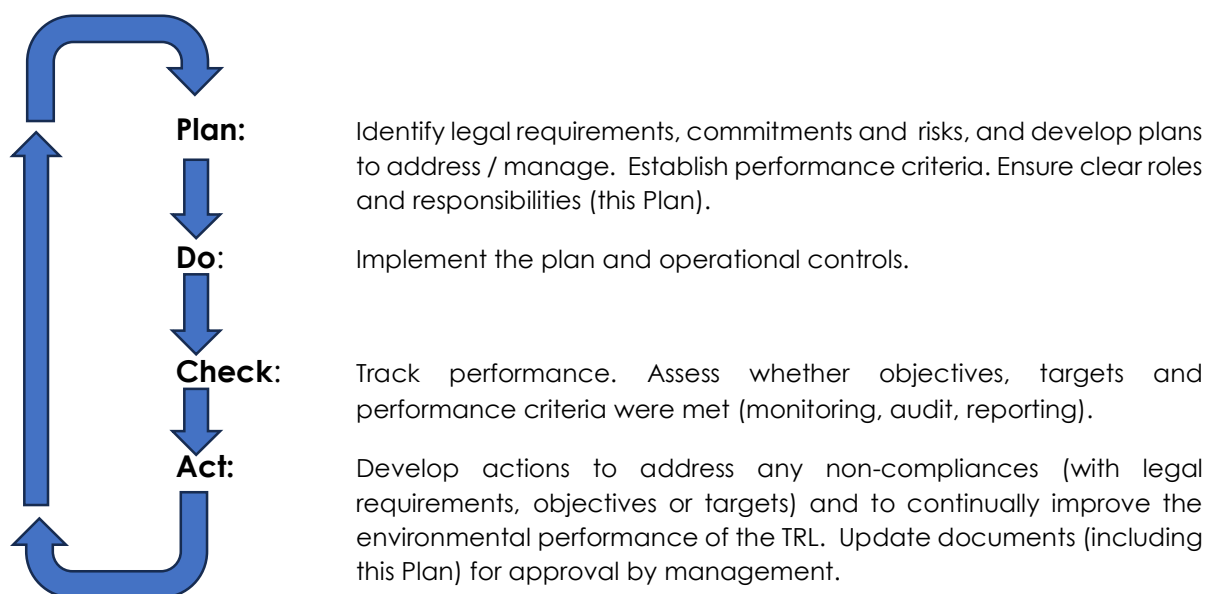
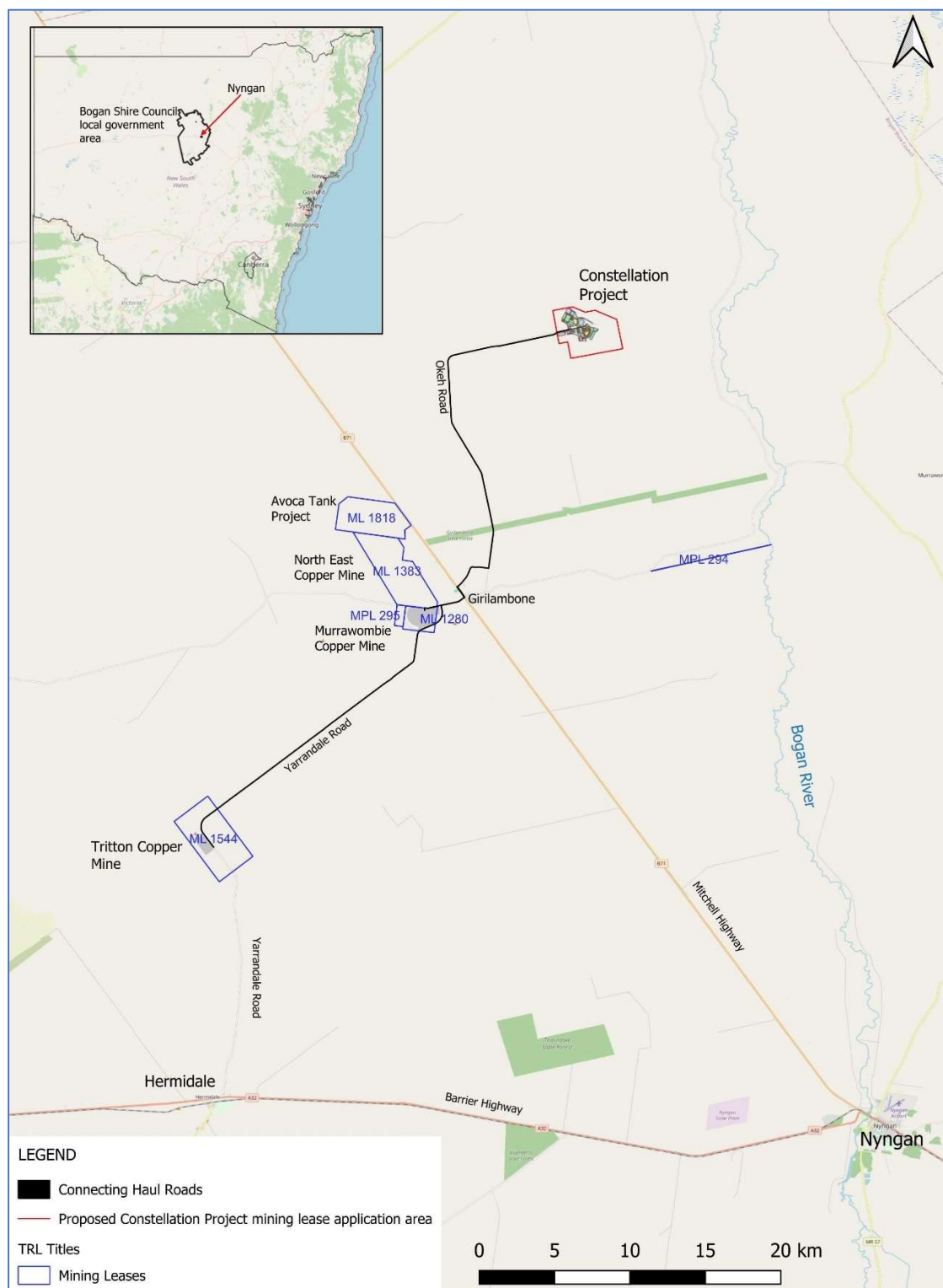


Figure 1 Site Locality



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1.3. Scope

The scope of the NVMP includes the five current mining operations / project sites owned by Aeris Resources / Tritton Resources Limited (TRL) in the vicinity of Nyngan, including:

- Tritton Copper Mine (TCM) (DA 41/98 (including Modification 9) and Mining Lease 1544));
- Murrawombie Copper Mine (MCM) (DA 1/91 (including Modification 5 (DA 2015/010/4) and Mining Lease 1280));
- North East Copper Mine (NECM) (DA 6/95 (including Modifications) and Mining Lease 1383));
- Avoca Tank Project (ATP) (DA 10/2015/004/003 (including Modification 2) and Mining Lease 1818)); and the
- Constellation Project (CP) (State Significant Development (SSD) -41579871).

1.3.1. Extent of this NVMP

This NVMP includes management measures to address regulatory requirements (including consent conditions) commitments and risks related to the following aspects:

- noise generated from construction and operational activities, including from heavy machinery operation and noise emissions from the TCM ore processing facility; and
- blast noise (overpressure) and ground vibration from surface and underground mining operations.

This NVMP focusses on the management of noise and vibration emissions to minimise adverse amenity changes in the local environment and prevent impact on local residential receivers. Noise and vibration emissions and their potential impact upon mine workers (from a health and safety perspective) is excluded from this NVMP, however, is included in the TRL Safety Management System.

Several aspects that may be related to the management of noise or vibration emissions have been excluded from this NVMP where they are required to be addressed by other planning documents as per the various TRL approvals or TRL management systems. These aspects and relevant plans (where addressed) is presented below in Table 1.

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Table 1 Aspects Excluded from this NVMP

Aspect	Management Plan (where addressed)
Dust and fume generation from blasting activities.	<i>Air Quality and Greenhouse Gas Management Plan (TRL-HSET-PLN-0024)</i>
Management of noise emissions during decommissioning and closure activities.	Rehabilitation Management Plans: - TCM - TRL-HSET-PLN-0034 - MCM - TRL-HSET-PLN-0035 - NECM/ATP - TRL-HSET-PLN-0036 - Constellation Project (TRL-HSET-PLN-0045)
Ground vibration from non-blast related sources, such as earthquakes.	Natural Hazards Management Plan (TRL-HSET-PLN-0028)
Out of Hours Work Protocol, as required by Condition C6 of the Constellation Project Development Consent (SSD-41579871) to manage noise emissions associated with construction of the approved infrastructure corridor, where TRL propose to undertake works outside of standard construction hours.	Constellation Project - Out of Hours Work Protocol (TRL-HSET-PLN-0050),

1.4. Objectives

The overarching aim of this NVMP is to ensure that TRL manage environmental and community risks related to noise and vibration emissions and prevent impact upon local community sensitive receivers.

The objectives of the NVMP are to:

- identify the potential sources of noise and vibration emissions;
- detail the controls to be implemented to minimise noise and vibration impacts;
- plan for, and respond to adverse climatic conditions that may contribute to excessive noise emissions;
- establish a noise and blast monitoring system to assess potential impacts and adherence to established consent limits and performance criteria; and
- manage noise and vibration related community complaints in a timely and effective manner.

This NVMP meets the following requirements:

- Condition 6(iv) of the TCM Development Consent (DA41-98) requiring the preparation of a Noise and Vibration Management Strategy in consultation with the EPA, including noise management procedures, monitoring protocols and measures to ensure compliance with the noise criteria and operating conditions in the consent. As part of the EMP, the Noise and Vibration Management Strategy must be prepared to the satisfaction of the Secretary.

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- Condition 50 of the TCM Development Consent (DA41-98) requiring the preparation and submission of a blasting protocol to the Secretary and EPA.

2. STATUTORY REQUIREMENTS

2.1. Legislation

Regulatory requirements apply to the management of noise and vibration emissions. The following sections describe key legislative instruments for the management of these aspects.

2.1.1. *Environmental Planning and Assessment Act 1997 (NSW)*

The Environmental Planning and Assessment Act (EP&A Act) is the core legislation relating to planning and development activities in NSW and provides the statutory framework under which development proposals are assessed and approved. The EP&A Act aims to encourage the proper management, development and conservation of resources, environmental protection and ecologically sustainable development. Part 4 of the Act details how authorities are to determine development applications, as well as identifying whether projects require an Environmental Impact Statement (EIS).

The five TRL mining operations / project sites have been approved under Part 4 of the EP&A Act.

2.1.2. *Protection of the Environment Operations (POEO) Act 1997 (NSW)*

The objective of the POEO Act is to protect, restore and enhance the environment in NSW and to promote public access to information and involvement in environment protection.

The Protection of the Environment Operations Act 1997 is the primary legislation for environmental protection in New South Wales. The Act aims to protect and enhance the environment and human health and promote ecologically sustainable development.

The Act provides a framework for environmental regulation in NSW, including setting environmental standards, managing pollution and waste and regulating activities that may significantly impact the environment.

The POEO Act also establishes the Environment Protection Authority (EPA), which is responsible for enforcing the Act and ensuring compliance with its provisions.

The Act:

- provides a single licencing arrangement related to water pollution, noise pollution, air pollution and waste management.
- establishes a system of Environment Protection Licences for the purposes of carrying out scheduled activities (e.g. mining for minerals, chemical production, waste processing, electricity generation, livestock intensive activities etc);
- requires the public reporting of information relative to the Environment Protection Licence;

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- provides for the issue of environment protection notices (clean-up notices, prevention notices, and prohibition notices) - It is an offence under the Act not to comply with such notices;
- includes a duty to notify relevant authorities in case of any pollution incidents where material harm to the environment is threatened or caused.
- provides for voluntary and mandatory environmental audits and procedural matters for the conduct of investigations (including scope, associated notice requirements, powers of entry, and duty to provide information).

2.1.2.1. Industrial Noise Policy

The NSW Industrial Noise Policy (EPA 2000) has been replaced by the Noise Policy for Industry (2017).

The NSW Industrial Noise Policy (EPA 2000) continues to be used where it is referred to in licence and consent conditions except for Section 4 which has been replaced by the provisions in Fact Sheet C of the Noise Policy for Industry 2017.

The overall aim of the policy is to allow the need for industrial activity to be balanced with the desire for quiet in the community.

The specific policy objectives are:

- to establish noise criteria that would protect the community from excessive intrusive noise and preserve amenity for specific land uses.
- to use the criteria as the basis for deriving project specific noise levels.
- to promote uniform methods to estimate and measure noise impacts, including a procedure for evaluating meteorological effects.
- to outline a range of mitigation measures that could be used to minimise noise impacts.
- to provide a formal process to guide the determination of feasible and reasonable noise limits for consents or licences that reconcile noise impacts with the economic, social and environmental considerations of industrial development.
- to carry out functions relating to the prevention, minimisation and control of noise from premises scheduled under the POEO Act.

2.1.2.2. Noise Policy for Industry

This policy replaces the NSW Industrial Noise Policy (2000) when assessing noise from:

- all new developments
- existing premises that need to vary their licence or modify their consent conditions under certain circumstances.

The NSW Industrial Noise Policy still applies when assessing noise from existing developments that have licence or consent conditions that refer to that policy.

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The Noise Policy for Industry (EPA 2017) balances the need for industrial activity with the community's desire to minimise intrusive sounds. It sets assessment noise levels, consistent methods, and best practice measures to manage industrial noise, and is based on the latest scientific research regarding noise's health effects.

The policy can be used by:

- the EPA when undertaking its regulatory responsibilities under the Protection of the Environment Operations Act 1997 (POEO Act)
- large industrial and agricultural premises like mines, quarries and waste facilities that require an environment protection licence from the EPA under the POEO Act
- the Department of Planning and Environment when assessing major development proposals under the Environmental Planning and Assessment Act 1979
- local councils for assistance with their planning and regulatory responsibilities
- community members wishing to find out more about ways in which noise is assessed and measured.

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2.2. Conditions of Consent

The management of noise and blast emissions subject to this NVMP at the Tritton Copper Operations is regulated by the various TRL Development Consents (Section 1.3). Specific conditions, as they relate to the scope of this NVMP are replicated below (Table 2).

Table 2 Compliance Conditions of Consent

Condition No.	Condition	Section Where Addressed
DA 41/98 – Tritton Development Consent (Modification 9) (11 September 2025)		
1	The Applicant must carry out the development: (i) generally in accordance with the EIS; (ii) in accordance with the conditions of this consent; (iii) generally in accordance with the development layout; and (iv) in accordance with all written directions of the Secretary.	Section 2.2.1
31	All plant and equipment used on site, or to monitor the performance of the development must be: maintained in a proper and efficient condition; and operated in a proper and efficient manner.	Section 7.2
6	The Applicant must prepare an Environmental Management Plan (EMP) for the mining operations, which must include, the preparation of the following: (iv) a Noise and Vibration Management Strategy in consultation with the EPA, including noise management procedures, monitoring protocols and measures to ensure compliance with the noise criteria and operating conditions in this consent; The Plan must also include but not be limited to:	This NVMP
	vi) details of the mine infrastructure and facilities to be developed;	Section 3
	(vii) where relevant, monitoring procedures relating to water quality, groundwater flows, air quality, noise and vibration, and the tailings storage facility;	Section 8
	(ix) the recommendations of the Preliminary Hazard Analysis prepared by McCracken Consulting, dated December 1998.	Section 6.1
	The EMP must be prepared to the satisfaction of the Secretary in consultation with relevant agencies and must be submitted at least 1 (one) month prior to the commencement of construction, or within such period as otherwise agreed to by the Secretary.	Section 5
38	The Applicant must ensure that the noise generated by the development does not exceed the criteria in Table 2 at any residence on privately-owned land.	Section 8

Condition No.	Condition					Section Where Addressed
Table 2	Noise Assessment Location	Day LAeq(15min) dB(A)	Evening LAeq(15min) dB(A)	Night LAeq(15min) dB(A)	Night L_{AMax} dB(A)	Section 8
	All privately owned residences	40	35	35	52	
38A	Noise generated by the development must be monitored and measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Noise Policy for Industry (EPA, 2017).					Section 8
38B	The noise criteria in Table 2 do not apply if the Applicant has an agreement with the owner/s of the relevant residence or land to exceed the noise criteria, and the Applicant has advised the Department in writing of the terms of this agreement.					Noted
39	The Applicant must: (a) take all reasonable steps to minimise noise from construction and operational activities, including low frequency noise and other audible characteristics, as well as road noise associated with the development; and (b) take all reasonable steps to minimise the noise impacts of the development during noise-enhancing meteorological conditions.					Section 7.2 Section 7.2 and Section 7.4
40	All aboveground blasting must be carried out between 9:00am and 6:00pm Monday to Friday. Blasting must only be allowed on public holidays in special circumstances and with the prior approval of the EPA.					No longer applicable (no Surface blasting at TCM).
41	The Applicant must ensure that no private or company vehicles are utilising Yarrandale Road within 400 metres of the entrance to the Tritton Project Site when surface blasting is being undertaken.					
42	The Applicant must ensure that air blast overpressure and vibration monitoring and control is generally carried out in accordance with relevant Australian Standards in consultation with the EPA.					
43	The Applicant must monitor all surface blasts and blasts within 200 metres of the mine portal and record the overpressure and peak particle velocity at locations agreed by EPA and the RR.					
50	Prior to undertaking any blasting activities, the Applicant must prepare and submit a blasting protocol to the Secretary and EPA prior to the commencement of operations. The protocol must include; - a means for notifying any property owners within 5 km of the site of the proposed blasting program; and, - the proposed methods for keeping any records of complaints to enable remedial action to be undertaken to prevent recurrence.					Section 7.3

Condition No.	Condition	Section Where Addressed				
DA 2015/010/2 Murrawombie Development Consent (Modification 5) (4 July 2024)						
4	The applicant shall seek and comply with all approvals set by the State Pollution Control Commission under the Clean Air Act 1961, Clean Waters Act 1970, and Noise Control Act 1975.	Section 2.3				
5	The applicant shall carry out all operating and monitoring measures as described and specified in the Environmental Impact Statement to prevent, minimise adverse environmental impact.	Section 7 and Section 8				
11	Every effort is to be made to minimise noise, blasting and dust nuisance to residents in the locality. Emissions shall not exceed levels prescribed by the State Pollution Control Commission.	Section 7 Section 8				
DA 6/95 North East Development Consent (including modifications)						
5	The proponent will be required to obtain the EPA's formal Pollution Control Approval for the proposal in respect of the Clean Air Act, Clean Waters and Noise Control Acts prior to commencing any works on the site.	Section 2.3				
DA 10/2015/004/003 Avoca Tank Development Consent (Modification 2) (15 May 2025)						
B18	The applicant shall construct and operate the Development in accordance with the hours listed in Table 6, except for emergency purposes.	Section 7				
Table 6	Activity	Hours				
	Construction -vegetation clearing, topsoil stripping and rehabilitation operations.	Daylight hours 7 days per week				
	Operation -site establishment, underground mining, ore transportation and maintenance.	24 hours 7 days per week				
B19	The applicant shall ensure that the noise generated by the Development (excluding drilling) does not exceed the noise impact assessment criteria set out in Table 7 at any residence on privately-owned land.	Section 8				
Table 7	Location	Day LAeq(15min) dB(A)	Evening LAeq(15min) dB(A)	Night LAeq(15min) dB(A)	Night LA(1minute) dB(A)	Section 8
	All privately owned residences	35	35	35	35	

Condition No.	Condition	Section Where Addressed								
Notes	Noise generated by the development is to be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy	Section 8								
Constellation Project Development Consent (SSD-41579871) (24 December 2025)										
A8	Development Hours The development may only be undertaken during the hours set out in Table 1.									
	Table 1 Mine Site	Section 7.2.1								
	<table><tr><th>Activity</th><th>Permissible Hours</th></tr><tr><td>Construction and preliminary works</td><td rowspan="3">24 hours per day, seven days a week</td></tr><tr><td>Operation</td></tr><tr><td>Rehabilitation</td></tr></table>		Activity	Permissible Hours	Construction and preliminary works	24 hours per day, seven days a week	Operation	Rehabilitation		
	Activity		Permissible Hours							
	Construction and preliminary works		24 hours per day, seven days a week							
	Operation									
	Rehabilitation									
	Infrastructure Corridor									
	<table><tr><th>Activity</th><th>Permissible Hours</th></tr><tr><td>Construction</td><td> 7 am to 6 pm Monday to Friday 8 am to 6 pm Saturday - At no time on Sundays or public holidays Unless otherwise agreed by the Planning Secretary in accordance with condition C6 </td></tr><tr><td>Operation, including light vehicle movements</td><td>24 hours per day, seven days a week</td></tr><tr><td>Operation, including heavy vehicle ore haulage on public roads</td><td>Day and evening, unless otherwise agreed by the Planning Secretary</td></tr></table>	Activity	Permissible Hours	Construction	7 am to 6 pm Monday to Friday 8 am to 6 pm Saturday - At no time on Sundays or public holidays Unless otherwise agreed by the Planning Secretary in accordance with condition C6	Operation, including light vehicle movements	24 hours per day, seven days a week	Operation, including heavy vehicle ore haulage on public roads	Day and evening, unless otherwise agreed by the Planning Secretary	Refer to Out of Hours Work Protocol (TRL-HSET-PLN-0050)
	Activity	Permissible Hours								
Construction	7 am to 6 pm Monday to Friday 8 am to 6 pm Saturday - At no time on Sundays or public holidays Unless otherwise agreed by the Planning Secretary in accordance with condition C6									
Operation, including light vehicle movements	24 hours per day, seven days a week									
Operation, including heavy vehicle ore haulage on public roads	Day and evening, unless otherwise agreed by the Planning Secretary									

Condition No.	Condition	Section Where Addressed							
	All Development <table><tr><th>Activity</th><th>Permissible Hours</th></tr><tr><td>Delivery or dispatch of materials as requested by Police or other public authorities</td><td rowspan="2">At any time, subject to notification to the Department within 24 hours after commencement of activity</td></tr><tr><td>Emergency work to avoid the loss of lives, property or to prevent environmental harm</td></tr><tr><td>Delivery of oversized plant or structures</td><td>At any time</td></tr></table>	Activity	Permissible Hours	Delivery or dispatch of materials as requested by Police or other public authorities	At any time, subject to notification to the Department within 24 hours after commencement of activity	Emergency work to avoid the loss of lives, property or to prevent environmental harm	Delivery of oversized plant or structures	At any time	Section 7.2.1
Activity	Permissible Hours								
Delivery or dispatch of materials as requested by Police or other public authorities	At any time, subject to notification to the Department within 24 hours after commencement of activity								
Emergency work to avoid the loss of lives, property or to prevent environmental harm									
Delivery of oversized plant or structures	At any time								
C5	Construction Noise All reasonable and feasible noise mitigation measures must be implemented to achieve the noise management levels detailed in the Interim Construction Noise Guideline (DECC, 2009). Any activities that could exceed the noise management levels must be identified and managed in accordance with the environmental management strategy required under condition B1.	Section 7.2.2.1 EMS (TRL-HSET-PLN-0023)							
C6	An out-of-hours-work protocol must be submitted to the Planning Secretary for approval prior to the commencement of any out-of-hours construction work. The protocol must: (a) describe the construction activities proposed to be undertaken outside the hours defined in condition A8; (b) be consistent with the requirements of the Interim Construction Noise Guideline (DECC, 2009); (c) justify why the construction needs to be undertaken as out-of-hours construction; (d) identify low, medium and high-risk out-of-hours work, proposed mitigation and management measures; and (e) include written notification arrangements for affected residences for approved out-of-hours work.	Refer to Out of Hours Work Protocol (TRL-HSET-PLN-0050)							

Condition No.	Condition	Section Where Addressed														
C7	Operational Noise Limits Other than the exceptions identified in conditions C6 and C11, noise generated by mining operations must not exceed the noise limits in Table 2. Table 2 <table><tr><th rowspan="2">Location</th><th>Day</th><th>Evening</th><th colspan="2">Night</th></tr><tr><th>L_{Aeq}(15 min) dBA(A)</th><th>L_{Aeq}(15 min) dBA(A)</th><th>L_{Aeq}(15 min) dBA(A)</th><th>L_{AF} Max dBA(A)</th></tr><tr><td>Any privately owned residence</td><td>40</td><td>35</td><td>35</td><td>52</td></tr></table>	Location	Day	Evening	Night		L _{Aeq} (15 min) dBA(A)	L _{Aeq} (15 min) dBA(A)	L _{Aeq} (15 min) dBA(A)	L _{AF} Max dBA(A)	Any privately owned residence	40	35	35	52	Section 7.2 Section 8.2
Location	Day		Evening	Night												
	L _{Aeq} (15 min) dBA(A)	L _{Aeq} (15 min) dBA(A)	L _{Aeq} (15 min) dBA(A)	L _{AF} Max dBA(A)												
Any privately owned residence	40	35	35	52												
C8	The noise limits in condition C7 do not apply if the applicant has an agreement with the owner/s of the relevant residence to exceed the noise limits and the applicant has provided evidence of this agreement to the satisfaction of the Planning Secretary.	Section 8.2														
C9	Should any noise complaints be received, noise generated by the development must be investigated and noise monitoring undertaken and measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Noise Policy for Industry (EPA, 2017).	Section 7 EMS (TRL-HSET-PLN-0023)														
C10	Noise generated by the development must be monitored and measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Noise Policy for Industry (EPA, 2017). Standard meteorological conditions and noise enhancing meteorological conditions as defined in Part D of the NSW Noise Policy for Industry (EPA, 2017) and determined by monitoring at the meteorological station required under condition C12 apply to the noise limits in Table 2.	Section 8														
C11	For very noise-enhancing meteorological conditions as defined in the NSW Noise Policy for Industry, the applicable noise limits are as defined in Table 2 plus 5 dB(A).	Section 7.1														

Condition No.	Condition	Section Where Addressed															
C13	Blasting Limits Blasting on the site must not cause exceedances of the limits in Table 3 at any residence on privately-owned land.	Section 7.3 Section 8.3															
	<table><tr><th>Location</th><th>Airblast Overpressure</th><th>Ground vibration</th><th>Allowable exceedance</th></tr><tr><td rowspan="2">Residence on privately owned land*</td><td>120</td><td>10</td><td>0%</td></tr><tr><td>115</td><td>5</td><td>5% of the total number of blasts over a calendar year</td></tr><tr><td>All other public infrastructure</td><td>-</td><td>50 (or a limit determined by the structural design methodology in AS2187, or other alternative limit, to the satisfaction of the Planning Secretary</td><td>0%</td></tr></table>		Location	Airblast Overpressure	Ground vibration	Allowable exceedance	Residence on privately owned land*	120	10	0%	115	5	5% of the total number of blasts over a calendar year	All other public infrastructure	-	50 (or a limit determined by the structural design methodology in AS2187, or other alternative limit, to the satisfaction of the Planning Secretary	0%
	Location		Airblast Overpressure	Ground vibration	Allowable exceedance												
	Residence on privately owned land*		120	10	0%												
			115	5	5% of the total number of blasts over a calendar year												
	All other public infrastructure		-	50 (or a limit determined by the structural design methodology in AS2187, or other alternative limit, to the satisfaction of the Planning Secretary	0%												
*Or other sensitive receiver location (e.g. a school or hospital)																	
C14	The blasting limits in Table 3 do not apply if the applicant has an agreement with the owner/s of the relevant residence to exceed the blasting limits, and the applicant has advised the Department in writing of the terms of this agreement.	Section 8.3															
C15	Blasting hours Blasting for open cut mining may only be carried out between 9 am and 5 pm (Monday to Saturday inclusive). No blasting is allowed on Sundays, public holidays or any other time without the prior written approval of the Planning Secretary.	Section 7.3.2															
C16	Blasting for underground mining may be undertaken at any time, subject to compliance with the conditions of this consent.	Section 7.3.3															
C17	Blast Operating Conditions All reasonable and feasible steps must be taken to: (a) ensure the safety of people and livestock from blasting impacts of the development;	Section 7.3															
	(b) protect public and private infrastructure and property in the vicinity of the site from blasting damage associated with the development;	Section 7.3															

Condition No.	Condition	Section Where Addressed
	(c) minimise blast-related dust and fume emissions;	TRL Air Quality and Greenhouse Gas Management Plan (TRL-HSET-PLN-0024)
	(d) minimise the frequency and duration of any public road closures for blasting and use all reasonable efforts to avoid road closures during peak traffic periods;	Section 7.3
	(e) enable the public to get up-to-date information on the proposed blasting schedule on site; and	Section 7.3
	(f) carry out regular monitoring to determine whether the development is complying with the relevant conditions of this consent.	Section 8.3

2.2.1. Commitments

Appendix A summarises commitments that relate to the management of noise and blast emissions arising from the various Environmental Assessments for each of the Tritton Copper Operations. Appendix A includes reference to the relevant section of this NVMP where the commitment is addressed.

As related to the TCM and Constellation Project, TRL will carry out the development in general accordance with:

- The TCM, Constellation EIS (including modification assessment reports);
- with the conditions of this consent (replicated in Table 2 as relevant to this NVMP);
- the development layout (Appendix 1 of the TCM Development Consent (DA 41/98), Appendix 2 of the Constellation Development Consent (SSD-41579871)); and
- all written directions of the Secretary.

2.3. Licenses and Permits

2.3.1. Environment Protection Licences (EPL)

In addition to the above development consents and EIS commitments, TRL holds two Environment Protection Licences (EPL) issued under the NSW *Protection of the Environment Operations Act 1997* (POEO Act):

In accordance with the POEO Act, TRL will obtain an Environmental Protection Licence for the Constellation Project, or include the project in an existing licence (i.e. EPL 4501) held by TRL (subject to consultation with the EPA). Future revisions of this NVMP will include any noise and vibration conditions as contained in an amended, or new EPL for the Project.

2.3.1.1. EPL 11254 (Version dated 8 June 2021)

EPL 11254 Applies to stated Lots and Deposited Plans (DP) associated with the TCM Mining Lease (ML 1544). There are specific conditions relating to the management of noise emissions which have been replicated below in Table 3. There are no conditions related to blasting.

In addition, under Condition R2, TRL are expected to report any matters that may have resulted in the causing of environmental harm. Definitions and required responses are presented in the EMS (TRL-HSET-PLN-0023).

Table 3 Noise Related EPL 11254 Conditions

Condition No.	Condition	Section Where Addressed
L3 Noise Limits		
L3.1	Noise from the premises is to be measured or computed at the most noise-affected point at boundary of the most affected receiver to determine compliance with this condition. Noise Measurement: For the purpose of noise measures required for this condition, the L_{Aeq} noise level must be measured or computed for the required period (ie, 15 minutes or full day, evening or night) using "FAST" response on the sound level meter. For the purpose of the noise limits for this condition, 5 dB(A) must be added to the measured level if the noise is substantially tonal, impulsive, intermittent or low frequency in nature. Where two or more of these characteristics are present the maximum addition to the measured noise level is limited to 10dB(A).	Section 8
L3.2	The noise emission limits identified in this licence apply under all meteorological conditions except: a) during rain and wind speeds (at 10m height) greater than 3m/s; and b) under "non-significant weather conditions".	Section 8

Condition No.	Condition	Section Where Addressed
L3.3	Noise from the premises must not exceed: a) an L_{Aeq} noise emission criteria of 50 dB(A) (7am to 6pm) on any day; and b) an L_{Aeq} noise emission criterion of 45 dB(A) during the evening (6pm to 10pm) on any day; c) at all other times an L_{Aeq} noise emission criterion of 40 dB(A), except as expressly provided by this licence.	Section 8
O1 Activities must be carried out in a competent manner		
O1.1	Licensed activities must be carried out in a competent manner. This includes: a. the processing, handling, movement and storage of materials and substances used to carry out the activity; and b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.	Section 7
O2 Maintenance of plant and equipment		
O2.1	All plant and equipment installed at the premises or used in connection with the licensed activity: a) must be maintained in a proper and efficient condition; and b) must be operated in a proper and efficient manner.	Section 7

2.3.1.2. EPL 4501 (Version dated 16 December 2025)

EPL 4501 – Applies to Mining Leases associated with the MCM (ML 1280), NECM (ML 1383) and ATP (ML 1818) and includes Mining Purpose Lease (MPL) 295. There are no specific conditions relating to the management of noise or blast emissions; however, several general conditions relating to conducting activities and the operation and maintenance of equipment (which may, for example result in noise emissions) have been replicated below in Table 4.

In addition, under Condition R2, TRL are expected to report any matters that may have resulted in the causing of environmental harm. Definitions and required responses are presented in the Environment Management Strategy (TRL-HSET-PLN-0023).

Table 4 Noise Related EPL 4501 Conditions

Condition No.	Condition	Section Where Addressed
O1 Activities must be carried out in a competent manner		
O1.1	Licensed activities must be carried out in a competent manner. This includes: a. the processing, handling, movement and storage of materials and substances used to carry out the activity; and b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.	Section 7
O2 Maintenance of plant and equipment		
O2.1	All plant and equipment installed at the premises or used in connection with the licensed activity: a) must be maintained in a proper and efficient condition; and b) b) must be operated in a proper and efficient manner.	Section 7

3. OPERATIONS DESCRIPTION

3.1. Site Overview

The Girilambone copper deposits were first discovered in 1879 with mining commencing in 1881. At the time of preparing this NVMP, Tritton Resources Pty Ltd owns and operates four mines in the vicinity of Hermidale and Girilambone; each mine is briefly described in the following sections.

3.2. Relevant Operations

3.2.1. Tritton Copper Mine

The mineralisation at the Tritton Copper Mine (TCM) was discovered in 1995 and following a series of preliminary assessments and preparation of an Environmental Impact Statement, Development Application (DA) 41/98 was approved on 1 September 1999 by the Minister for Planning and Urban Affairs. Mining operations under DA 41/98 are approved until 31 December 2036. Mining Lease (ML) 1544 was granted by the former Department of Mineral Resources on 22 December 2003. DA 41/98 has been modified nine times, with the most recent modification approved on 11 September 2025. Figure 2 presents the approved TCM site layout

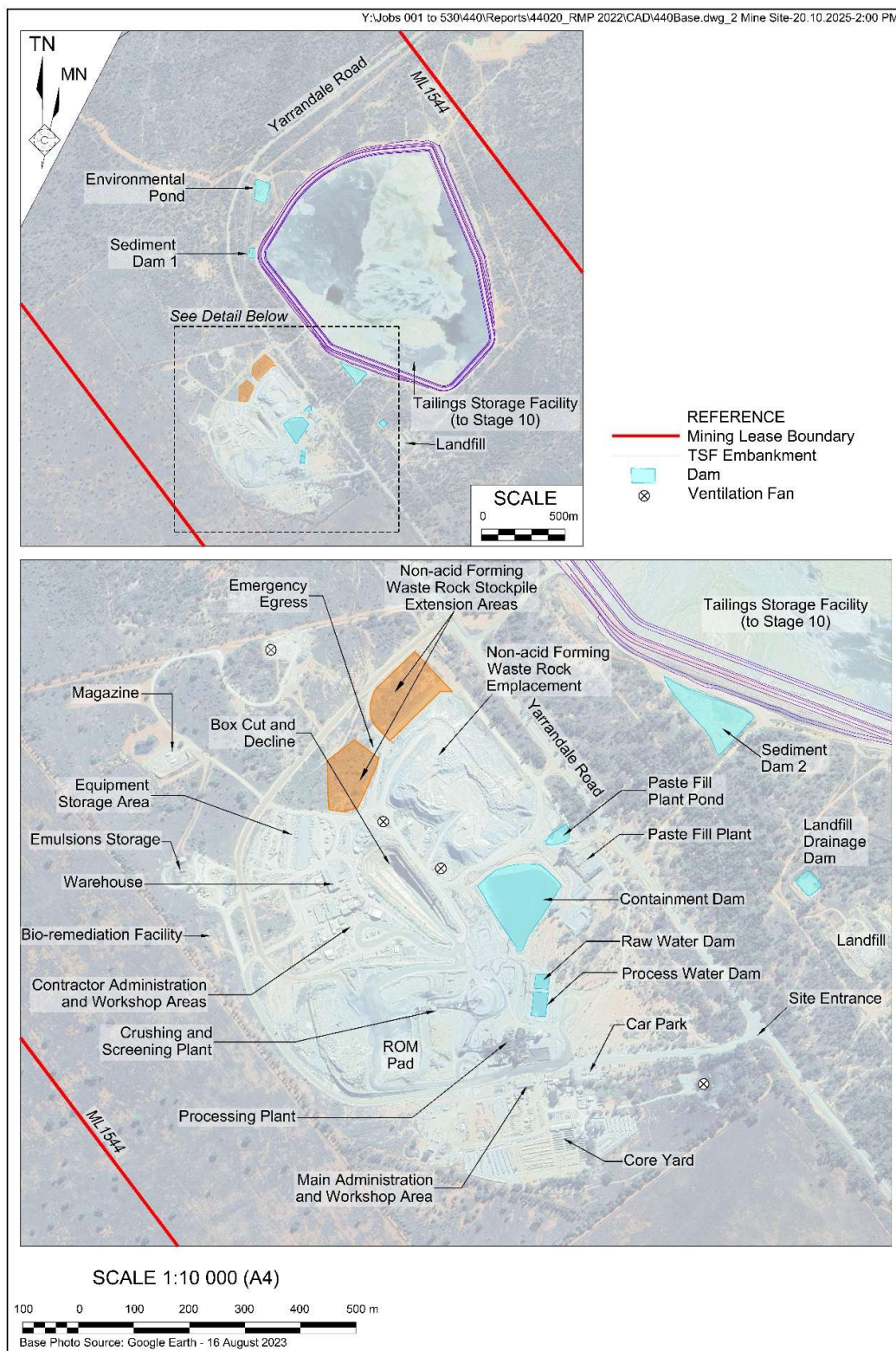
A summary of the approved activities at the Mine are provided as follows.

- Extraction of a total of approximately 12.833Mt of copper ore using underground mining techniques.
- Importation of no more than 1.8Mt of mined material (ore and waste materials) from all mines within the Tritton Copper Operations in a calendar year.
- Construction and use of a Non-acid Forming Waste Rock Emplacement to a maximum height of 30m above the natural surface or approximately 301.5m AHD and a disturbance footprint of 8.5ha.
- Processing of site-generated and imported ore to produce a copper concentrate.
- Construction and use of a Tailings Storage Facility to an embankment height of 278m AHD and a disturbance footprint of 158.5ha.
- Export of no more than 30,000 tonnes of waste rock from the TCM in a calendar year, generally for the purposes of local road construction and maintenance.
- Transportation of the copper concentrate in shipping containers to the Hermidale rail siding, located approximately 19km to the south of the TCM, and transportation of that material by train to port for export.
- Export of up to 0.5Mtpa of tailings for paste fill operations at all other mines within the Tritton Copper Operations in a calendar year
- Operation of a waste landfill facility and the receipt of wastes from all other mines within the Tritton Copper Operations.

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Figure 2 Tritton Copper Mine layout



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3.2.2. Murrawombie Copper Mine

The operation of the existing Murrawombie Copper Mine (MCM) is approved under Development Application (DA) 1/91. DA 1/91 was issued by Bogan Shire Council, under the Environmental Planning and Assessment Act 1979 (EP&A Act), on 25 March 1991 to permit mining of copper ore by open cut mining methods with the resulting material to be processed on site using conventional heap leach, solvent extraction and electrowinning methodologies. Since that time, DA 1/91 has been modified five times, with the most recent being Modification 5, approved on 4 July 2024 (DA 2015/010/4). The MCM operates within Mining Lease 1280. Figure 3 presents the approved MCM site layout.

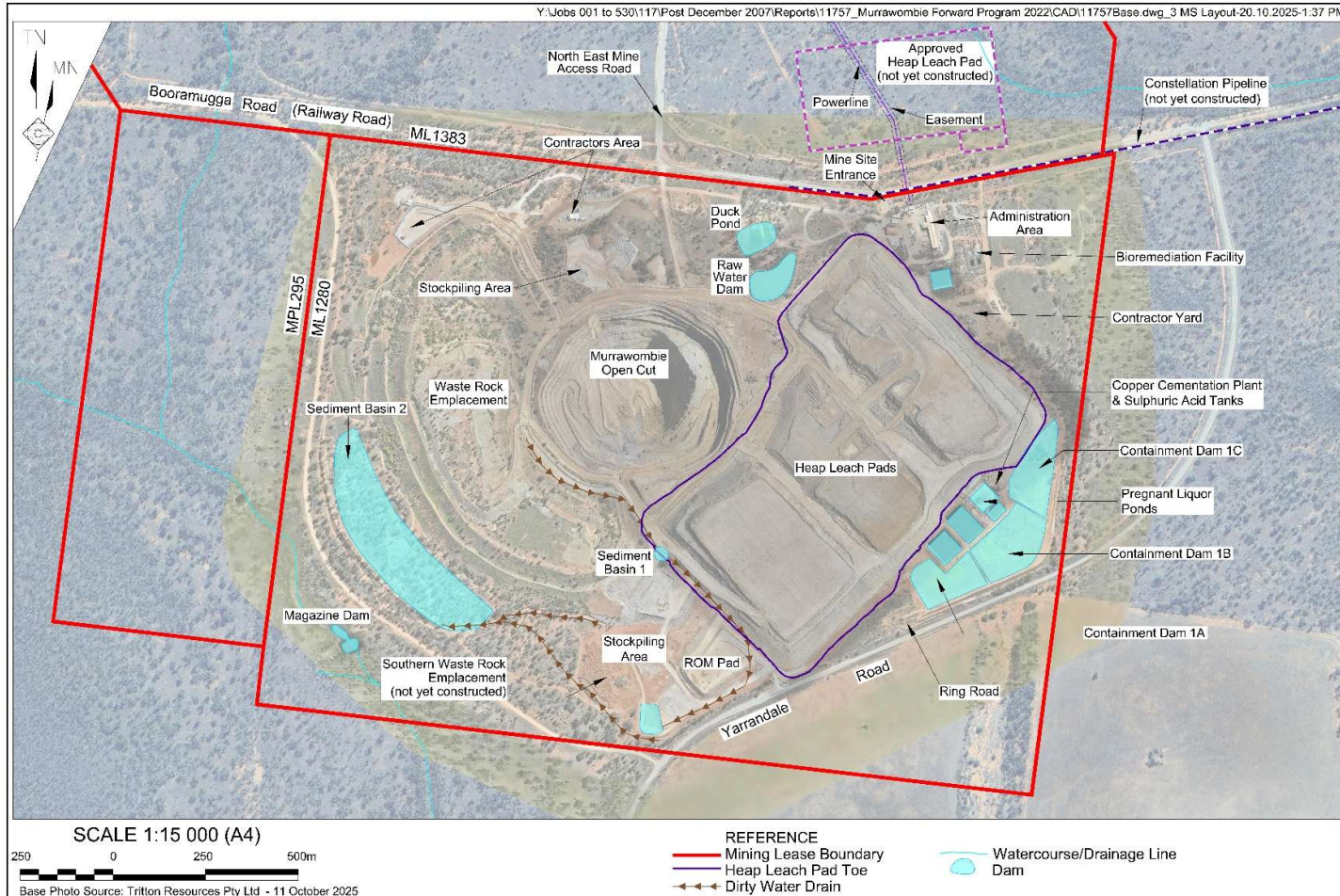
In summary, approved activities at the MCM include the following.

- Mining using open cut and underground methods in accordance with the approved layout.
- Operation of the MCM on a 24-hour, 7 day per week basis.
- Construction of a waste rock emplacement to the west of the Murrawombie Open Cut.
- Construction of a flotation plant (not constructed).
- Construction and operation of four Heap Leach Pads to the east and northeast of the Murrawombie Open Cut, three of which have been constructed. Operation of the constructed heap leach facilities has ceased and rehabilitation of the majority of the facility has commenced.
- Operation of a copper cementation plant for the recovery of copper.
- Expansion of the Murrawombie open pit (approved under Modification 3)
- Transportation of up to 1Mtpa of copper ore to the TCM for processing.
- Construction and use of ancillary infrastructure including a mobile concrete Batching Plant.

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Figure 3 Murrawombie Copper Mine layout



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3.2.3. North East Copper Mine

The North East Copper Mine (NECM) is located approximately 6km northwest of the village of Girilambone and operates under Development Application (DA) 6/95 (BSC 2010) and Mining Lease (ML) 1383 and commenced operations in 1996. The development consent was issued by Bogan Shire Council and does not contain an expiry date.

Open cut mining at the NECM ceased in 1997. During the extraction period, three open pits were mined (Larsen's pit, Northeast pit and Hartman's pit) until copper oxide ore were exhausted in the upper part of the ore body. To process the oxide ore, the extracted ore was transported to the nearby MCM, crushed and placed on heap leach pads where the contained copper was leached using sulphuric acid and recovered using solvent extraction/electrowinning.

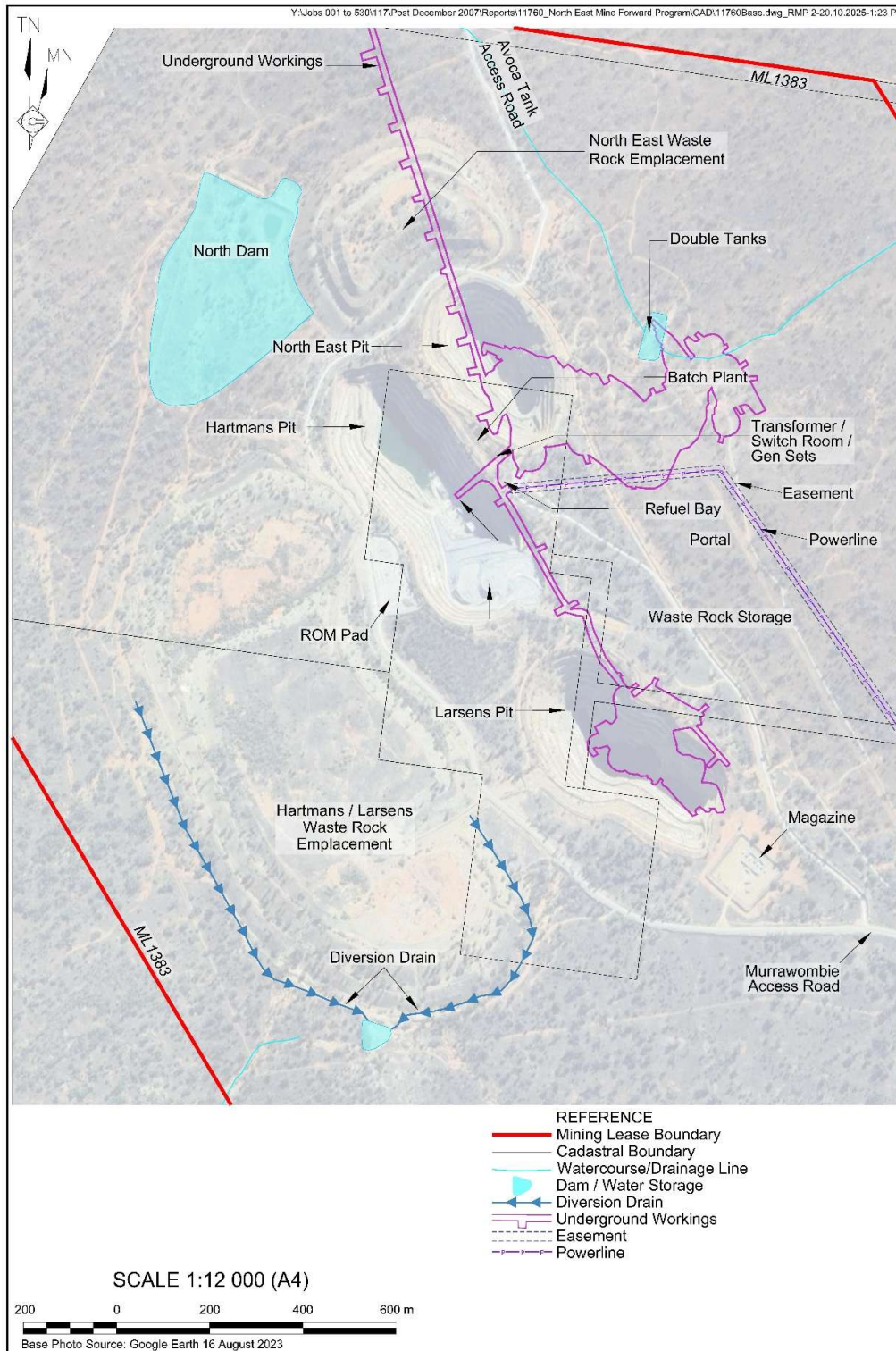
From 2007, mining was undertaken by underground extraction methods with mined ore transported to the TCM for processing. This continued until August 2016, before operations were suspended and the NECM was placed in care and maintenance. The north-eastern wall of the Hartman's pit contains a boxcut portal and is used to access the Avoca Tank Project which is located to the north of the NECM complex. Other NECM infrastructure is utilised for the Avoca Tank project including ROM pad, Waste Rock Emplacement (within the Hartman's Pit) and ancillary infrastructure including roads, power and water.

Figure 4 presents the approved NECM site layout.

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Figure 4 North East Copper Mine layout



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3.2.4. Avoca Tank Project

The Avoca Tank Project (ATP) is located approximately 2km north of the NECM and 24km northeast of the TCM and operates under DA 10/2015/004/003 (Bogan Shire Council (BSC) 2025). DA 2015/004 was granted in September 2016 and has been modified twice since its original approval (Mod 2 approved 15 May 2025). Access to the ATP is through an underground drive accessed via the Hartmans pit at the NECM. Existing infrastructure on the adjacent NECM is used for the ATP, including the existing run-of-mine (ROM) pad and waste rock emplacement (WRE). Other surface infrastructure associated with the ATP includes ventilation fans and an emergency egress. Ore extracted from the ATP is transported and processed at the nearby TCM. ATP operates within Mining Lease 1818. Figure 5 presents the approved ATP site layout.

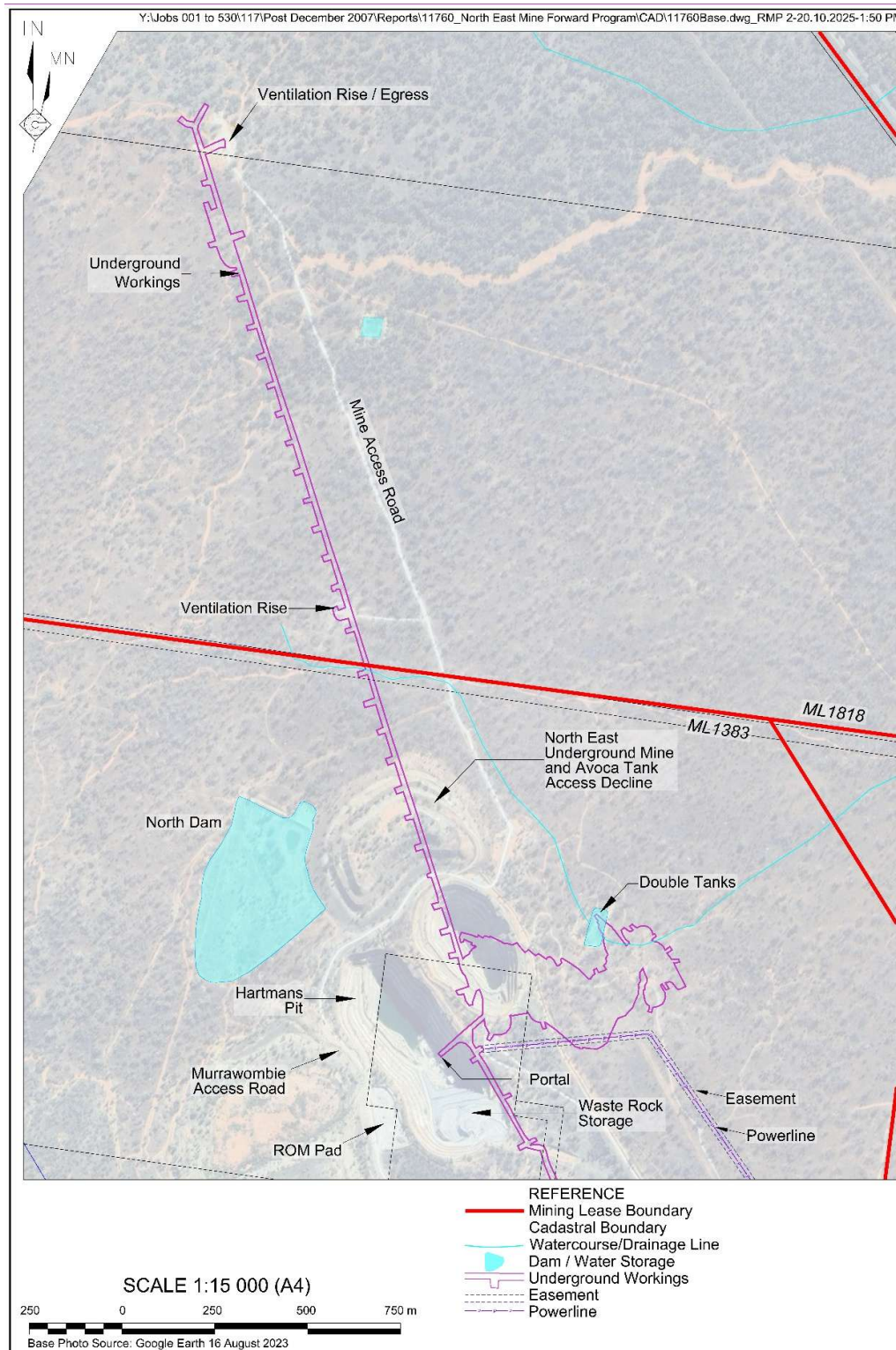
Collectively the North East Copper Mine and Avoca Tank Project are also referred to as North East Mine (NEM)

In summary, approved activities at the ATP include the following.

- Use of a portal (within Hartman's Pit), construction of a decline, underground workings and three vent rises (one equipped as an emergency egress and the others with a ventilation fan at surface).
- Extraction of the economically recoverable copper-gold-silver resources to a depth of approximately 500m below surface using long hole open stope mining techniques with some backfill.
- Transportation of ore material to the TCM for processing using road registered road trains via a combination of a private haul road and Booramugga and Yarrandale Roads.
- Establishment of a surface waste rock emplacement within Hartman's Pit for storage of waste rock extracted during the construction of access drives and mine development. Waste rock is being used to stabilise a landslip on the southern rim of the Hartman's Pit and is also re-used underground as a backfill component.
- Extension of infrastructure from the NECM, including a site access road, water pipeline and transmission line.
- Establishment of ancillary infrastructure.

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Figure 5 Avoca Tank Project Layout



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3.2.5. Constellation Project

The Constellation Project is located in the 'Bogan Shire' local government area (LGA) of central-western New South Wales. The Project site is located approximately 20 km north-east of the township of Girilambone and approximately 55 km north-west of Nyngan. The Project was approved via State Significant Development Consent (SSD-41579871) on 24 December 2025.

The Project includes the mining of copper ore, through the development of an open cut pit and underground mine. Mined ore is transported via road to the Tritton processing plant for processing, with lower grade oxide ore processed by heap leaching at the Project site. Transport of dewatered tailings material from Tritton Mine (back to the Project site for use in cemented paste fill) will support the underground mining activities.

The Project mines an average of 500,000 tonnes of copper ore per annum with peak production volumes of up to 1Mtpa. The mine life is approximately 16 years, inclusive of a Project construction period and rehabilitation/closure period. There is potential for mine life extensions as the deposit is developed down plunge.

Supporting infrastructure for the proposed Project includes:

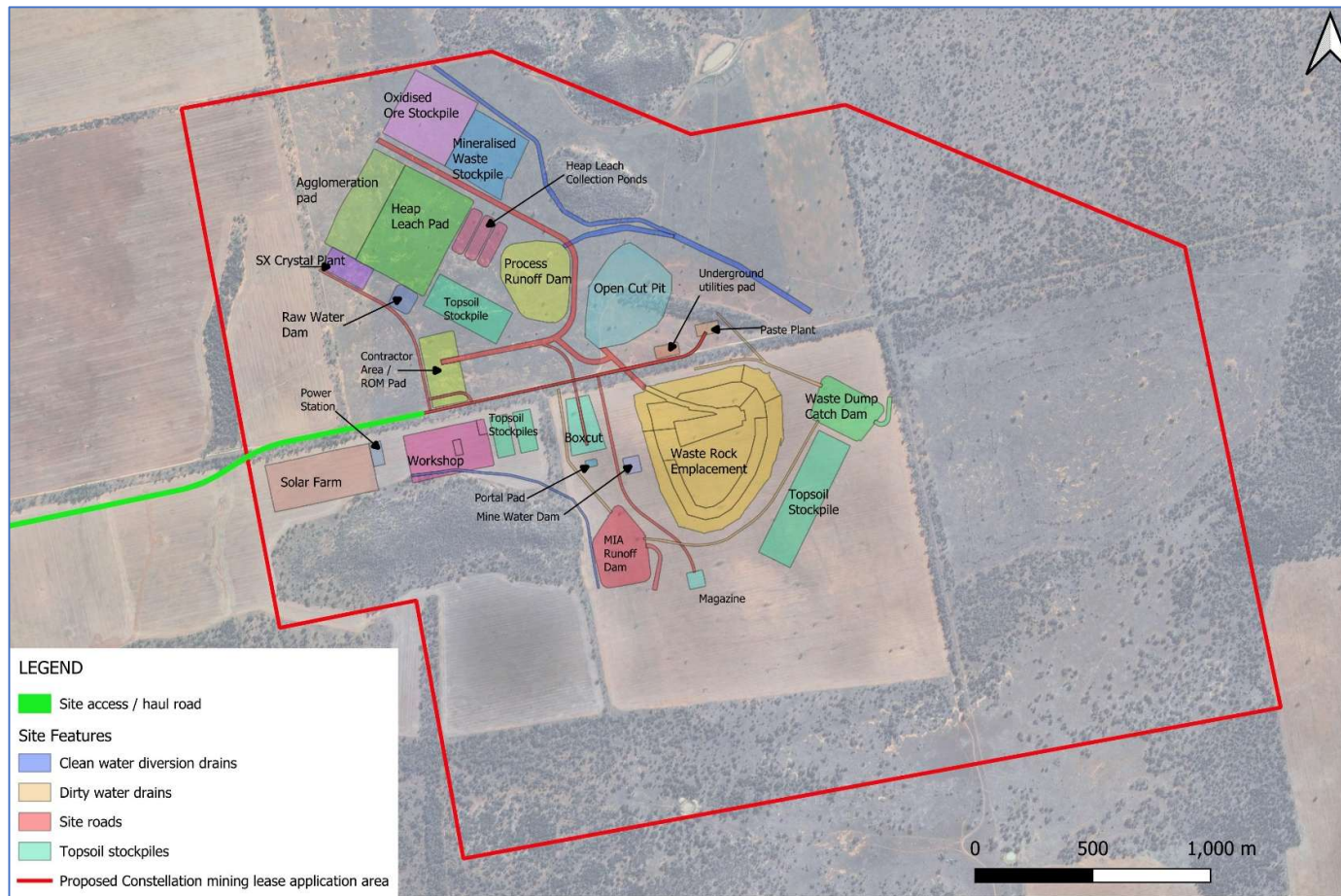
- a road upgrade between the Project site and the Mitchell Highway (to support haulage activity);
- a new T intersection to link the proposed haul road with the eastern side of the Mitchell Hwy (north of Girilambone);
- an upgrade to the intersection of the Mitchell Highway with Railway Road (west of Girilambone);
- a waste rock emplacement at the Project site;
- a run of mine stockpile to support the handling of mined ore;
- a mine laydown area and workshop;
- a heap leach pad and associated processing facility;
- a paste plant, emulsion storage and shotcrete batch plant;
- topsoil stockpiles;
- a solar farm and on-site power station;
- water management and storage infrastructure, including a bi-directional water pipeline between the Project site and Murrawombie Copper Mine; and
- administrative facilities including offices, amenities, and car park.

Figure 6 presents the approved Constellation Project site layout and Figure 7 shows the approved haul road route / infrastructure corridor from the project site to Murrawombie and Tritton Copper Mines.

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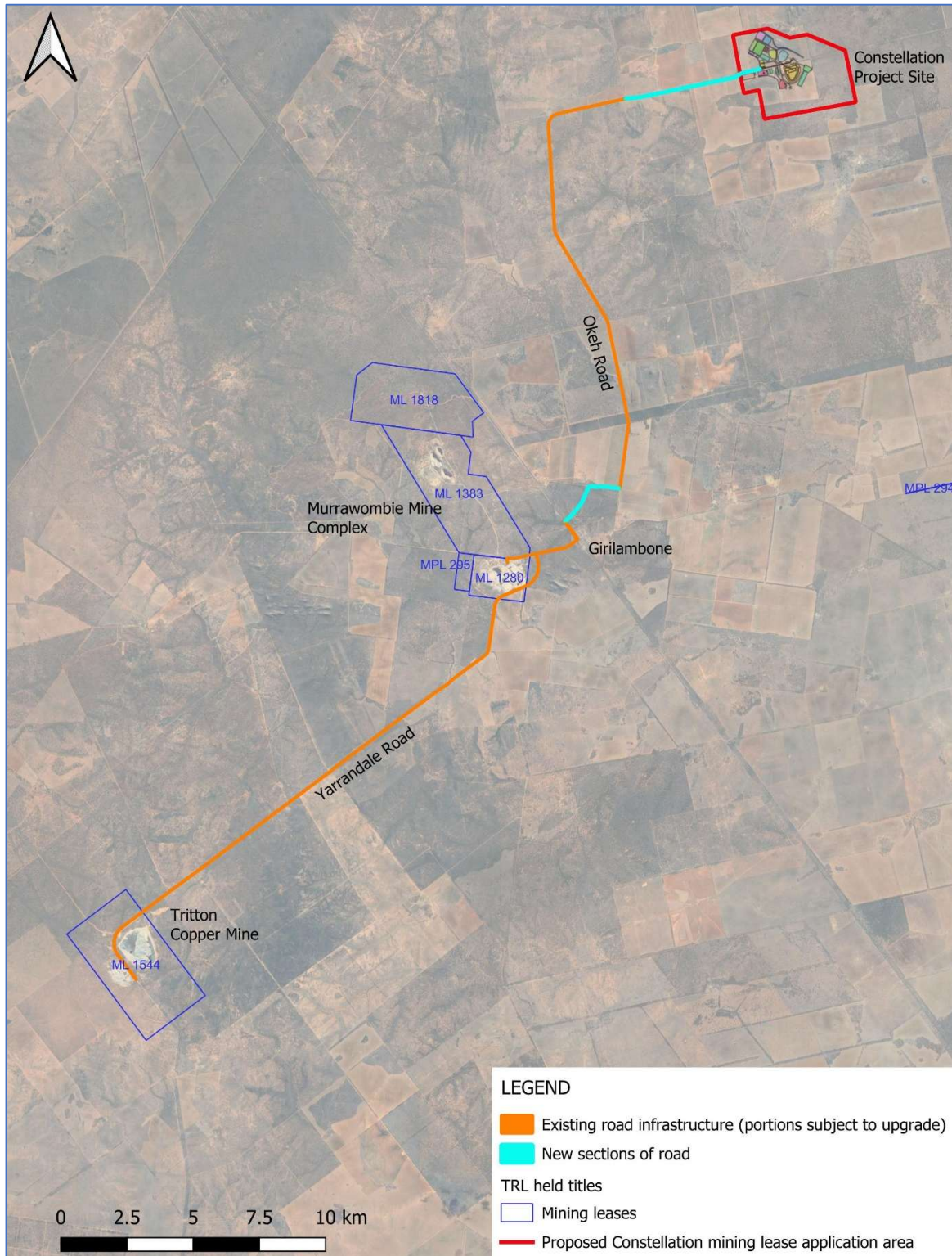
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Figure 6 Constellation project site layout



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Figure 7 Constellation Project haul road route



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3.3. Baseline Information

Baseline information is provided below and describes the operating environment of the Tritton Copper Operations.

3.3.1. Topography and Land Use

The Tritton Copper Operations are located 45 to 55 km north / northwest of the township of Nyngan in the Bogan Shire Council Local Government Area (LGA) of NSW as presented in Figure 1.

The topography in the vicinity of the Tritton Copper Operations is generally flat with gentle undulating rises and depressions with elevations generally from approximately 250 m AHD to 290 m Australian Height Datum (AHD). In general, slopes in the vicinity of mining operations rarely exceed 5%, and slope toward the east to the Bogan River.

Land uses surrounding the mine sites include:

- Agriculture - low intensity sheep and cattle grazing and seasonal cropping (mainly cereals) including a number of sparse rural residences.
- Nature conservation - substantial areas of native vegetation (though subject to grazing) exist in the vicinity of the mine sites.
- Native vegetation – forestry. The Girilambone State Forest occupies an area to the east of the mine sites (east of the Mitchell Highway).
- Transportation - a range of State and local roads exist in the vicinity of the mine sites, including the Mitchell Highway, the Barrier Highway, Booramugga, Yarrandale and Okeh Roads. The disused Main Western Railway is located to the east of (and runs parallel with) the Mitchell Highway.

3.3.2. Climate

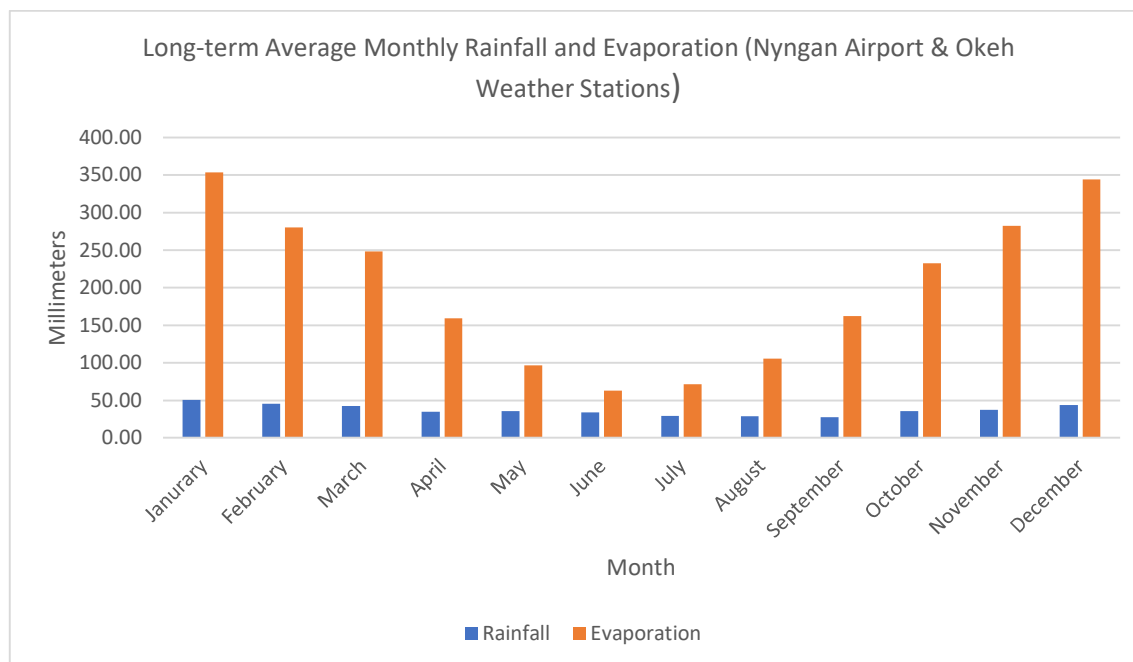
The climate of the Tritton Copper Operations area is semi-arid, with very hot summers and cool winters. Rainfall at Nyngan Airport (Station Number 051039) and Okeh (Station Number 051164) weather stations (Bureau of Meteorology (BoM) 2025) is characterised by a discernible annual cycle distribution, with higher rainfall trends in the October to March period and decreasing during the April to September period. Average monthly rainfall calculated between 1884 and 2025 varies between 27 mm in September and August to 50 mm in January. The average annual rainfall between 1884 and 2025 is 444.5 mm. Maximum daily rainfall can be more than double the average monthly rainfall, particularly in late summer and autumn, indicating that intense storms can occur.

The average annual evaporation total was obtained from the BoM Nyngan Airport (Station Number 051039) and had an average annual evaporation of 2,397 mm. This corresponds to an average annual moisture deficit (the difference between average annual rainfall and average annual evaporation) of 1,952 mm.

Average monthly pan evaporation is compared to average monthly rainfall calculated from the historical rainfall record in Figure 8, which shows a strong seasonal variation in evaporation. The site has an average monthly net rainfall deficit throughout the year.

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Figure 8 Monthly rainfall and evaporation at Nyngan Airport and Okeh Weather Stations



3.3.3. Baseline Noise Conditions

The pre-mining noise profile around the Tritton Copper Operations is influenced by environmental noise and noise generated from rural and transport related activities including:

- livestock, insects, and birds;
- wind in trees;
- agricultural machinery operation (tractors, combine harvesters etc);
- trucking / transport of rural and regional produce / general freight;
- regional traffic, including heavy freight using the Mitchell and Barrier highways; and
- local and regional traffic on access roads in the vicinity of TRL mine sites.

As part of the environmental assessments for each of the TRL mine approvals, background noise levels were estimated to assist in the assessment of potential impacts from mining operations. In general, background noise conditions were assessed¹ to be approximately 35dB(A) during daytime and 30dB(A) during evening and night time periods, however, at times, particularly during the night time periods, background noise conditions may drop to as low as 25dB(A).

¹ In accordance with the Noise Policy for Industry (EPA 2017)

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3.3.4. Potential Emission Sources

3.3.4.1. Noise

Surface noise generating activities that may impact the surrounding environment including residential stakeholders include the following:

- Construction activities including site deliveries, vegetation clearing, earthworks and the construction of infrastructure.
- Operation of open cut mines including blasting and load and haul activities.
- Operation of the underground mine including surface vehicle movements and surface ventilation fans.
- Site based transportation of ore and waste rock, including construction of site landforms such as the tailings storage facility and Waste Rock Emplacements.
- Transportation of ore, tailings and waste rock between TRL mine sites using public road networks.
- Crushing, grinding and processing of TCM and imported copper ore from other TRL mine sites to produce a copper concentrate.
- Transportation of the copper concentrate in shipping containers to the Hermidale rail siding.
- Rehabilitation and decommissioning activities.

3.3.4.2. Vibration

Vibration can occur as a result of earthmoving activities and particularly by surface and (to a far lesser extent) underground blasting, which if excessive could potentially cause damage to nearby buildings. As considered in the various environmental assessments for the Tritton Copper Operations, due to the isolated nature of the sites and the distance between vibration sources and residential receivers, vibration is considered a relatively low risk. Blast and vibration assessments undertaken to date indicate that blast performance measures would be met at all potential sensitive receivers.

3.3.5. Potential Sensitive Receivers

Potential noise and vibration sensitive receivers in the vicinity of the Tritton Copper Operations primarily includes residential dwellings located in (relatively) close proximity to mining operations or established (public) haul road routes.

Potential sensitive receivers are presented below in Table 5 and shown on Figure 9.

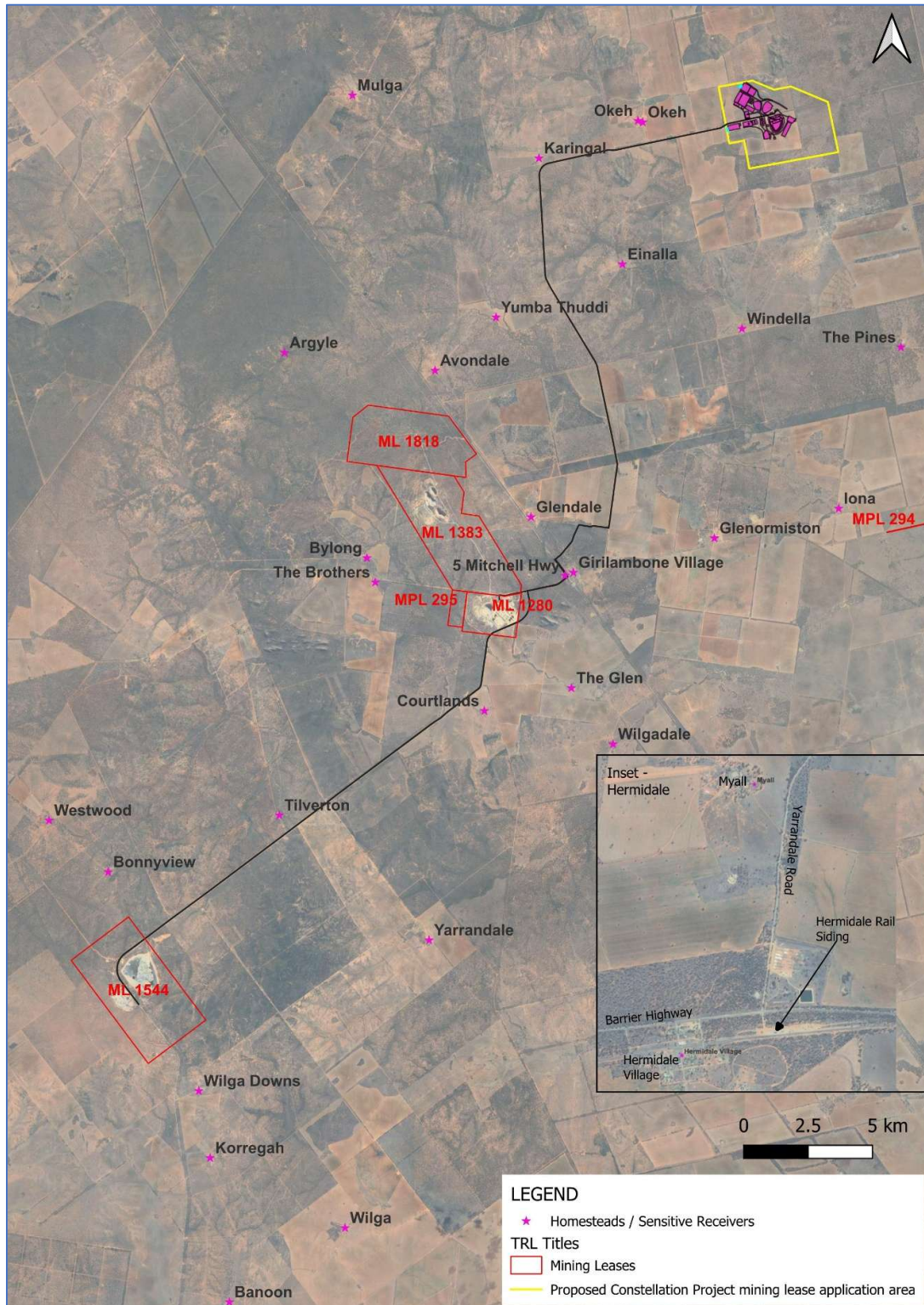
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Table 5 Potential Sensitive Receivers – Tritton Copper Operations

Mine Site	Aspect	Potential Sensitive Receiver
Tritton Copper Mine	Mine Site	'Wilga Downs' residence 'Bonnyview' residence
	Yarrandale Road (concentrate transport to Hermidale)	'Wilga Downs' residence 'Kooregah' residence 'Banoon' residence 'Myal' residence Hermidale Village
Murrawombie Copper Mine North East Copper Mine Avoca Tank Project	Mine Site	5 Mitchell Highway, Girilambone. 'Avondale' residence 'Glendale' residence 'Bylong' residence 'The Brothers' residence 'The Glen' residence 'Courtlands' residence Girilambone village
	Yarrandale Road (ore transport to Tritton Copper Mine)	'Courtlands' residence 'Tilverton' residence 'Bonnyview' residence 'Yarrandale' residence
Constellation Project	Mine Site	'Okeh' residence (x2)
	Okeh Road, Mitchell Highway, and Yarrandale Road (ore transport to Tritton Copper Mine)	'Okeh' residence (x2) 'Karingal' residence 'Einalla' residence 'Yumba Thuddi' residence 'Glendale' residence 5 Mitchell Highway, Girilambone. 'Yarrandale' residence Girilambone village

Figure 9 Noise and blast vibration sensitive receiver locations



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4. RESPONSIBILITIES

Personnel, contractors and visitors at TRL all have responsibility for the management of noise emissions and the reporting of excessive noise. Specific roles (Table 6) at TRL have key responsibilities in the approval, maintenance and implementation of this NVMP.

Table 6 NVMP Roles and Responsibilities

TRL Role	Responsibility
Site General Manager.	Overall accountability for the environmental performance of the Tritton Copper Operations. Ensure adequate resources are available for the implementation of the NVMP. Approve continuous improvement initiatives. Chair the TRL Senior Leadership Team (SLT) meetings (which functions as 'Management Review' of the EMS). Promote a culture of environmental stewardship across the site.
Health, Safety Environment & Training (HSET) Manager.	Overall accountability for the development and implementation of this NVMP and the environmental performance of the Tritton Copper Operations. Responsible for the site safety management system, emergency response and environmental performance of the TRL (including implementation of the EMS). Ensure compliance with legal and other requirements. Provides relevant information to the TRL SLT Meeting regarding environmental performance and facilitates 'Management Review' of the EMS.
Department Managers Construction Managers	Responsible for the implementation of environmental risk controls, as they apply to their specific area(s) of responsibility. Ensure staff are trained in relevant environmental and emergency procedures. Incorporate environmental and emergency considerations into operational planning. Report environmental incidents, emergencies and non-conformances immediately.
Mining Manager	Design of blasting and operation of heavy equipment to comply with performance criteria.

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TRL Role	Responsibility
Environmental Superintendent.	Develop, approve, implement, and maintain this NVMP. Ensure compliance with legal and other requirements. Responsible for the assessment and issuing of Surface Disturbance Permits. Responsible for the identification of environmental risks and tracking the implementation of risk controls. Undertake consultation as it relates to the content of the NVMP as required by development consents and other commitments. Responsible for the identification, reporting, investigation and corrective actions associated with environmental incidents and non-compliances. Identify opportunities for continuous improvement. Overall accountability for implementing monitoring programs and associated reporting. Provide environmental training and advice to all departments. Liaise with regulatory authorities on environmental matters. Prepare internal and external environmental reports.
Senior Environmental Advisors, Environmental Advisors and Environmental Technicians.	Responsible for implementing: • environmental monitoring programs; • undertaking environmental inspections; • implementing environmental awareness programs; • implementing other environmental programs; and • other tasks as directed by the Environmental Superintendent.
Community Relations Officer.	Responsible for the development, coordination and dissemination of information to community stakeholders.

5. COMMUNITY AND STAKEHOLDER ENGAGEMENT

TRL maintains an open-door policy regarding complaints, questions and feedback to the local community. As such, surrounding landholders are regularly consulted through informal telephone conversations and correspondence.

The Tritton Community Consultative Committee was established on 22 February 2013 as a means to share information and maintain relationships with the various stakeholders (and is also required as per Condition C6 of the Avoca Tank Project Development Consent (DA 10/2015/004/003)). Invitees consist of representatives from local business, farmers, Bogan Shire Council, the Ngemba Ngiyampaa, Wangaaypuwan and Wayilwan (NNWW) people, the Bogan Aboriginal Corporation (BAC) and the Nyngan Local Aboriginal Land Council (NLALC). The CCC meets on a quarterly basis to discuss issues related to the company's operation and the community.

Condition 6(iv) of the TCM Development Consent (DA 41/98), requires that a Noise and Vibration Management Strategy is prepared in consultation with the NSW Environmental Protection Authority (EPA) and to the satisfaction of the DPHI Secretary. This NVMP was provided to the EPA and DPHI via the DPHI Major Projects Portal.

The NSW EPA declined to review or make comment on the NVMP (letter dated 12 June 2025). As such, no associated amendments have been made to this plan.

Following the above consultation process, the amended NVMP was submitted to NSW DPHI for approval. Several minor comments / requests for amendment were received from DPHI (Letter dated 16/4/26). All requested amendments were addressed within the NVMP and a table outlining how each comment was addressed was provided to DPHI. The NVMP was subsequently approved by a nominee of the Planning Secretary (letter dated 29/04/2026)

Condition 50 of the TCM Development Consent (DA 41/98), requires that a blasting protocol (included in this NVMP) must be prepared and submitted to the Secretary and EPA prior to the commencement of operations; submission to the DPHI and EPA via the NSW Major Projects Portal is considered to satisfy this requirement.

6. RISK ASSESSMENT

TRL maintain an Environmental Risk Register (TRL-HSET-RAS-0006) which is reviewed and updated on a periodic basis. The Risk Register is further described in the EMS (TRL-HSET-PLN-0023). During the preparation of this NVMP, the risk register was used to identify key risks as they relate to noise and vibration emissions. Section 7 includes management measures to control and mitigate these risks.

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6.1. Preliminary Hazard Analysis

As per Condition 6 of the TCM Development Consent (DA41/98) The Noise and Vibration Management Plan must consider recommendations from the Preliminary Hazard Analysis prepared by McCracken Consulting, dated December 1998.

The Preliminary Hazard Analysis does not identify any specific hazards associated with noise or blast emission impacts. The Preliminary Hazard Analysis does however identify general risks associated with the transport, storage and handling of chemicals and explosives. The management measures contained in the Hydrocarbon and Chemical Management Plan (TRL-HSET-PLN-0027) are considered to adequately manage identified hazards and are not replicated in this NVMP.

7. MANAGEMENT MEASURES

The following subsections describe the management measures and controls that will be implemented to manage and control potential noise and vibration emissions with the objective of meeting the following performance criteria which apply to specific mine sites as per the relevant development consents.

7.1. Performance Criteria

7.1.1. Noise

Tritton Copper Mine

Development consent limits (Condition 38 of the TCM Development Consent (DA41/98)) are currently inconsistent with those applied via EPL 11254². As such, for the purpose of this NVMP and assessing the performance of TRL, the lowest criteria will be used as performance criteria; that is, those contained in the TCM Development Consent (DA41/98)). TRL will liaise with the NSW EPA to align noise limits at the next available opportunity. In the interim, TRL will continue to undertake compliance assessments (i.e monitoring) and report against both sets of criteria (refer to Section 8).

Table 7 TCM Performance Criteria (Condition 38 of the TCM Development Consent (DA41/98))

Noise Assessment Location	Day L _{Aeq} (15min) dB(A)	Evening L _{Aeq} (15min) dB(A)	Night L _{Aeq} (15min) dB(A)	Night L _{AMax} dB(A)
All privately owned residences	40	35	35	52

² Condition L 3.3 Noise from the premises must not exceed:

- (a) an L_{Aeq} noise emission criteria of 50 dB(A) (7am to 6pm) on any day; and
 - (b) an L_{Aeq} noise emission criterion of 45 dB(A) during the evening (6pm to 10pm) on any day;
 - (c) at all other times an L_{Aeq} noise emission criterion of 40 dB(A),
- except as expressly provided by this licence.

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In accordance with Condition 38B of the TCM Development Consent (DA41/98), the noise criteria presented above in Table 7 (replicated from Table 2 of the TCM Development Consent) do not apply if TRL has an agreement with the owner/s of the relevant residence or land to exceed the noise criteria, and TRL has advised the Department in writing of the terms of this agreement. TRL will notify the DPHI in writing where any agreements are developed.

Murrawombie Copper Mine

The Murrawombie Copper Mine Development Consent (Mod 5 DA (DA 2015/010/4)) and EPL 4501 do not contain any noise emission limits. As such, for the purpose of this NVMP, performance criteria have been adopted from the NSW Noise Policy for Industry (NSW EPA 2017) and are based on the assumed background noise levels of 35dB(A) during the day time and 30dB(A) during evening and night time periods (ie background + 5dB(A)).

Table 8 MCM adopted Performance Criteria

Noise Assessment Location	Day $L_{Aeq}(15min)$ dB(A)	Evening $L_{Aeq}(15min)$ dB(A)	Night $L_{Aeq}(15min)$ dB(A)
All privately owned residences	40	35	35

Avoca Tank Project / North East Copper Mine

The following performance criteria apply to activities at the Avoca Tank Project / North East Copper Mine (Condition B19 Avoca Tank Development Consent (DA 10/2015/004/003)). There are no noise related criteria in EPL 4501.

Table 9 ATP/NECM Performance Criteria (Condition B19 Avoca Tank Development Consent (DA 10/2015/004/003))

Location	Day $L_{Aeq}(15min)$ dB(A)	Evening $L_{Aeq}(15min)$ dB(A)	Night $L_{Aeq}(15min)$ dB(A)	Night $L_{Aeq}(1minute)$ dB(A)
All privately owned residences	35	35	35	35

Constellation Project

The following performance criteria (Table 10) apply to activities at the Constellation Project (Condition C7 of the Constellation Project Development Consent (SSD-41579871)).

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Table 10 Constellation Project Noise Performance Criteria

Location	Day	Evening	Night	
	L _{Aeq} (15 min) dB(A)	L _{Aeq} (15 min) dB(A)	L _{Aeq} (15 min) dB(A)	L _{AF} Max dB(A)
Any privately owned residence	40	35	35	52

As per Condition C11 of the Constellation Project Development Consent (SSD-41579871)), for very noise-enhancing meteorological conditions³ as defined in the *NSW Noise Policy for Industry* (EPA 2017), the applicable noise limits are as defined in Table 2 plus 5 dB(A).

7.1.2. Blast

With the exception of the Constellation Project, there are no specific blast criteria for other Tritton Copper Operations mining projects / development consents (including from EPL's). As the Constellation Blast limits (Condition C13 of the Constellation Project Development Consent (SSD-41579871)) align with the *Australian Standard AS 2187.2:2006 Explosives - Storage and Use*; for the purpose of this NVMP and assessing the performance of TRL; the Constellation Project blasting assessment criteria have been adopted for all sites where blasting occurs.

Table 11 Constellation Project Blast Performance Criteria

Location	Airblast Overpressure	Ground vibration	Allowable exceedance
Residence on privately owned land*	120	10	0%
	115	5	5% of the total number of blasts over a calendar year
All other public infrastructure	-	50 (or a limit determined by the structural design methodology in AS2187, or other alternative limit, to the satisfaction of the Planning Secretary)	0%
*Or other sensitive receiver location (e.g. a school or hospital)			

³ The NSW Noise Policy for Industry (EPA 2017) defines very noise enhancing meteorological conditions as those outside of the range of either standard or noise enhancing meteorological conditions as adopted in the noise impact assessment.

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7.2. Noise Management Measures

TRL will take all reasonable and feasible steps to minimise noise from construction and operational activities, including low frequency noise and other audible characteristics, as well as road noise associated with the mining developments. Key noise management measures are presented in the following sections, including how TRL will manage noise emissions during adverse weather conditions.

7.2.1. Operational noise

The following management measures will be implemented where feasible by TRL to manage noise emissions from operational sources. Where a commitment is only related to a specific mine site(s), the mine site is indicated in brackets at the end of the management measure.

- Strictly comply with the approved hours of operation where applicable (Section 2.2).
- Undertake regular communication and consultation with surrounding residents and maintain a community complaints protocol and register. Promptly respond to any noise complaints received (The TRL Community Complaints Protocol is contained in the EMS (TRL-HSET-PLN-0023).
- Work activities will be assessed for noise impacts, and measures to minimise noise impacts will be identified and implemented, as part of the JHA or risk assessment process.
- All plant and machinery will be maintained generally in accordance with manufacturer's requirements to minimise noise emissions, including that all equipment will be fitted with standard exhaust mufflers in accordance with OEM specifications.
- Additional equipment silencing measures will be investigated if monitoring indicates excessive noise emissions or if concerns are raised by the neighbouring communities.
- Wherever possible, high noise generating activities will be conducted during daylight hours and on days when there is not a strong temperature inversion (indicated by the presence of fog, smoke or dust remaining suspended in the air).
- Plant and equipment required for the mine operations will be designed, selected and/or located (by Department Managers) so that noise impacts are minimised as far as is practicable.
- Developing an awareness and understanding of potential noise impacts through site inductions for staff, contractors and visitors (Section 13).
- Equipment will be shut down when not in use.
- All plant and machinery used will be operated in a proper and efficient manner (e.g. at correct speed) to minimise noise generation.
- Speed limits will be followed. Speed limits are 60 km/h on haul roads, 20 km/h around offices and workshop areas and 40 km/h on other surface roads.
- All haul trucks and mobile plant will utilise a broad-spectrum reverse alarm in lieu of the traditional hi-frequency type reverse alarm.

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- Prior to the undertaking of an activity that may generate higher than usual noise output, consultation with those who will be potentially affected will be undertaken.

7.2.2. Traffic noise

The following management measures will be implemented where feasible by TRL to manage noise emissions from mine associated traffic using public road networks. Where a commitment is related to a specific mine site, the mine site is indicated in brackets at the end of the management measure.

- Comply with the approved traffic levels (as described / modelled in the respective environmental assessments (Refer to the TRL Traffic Management Strategy (TRL-HSET-PLN-0043)).
- Considering use of quieter operating haul trucks / configurations where practicable.
- The transport of waste rock from the TCM (export of waste rock to third parties) will only be undertaken between 7.00am and 10.00pm (TCM).
- Speed limits will be followed at all times.
- Use of carpooling and shuttle bus services will be encouraged to transport operational and construction workforces to site.
- Ensure that all drivers transporting ore, waste rock or tailings on public roads comply with the TRL Traffic Management Strategy (TRL-HSET-PLN-0043) including the Driver's Code of Conduct (TRL-ENV-FRM-020). Monitor compliance with the code and address matters of non-compliance.
- Haulage on public roads will be conducted predominantly during day time and evening hours, with night haulage only undertaken when necessary.
- A complaints protocol will be implemented to identify, track and resolve community complaints associated with traffic noise from the Tritton Copper Operations (refer to the EMS (TRL-HSET-PLN-0023)).

7.2.2.1. Constellation Project additional measures

The Environmental Impact Statement for the Constellation Project (AARC 2024) included a traffic noise assessment conducted by Todoroski Air Sciences (Todoroski Air Sciences 2024). The traffic noise assessment concluded that, *'based on predicted day and night periods, no receptor is expected to experience traffic noise levels beyond the relevant criteria. However, sensitive receptors on some sections of the haul route (with low existing traffic noise) may still experience a noticeable increase in traffic noise, yet still comply with the relevant criteria'*.

In addition to the general traffic noise measures presented above, the following measures will be implemented for the Constellation Project.

- Ensuring the road surface is smooth and well maintained to prevent formation of potholes and irregularities.
- Paving sections of haul road near receivers to maintain smooth surface (refer to the TRL Traffic Management Strategy (TRL-HSET-PLN-0043)).

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- Consider (where required and in consultation with residents) installing mounds or barriers near receivers to deflect noise.
- Consider (where required and in consultation with residents) applying noise treatments to affected residential properties, including (for example) upgrading windows and doors, acoustic sealing and installation of mechanical ventilation.

Haulage operations from and to the Constellation Project (i.e. ore to TCM and backloading of tailings material) will reflect required production rates and be conducted within approved hours of operation. In accordance with Condition A8 of the Constellation Project Development Consent (SSD-41579871), TRL will undertake haulage on public roads during daytime and evening hours only, unless otherwise agreed by the Planning Secretary.

Construction

TRL propose to undertake construction within suitable portions of the infrastructure corridor outside of standard hours of operation. In accordance with Condition C6 of the Constellation Development Consent (SSD-41579871) and Out of Hours Work Protocol has been developed, and approved by the Secretary, allowing construction to be undertaken within designated areas on a 24 hours, 7 days per week basis. The Out of Hours Work Protocol (TRL-HSET-PLN-0050) must be read in conjunction with this NVMP during construction phases of the project.

TRL will develop a Construction Management Plan to manage construction based noise emissions, including additional measures as contained in the Out of Hours Work Protocol (TRL-HSET-PLN-0050).

During road construction and upgrades associated with the Constellation Project, construction related traffic will access the Constellation Project site via the village of Girilambone (Acturus Street / Murrawombie Road and Okeh Road). TRL will implement the following measures to reduce potential traffic related noise impacts on the residents of Girilambone:

- Heavy vehicles will have a speed limit (within town limits) of 40km/hour;
- Heavy vehicles will not be permitted to use exhaust brakes;
- Heavy vehicle movements will be restricted to daytime hours only (i.e between 7 am to 6 pm Monday to Friday, 8 am to 6 pm Saturday and at no time on Sundays or public holidays⁴
- To reduce light traffic volumes within Girilambone, construction staff will be encouraged to carpool and / or use provided shuttle buses.

7.3. Blast Management Measures (Blast Protocol)

The following management measures constitutes the Blast Protocol as required by Condition 50 of the TCM Development Consent (DA41/98) and applies to other mine sites where blasting is undertaken:

Due to the relative size of surface vs underground blasts, this protocol generally relates to surface blasting activities, including those required for the development of underground boxcuts, portals and ventilation shafts.

⁴ Unless otherwise agreed by the Planning Secretary in accordance with Condition C6 of the Constellation Project Development Consent (SSD-41579871).

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7.3.1. General Measures

All blasts are planned and designed by suitably qualified personnel to ensure surface blast emissions (overpressure and ground vibration) meet the performance criteria as outlined in this NVMP.

The following blast design procedures would be applied in minimising potential impacts from blasting activities:

- No 'unconfined' surface blast designs will be permitted.
- Adequate stemming of the drill holes would ensure that minimum airblast would result.
- The amount of explosive in each hole would be adjusted to avoid over-charging.
- The type of explosive would be selected to suit the rock type to be fragmented.
- Blasts will be designed to avoid any potential impacts to people, livestock and public infrastructure and avoid the need for any public road closures.
- meteorological conditions will be considered within the blast design process (as a mechanism to prevent the exacerbation of impacts);
- based on the blast design and location, relevant safety protocols (such as the establishment of safety exclusion zones) will be implemented to ensure the safety of people from blasting related impacts.

Ground vibration would be kept within specified limits by:

- Adjusting the total amount of explosive that is initiated at any instant of time (ie by delay detonators) to a maximum weight.
- Adjusting the overall size and blast hole pattern of the planned blast.
- Restricting the diameter of blast hole pattern of the planned blast
- Ensuring that care is taken in the spacing of blast holes.

Where deemed necessary, test blasting would be carried out using the above safeguards to check fragmentation and re-evaluate site constants (MCM).

The airblast overpressure and ground vibration (from surface blasting) will be monitored (Section 8.3) to ensure that the specified performance criteria are not exceeded and to assist in the design of future blasting (MCM, CP).

7.3.2. Surface Blasting Notification

The community, within approximately 5km of the blast location, will be notified of the surface blasting schedule either by direct contact (phone / email / letter), and/or on a mine site notice board.

Any community complaints received regarding blasting, including any claims of property damage or distress caused to livestock will be investigated and managed as per the TRL Community Complaints Protocol as contained in the EMS (TRL-HSET-PLN-0023).

TRL will strictly comply with the approved blast hours of operation:

Tritton Copper Mine (noting that no surface blasting is undertaken at TCM and no surface blasting is planned under current approved operations.

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Should surface blasting recommence at TCM:

- All aboveground blasting shall be carried out between 9:00am and 6:00pm Monday to Friday (TCM).
- Surface blasting shall only be allowed on public holidays in special circumstances and with the prior approval of the EPA (TCM).
- TRL will ensure that no private or company vehicles are utilising Yarrandale Road within 400 metres of the entrance to the Tritton Project Site when surface blasting is being undertaken.
- TRL will consult with the EPA regarding the monitoring of overpressure and ground vibration from surface blasting.

Murrawombie Copper Mine

- Surface blasting should generally be carried out between the hours of 9.00am to 3.00pm (Monday to Saturday). Recent surface blast monitoring associated with the Murrawombie open pit cutback has not resulted in any exceedances of performance criteria or community complaint, as such surface blasting will be extended to 5pm (MCM).
- Where there are strong inversion layers (indicated by the presence of fog, smoke or dust remaining suspended in the air), blasting should be restricted to between 11.00am and 1.00pm.(MCM)

Constellation Project

- Surface blasting will only be carried out between 9 am and 5 pm (Monday to Saturday inclusive). No blasting is allowed on Sundays, public holidays or any other time without the prior written approval of the Planning Secretary.
- Blasting within the underground mine will be undertaken at any time, subject to compliance with the conditions of this consent (Section 2.2).

7.3.3. Underground Blasting

Due to lower blast noise and vibration from smaller scale underground blasting, blasting will be conducted on a 24 hour basis, subject to meeting blast and performance limits as contained in this NVMP.

TRL will record and investigate any community complaints relating to impacts from underground blasting. The investigation may include the temporary placement of a blast monitor at a suitable location to monitor blast overpressure and ground vibration.

7.4. Adverse Weather Conditions

Adverse weather conditions have the potential to exacerbate noise emissions (including overpressure from blasting) and increase impacts at residential receivers. The following Trigger Action Response Plan (TARP) will be implemented at Tritton Copper Operations to assess adverse weather conditions and adjust noise emitting activities as required. This TARP is applied where potential high noise emitting activities are planned, beyond what is considered normal operations and where blast designs and modelling indicate that blasts may be within the allowable 5% exceedance criteria (Section 7.1.2).

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The *NSW Noise Policy for Industry* (EPA 2017) defines noise enhancing meteorological conditions as:

- Table 12 Adverse Weather TARP

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7.5. Management measures

Table 13 below provides a summary of 'active' management and mitigation measures from the previous sections and includes detail as to which Tritton Copper Operations sites, the action may be applicable to, and the role accountable for completion of the measure.

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Table 13 Summary – Management and Mitigation Measures

Management / Mitigation Measure		Applicable Site					Accountability
Ref	Description	TCM	MCM	NECM	ATP	CP	
NV01	At the next available opportunity, liaise with the NSW EPA and align EPL 11254 noise limit criteria with the Tritton Development Consent (Modification 9).	✓					HSET Manager
NV02	Undertake annual attended noise monitoring and assess against the performance criteria contained in this NVMP.			✓			HSET Manager
NV03	Respond promptly to any noise or blast related community complaints.			✓			Community Relations Officer.
NV04	Consider noise emissions and potential impacts in risk assessments and JHA's.			✓			Relevant Area Managers
NV05	Maintain all plant and machinery in accordance with manufacturer's requirements to minimise noise emissions.			✓			Relevant Area Managers
NV06	Drivers of trucks transporting ore, waste rock or tailings between the TRL mine sites will undertake the TRL Drivers Code of Conduct. TRL Management will monitor compliance with the code (Traffic Management Strategy TRL-HSET-PLN-0043).			✓			Mining Manager
NV07	Haulage of ore, waste rock or tailings between the TRL mine sites will be undertaken during daytime and evening periods only, unless otherwise approved by the respective development consent.			✓			Mining Manager
NV08	Public haul road routes will be suitably maintained to reduce noise generation.		✓		✓	✓	Mining Manager
NV09	Wherever possible, high noise generating activities will be conducted during daylight hours.			✓			Mining Manager
NV10	All plant and machinery used will be operated in a proper and efficient manner (e.g. at correct speed) to minimise noise generation.			✓			Mining Manager
NV11	During road construction and upgrades associated with the Constellation Project, implement measures to minimise noise related impacts on sensitive receivers including the residents of Girilambone.					✓	Construction Manager
BV01	All surface blasts are designed by a suitably qualified person to be below the performance criteria specified in this NVMP.		✓			✓	Mining Manager
BV02	Where surface blasting is conducted, TRL will undertake periodic monitoring, where deemed necessary to confirm the meeting of performance criteria in this NVMP.		✓			✓	HSET Manager
BV03	TRL will implement notification processes to notify the community of surface blasting schedules.		✓			✓	Community Relations Officer.

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Management / Mitigation Measure		Applicable Site					Accountability
Ref	Description	TCM	MCM	NECM	ATP	CP	
BV04	Surface blasting will only be undertaken during specified hours.		✓			✓	Mining Manager
BV05	Where necessary, TRL will consider adverse weather conditions and the exacerbation of noise or blast impacts (on community members) and modify or defer high risk activities.			✓			Relevant Area Managers

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8. MONITORING PROGRAM

8.1. Meteorological Monitoring

TRL operate two meteorological stations, located at the TCM and MCM (Figure 10). In accordance with Condition C12 of the Constellation project Development Consent (SSD-41579871), and additional meteorological station will be installed at the Constellation Project site (approximate location shown on Figure 10).

Installed meteorological stations comply with the requirements of the:

- *Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales* (EPA, 2022);
- *EPA's Ambient Air Monitoring Guidance Note* (EPA 2022)

and are capable of measuring meteorological conditions in accordance with the *NSW Noise Policy for Industry* (EPA, 2017).

TRL will operate the meteorological monitoring system to assist in the interpretation of noise and air quality monitoring data, guide the day-to-day planning of mining operations and the management of potential adverse weather conditions (including noise-enhancing conditions).

8.2. Noise Monitoring

TRL implements an attended noise monitoring program in the vicinity of the Tritton Copper Operations to assess the performance of the TRL and assess compliance with consent limits where applicable (to the specific development consent / EPL) or established performance criteria.

Noise monitoring is undertaken on an annual basis at each mine site.

With reference to Table 5, monitoring is generally undertaken at the closest residential receivers to each mining operation. The monitoring program, including locations and assessment criteria are presented below in Table 14 and monitoring locations are shown on Figure 10.

To avoid unnecessary interruption to residents, monitoring is conducted at the closest portion of private land (to the mine site / emission source) and is considered conservatively representative of noise emissions that would otherwise be recorded at the dwelling.

Additional monitoring may be undertaken:

- at additional locations where non-compliances were identified at the closest residential receiver and / or;
- following a community complaint regarding operational or transport related noise impacts.

Noise monitoring is undertaken by a specialist Noise Monitoring Contractor and / or by suitably qualified and experienced TRL environmental advisors. Noise monitoring and data evaluation are undertaken in accordance with:

- Relevant development consent and EPL conditions (see Section 2.2 and Section 2.3).
- NSW Noise Policy for Industry (EPA, 2017) (including noise enhancing meteorological conditions).

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- Australian Standard AS 1055:2018 – Acoustics – description and measurement of environmental noise – general procedures.
- NSW Environment Protection Authority (EPA's), Approved methods for the measurement and analysis of environmental noise in NSW, 2022.

Annual monitoring at each location shall include:

- 1 x 15 minute measurements taken during day time hours.
- 1 x 15 minute measurements taken during evening hours.
- 1 x 15 minute measurements taken during night time hours.

Monitoring will not be undertaken during periods of planned shutdowns or on weekends / public holidays.

Acoustic instrumentation used in attended monitoring will comply with AS 1259.2-1990 *Acoustics - Sound Level Meters Integrating-Averaging* and carry current National Association of Testing Authorities or manufacturer calibration certificates. Instrument calibration will be conducted before and after each survey, with the variation in calibrated levels not to exceed ± 0.5 dBA.

The intrusive noise level ($L_{Aeq[15min]}$) contribution from operational activities will be quantified over a 15 minute measurement period. In addition, the overall levels of ambient noise (i.e. L_{Amax} , L_{A1} , L_{A10} , L_{A90} , L_{Amin} and L_{Aeq}) over the 15 minute period will be quantified and recorded.

Modifying factors from Fact Sheet C and D of the Noise Policy for Industry (NSW EPA 2017) will be used where applicable. Tonality and low frequency will be assessed by analysis of the measured L_{Aeq} spectrum.

Wind direction, wind speed, air temperature and relative humidity will be recorded as part of the attended noise monitoring. Notes will be taken if there are changes in wind speed/direction at the various monitoring locations or if other relevant changes occur. While this information is gathered to inform site based observations, site AWS weather data (wind speed/direction) will primarily be used in compliance assessment reports as this is taken at the required 10 metres above ground level in accordance with relevant standards.

Comprehensive field notes will be taken to indicate noise sources (for example, bulldozer tracks, reverse beepers etc.) and other sources (birds, insects, dogs, passing cars, etc.) and when they occurred during the measurement to the nearest second. As some noise sources may not be visible from the monitoring location, TRL will keep a log of where each plant item is operating.

A summary of all monitoring results will be reported in the Annual Review where required.

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8.2.1. Assessing Compliance

The results of noise monitoring at the attended monitoring sites will be compared against the relevant noise criteria (Section 2.2) where applicable, or against the performance criteria in this NVMP (Section 7.1). The comparison will be undertaken following consideration of noise enhancing meteorological condition and any required adjustment to performance criteria (Section 7.1.1) as well as observations of non-mine (extraneous) noise by the person undertaking the attended noise monitoring program.

In the event of an exceedance⁵ of the noise criteria or performance criteria, the technician will notify the relevant mining supervisors and advise of the exceedance and the potential noise source.

The mining supervisor will investigate and modify or cease the noise emitting activities.

Once activities are modified, a second reading (single 15 minute measurement) will be undertaken at the location to verify that the modification of activities and reduced noise emissions (to within compliance / performance limits).

If the second reading is also confirmed to exceed the relevant criteria, the technician will immediately escalate to the Environmental Superintendent or HSET Manager to enforce the modification, relocation or cessation of the noise emitting activity and for investigation as per TRL's incident management processes.

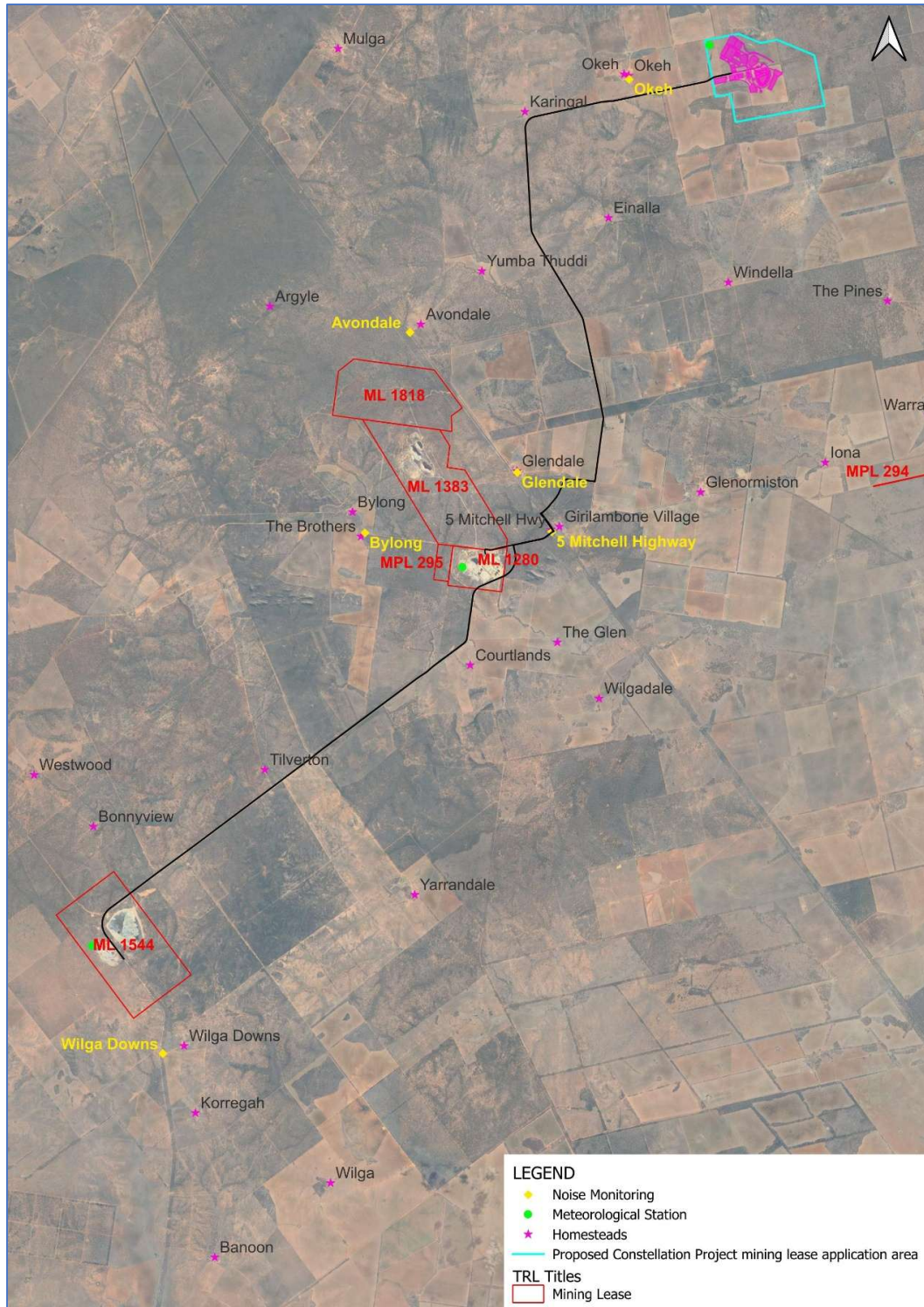
The exceedance will be reported as a non-compliance (Section 14) and included in the Annual Review (Section 11.3) where required.

⁵ Noting that noise limits in Condition C7 of the Constellation Development Consent (SSD-41579871) do not apply if TRL has an agreement with the owner/s of the relevant residence to exceed the noise limits and TRL has provided evidence of this agreement to the satisfaction of the Planning Secretary.

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Figure 10 Noise and meteorological monitoring locations



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Table 14 TRL Attended Noise Monitoring Locations

Mine Site	Development Consent Limits	EPL Criteria	NVMP Criteria	Performance	Monitoring Locations	Frequency	Responsibility
Tritton Copper Mine	Yes (Table 2)	Yes (Table 3)	-		'Wilga Downs' residence.	Annual	Environment Superintendent
Murrawombie Copper Mine	No	No	Yes (Section 7.1)		5 Mitchell Highway, Girilambone. (intersection of the Mitchell Highway and Railway Road)	Annual	
Avoca Tank Project North East Copper Mine	Yes (Table 2)	No	-		'Avondale' residence. 'Glendale' residence. 'Bylong' residence.	Annual	
Constellation Project	Yes (Table 2)	TBA	-		Okeh Residence	Annual	

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8.3. Blast Monitoring

Due to the size and scale of underground blasts and distance to residential receivers (as assessed as 'low risk' via the respective environmental assessments), blast monitoring is restricted to where surface blasting is undertaken, which is currently the MCM open pit, and once commenced, the Constellation Project open cut pit. Once open cut mining is completed at these operations, blast monitoring will be discontinued, with the exception of any complaint based monitoring.

At the time of preparing this NVMP, no further surface blasting is anticipated at the TCM, NECM or ATP. Should surface blasting recommence at these mine sites, this NVMP will be revised to include an appropriate monitoring program.

The blast monitoring program will include the monitoring of blast overpressure and ground vibration and will be conducted in accordance with the relevant Australian Standards.

Blast monitoring locations, associated with the MCM and Constellation Project are presented below in Table 15 and shown on Figure 11.

Monitoring is generally undertaken at the closest residential receiver to each mining operation. To avoid unnecessary interruption to residents, monitoring is conducted at the closest portion of 'representative land' (as agreed between TRL and the owner) which is considered conservatively representative of blast emissions that would otherwise be recorded at the dwelling.

Blast monitoring will be conducted on an ongoing basis, with data accessed and assessed on a daily basis, or following each blast event. Blast data will be aligned with actual blast times to ensure that non-extraneous sources are excluded from assessment.

As noted in Section 7.1.2, blast limits as defined for Constellation Project have been adopted for all sites where blasting occurs.

Where performance criteria are found to be exceeded⁶, blast design will be reviewed and amended to ensure blast emissions remain below the established performance criteria.

Additional blast monitoring may be undertaken under the following circumstances:

- The monitoring of blasts, including overpressure and ground vibration may be undertaken following the receipt of community complaints related to blast related impacts. Monitoring would be arranged by the Environmental Superintendent and conducted for a representative period, suitable to assess potential impacts. Monitoring results will be presented and discussed with the complainant, and a summary provided in the annual review where relevant.
- Should surface blasting re-commence at TCM, all surface blasts within 200 metres of the mine portal will be monitored (overpressure and peak particle velocity) at locations agreed by EPA and the NSW Resources Regulator.

⁶ Noting that blast limits in Condition C13 of the Constellation Development Consent (SSD-41579871) do not apply if TRL has an agreement with the owner/s of the relevant residence to exceed the blasting limits and TRL has provided evidence of this agreement to the satisfaction of the Planning Secretary.

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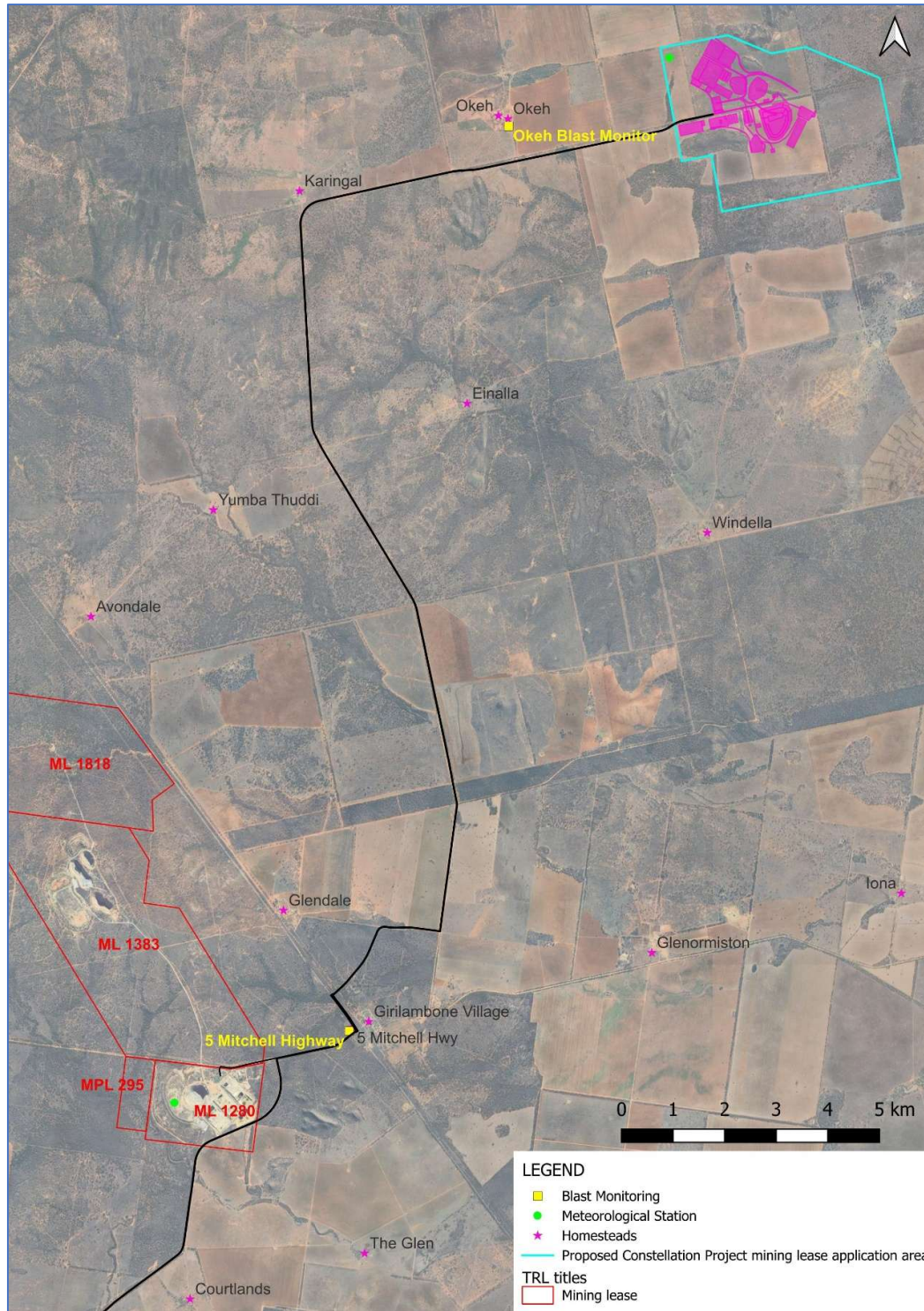
- The monitoring of blasts, including overpressure and / or ground vibration may be undertaken for internal verification purposes, or following the request from regulatory agencies. Such monitoring may be conducted to assess potential risks to structures such as buildings, plant or the tailings storage facility.

Table 15 Blast Monitoring Locations

Mine Site	Monitoring location	Frequency	Responsibility
Murrawombie Copper Mine	5 Mitchell Highway, Girilambone. (intersection of the Mitchell Highway and Railway Road)	Continuous	Environment Superintendent
Constellation Project	Okeh residence	Continuous	Environment Superintendent

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Figure 11 Blast monitoring locations



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9. ENVIRONMENTAL INSPECTIONS

Environmental inspections are conducted to identify and manage risks, determine compliance status (with consent requirements and management plan commitments) and to identify opportunities for improvement. Inspection regimes associated with noise emissions are presented below in Table 16. There are no proposed inspection programs for blast (overpressure or vibration) emissions.

Items identified as requiring improvement are listed as action items on the inspection checklists and entered in INX as an outstanding action for completion. Action items are discussed with relevant department managers. Where required, follow up meetings with respective department heads occur to ensure completion of the action items.

Completed checklists are kept on file in the Environmental Department and uploaded into INX.

Table 16 TRL Noise and Blast Inspection Programs

Inspection Type	Frequency	Reporting of Results
The general workforce is instructed to monitor and report any excessive noise emitting machinery or activities that impact external sensitive receivers.	Daily / ongoing	Immediately reported to the responsible Superintendent or Manager.
<u>General Environmental Inspection.</u> Noise emissions from surface operations are considered in the monthly general environmental inspection.	Monthly	Recorded on approved form to the Processing Manager. Corrective actions assigned and managed as per TRL internal procedures.
<u>Structural engineers' inspection</u> Should a community complaint claim structural damage to built infrastructure, TRL may arrange for a structural engineer to inspect the structure / claimed damage and assess whether the damage may likely be caused by blasting emissions.	As triggered	Results will be reported to the complainant. Should damage be found to likely be caused by blast emissions from the Tritton Copper Operations, TRL will consider rectification and / or repair as per the engineers' recommendation and as per the TRL complaints procedure (EMS (TRL-HSET-PLN-0023)). Any such damage will be externally reported in accordance with the TRL EMS and regulatory requirements.

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10. TRACKING OF ACTIONS AND ACTIVITIES

The EMS (TRL-HSET-PLN-0023) outlines the process for assigning, scheduling and tracking the completion of key tasks, including those arising from this management plan. The TRL Environment Superintendent maintains a 'Works Program Schedule' (register of tasks) that is aligned with the life of mine plan and TRL budget cycles. This register is reviewed and updated on a periodic basis by the Environmental Superintendent. Any lagging or at risk tasks are escalated to the relevant manager or to the HSE Manager for tabling at the TRL Senior Leadership Team (SLT) Meeting.

11. COMPLIANCE, AUDITING AND REPORTING

11.1. Assessing Compliance

Compliance requirements and any key obligations or commitments as they relate to noise and vibration management are contained in the TRL Legal and Other Obligations Register (TRL-HSET-REG-0002). The Environmental Superintendent is responsible for the implementation of this NVMP and will undertake periodic assessments of compliance against the requirements of the TRL Legal and Other Obligations Register and this NVMP. Any findings indicating misalignment with the aims, objectives or specific requirements of this plan will be managed as per the EMS (TRL-HSET-PLN-0023) as either an incident, non-compliance or opportunity for continuous improvement.

Non-compliances are reported as per the various TRL approvals, including:

- Condition 7A of the TCM Development Consent (DA41/98).
- Condition D1 of the Constellation Project Development Consent (SSD-41579871)

Further detail regarding the reporting of non-compliances is contained in the EMS (TRL-HSET-PLN-0023).

11.2. Independent Environmental Audits

TRL are required to undertake independent environmental audits in accordance with the following conditions:

- Condition 8 of the TCM Development Consent (DA41/98).
- Condition C8 of the ATP Development Consent (DA 10/2015/004/003)
- Condition D5 of the Constellation Project Development Consent (SSD-41579871)

The above audits will assess the Company's environmental performance against compliance conditions and the implementation of this NVMP.

Further detail regarding the conducting of the required audits is contained in the EMS (TRL-HSET-PLN-0023) and apply to this NVMP.

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11.3. Reporting

11.3.1. TRL Development Consents

The EMS (TRL-HSET-PLN-0023) includes details on the required reporting mechanisms as they apply to the various TRL Operations. Formal annual reporting mechanisms (Annual Review) are required to meet:

- Condition 6A of the TCM Development Consent (DA41/98);
- Condition C4 of the ATP Development Consent (DA 10/2015/004/003); and
- Condition D4 of the Constellation Project Development Consent (SSD-41579871)

As relevant to the NVMP, each annual review report produced, the report will include a summary of:

- a summary of noise monitoring results;
- any community complaints relating to noise or blast emissions and how the complaint was resolved;
- any significant incidents or exceedances related to noise or blast emissions; and
- any key findings from inspections and any significant improvements either implemented or planned related to noise or vibration management.

The external reporting of any 'reportable incidents' and non-compliances to regulatory authorities and relevant stakeholders will be undertaken as presented in Section 12 and as stated in the EMS (TRL-HSET-PLN-0023).

11.3.2. Environment Protection Licence

The two EPLs held by Tritton Resources Limited require the completion of an annual return. The annual return will be submitted, via the EPA's 'EConnect' portal in accordance with conditions and within 60 days after the licence anniversary date. The completion of the EPL annual return is included in the TRL Legal and Other Obligations Register (TRL-HSET-REG-0002) to ensure completion.

12. ENVIRONMENTAL INCIDENT AND EMERGENCY PLANNING, PREPAREDNESS AND RESPONSE

The TCM Development Consent (DA 41/98) defines an incident as '*a set of circumstances that causes or threatens to cause material harm to the environment*'.

All incidents where there is actual, or a risk of potential environmental harm are externally reported to the respective regulatory authority.

- Department of Planning, Housing and Infrastructure (DPHI) – as per *Condition 7* of the TCM Development Consent (DA41/98) and *Condition D2* of the Constellation Project Development Consent (SSD-41579871) (applicable to the TCM and Constellation Project), TRL will immediately notify the DPHI and any other relevant agencies after it becomes aware of an incident. The notification will identify the development (including the development application number and name) and set out the location and nature of the incident.

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- NSW EPA (Condition R2 of EPL 4501 and EPL 11254).
- Other agencies depending on the location and nature of the incident, such as Bogan Shire Council.

Any incident reported will require an investigation to be conducted as soon as practicable (noting that Appendix 7 of the Constellation Project Development Consent (SSD-41579871) requires an incident report to be provided to DPHI within seven days of making an incident notification (or otherwise agreed by the Planning Secretary). The investigation will be undertaken to determine the root cause(s) of the incident and to devise corrective and preventative measures.

TRL maintains a register of any complaints received in relation to any environmental performance issues. The register includes the date and nature of the complaint, and actions taken to mitigate or prevent reoccurrence. A summary of complaints received is published on a monthly basis on the Aeris Resources website.

Further detail regarding the identification, reporting and management of incidents, and TRL's emergency response procedures are contained in the EMS (TRL-HSET-PLN-0023) and apply to this NVMP.

12.1. Pollution Incident Response Management Plan

TRL have established and maintain a Pollution Incident Response Management Plan (PIRMP) (TRL-HSET-MP-ENV-006) which is a requirement of the *Protection of the Environment Operations Act 1997*.

The purpose of the PIRMP is to ensure that in the event of a reportable pollution event; TRL employees manage the situation quickly and effectively, limiting the impact on employees, the environment, landholders, reputation and assets.

The PIRMP:

- defines the types of incidents that may be managed as per the plan;
- defines key responsibilities;
- defines potential hazards (risk register);
- provides an inventory of potential pollutants;
- outlines training requirements;
- describes the testing of the PIRMP to ensure it remains effective; and
- includes a pollution incident notification procedure (TRL-ENV-PRO-003).

Events covered by the PIRMP may also be considered 'emergencies' and addressed as per the TRL Emergency Management Plan (TRL-HSET-MP-004). In these circumstances, the 'highest level' of response (and notification) will be applied by TRL.

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13. TRAINING AND AWARENESS

All personnel involved in on-site operations at each of the Tritton Copper Operations will receive training on noise and vibration management measures (as applicable to the general workforce). The training will provide information relating to the following.

- legal requirements relating to the management of noise and vibration emissions;
- the identification and reporting / escalation of excessive noise emissions;
- general measures to reduce noise emissions;
- incident reporting and when to escalate as an emergency; and
- the general contents and location of this NVMP.

Training will be undertaken through the completion of the site general induction.

Additional instruction will be provided to key personnel whose role requires the implementation of specific management / mitigation measures, such as those persons responsible for:

- the procurement of equipment;
- surface activities with the potential to generate noise and vibration emissions including load and haul, blasting, general earthworks, ore processing, road maintenance etc;
- hauling concentrate, ore, waste rock or tailings on the public road network;
- the identification and management of emissions during adverse weather conditions; and
- responding to emergencies.

Instruction will be provided by the Site Environmental Superintendent or delegate, including the provision of operational control documentation (for example, Environmental Operating Procedures).

Awareness covering relevant topics, such as managing / reducing noise emissions will be provided throughout the year through daily pre-starts, posters and safety meetings.

14. CORRECTIVE AND PREVENTATIVE ACTIONS

Any corrective or preventive actions, or opportunities for improvement identified through environmental inspections, audits, incident investigations or non-compliances are assigned and tracked through the site's compliance management system. Where required, management plans, procedures, templates and schedules are updated, approved by management and implemented as per the EMS framework (Section 1.2). These aspects are further described the EMS (TRL-HSET-PLN-0023).

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14.1. Non-Compliance Notification / Management

The EMS (TRL-HSET-PLN-0023) includes definitions and protocols for the identification and reporting of non-compliances. Key aspects are summarised in the following section.

The definition of a “non-compliance,” as defined under the TCM Development Consent (DA 41/98) and Constellation (SSD-41579871) is: *‘An occurrence, set of circumstances or development that is a breach of this consent but is not an incident.’*

Any identified non-compliances will be entered into INX as an ‘event’ where the non-compliance is investigated and where basic and root causes are determined. The investigation will develop corrective and preventative actions which are assigned to relevant personnel and tracked through to completion. Should the non-compliance meet the definition of material harm, it will also be reported as a ‘reportable incident’.

Condition 7A of TCM Consent (DA 41/98), and Condition D1 of the Constellation Consent (SSD-41579871) requires that ‘within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must set out the condition of this consent that the development is non-compliant with, why it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.’ TRL will report all identified non-compliances as per this requirement.

While only the TCM and Constellation Development Consents require the reporting of non-compliances, TRL will notify all relevant agencies, regardless of whether reporting is specified in the respective development consent (including the provision of a report within 7 days of becoming aware of the non-compliance).

In addition, a summary of non-compliances, as related to the specific development consents will be included in the TCM, Constellation or ATP Annual Reviews

15. ACCESS TO INFORMATION

Condition 8A of the TCM Development Consent (DA 41/98), D9 of the Constellation Development Consent (SSD-41579871) and Condition C10 of the ATP Development Consent (DA 10/2015/004/003) require the publishing of information on the Company website. In addition, Section 66(6) of the POEO Act requires the publishing of monitoring data, where required to be collected by any Environmental Protection Licence.

To meet the above requirements, TRL will publish the following information on the Company website and keep it up to date:

- TCM Development Consent (DA 41/98) (including modifications);
- Tritton EIS (including environmental assessments undertake to support modifications);
- ATP Development Consent (DA 10/2015/004/003) (including modifications);
- Avoca Tank Project EIS (or equivalent) (including environmental assessments undertaken to support modifications);
- Constellation Development Consent (SSD-41579871)
- Constellation EIS (including environmental assessments undertaken to support modifications)

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- The proposed staging plans for the development if the construction, operation or decommissioning of the development is to be staged
- Mining Leases;
- Rehabilitation documents as required by Standard Mining Lease Conditions;
- Environmental Protection Licences;
- All approved strategies, plans and programs required under the conditions of consent.
- Regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent;
- A comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of the consents, or any approved plans, or EPL;
- A summary of the current progress of the developments;
- Contact details to enquire about the development or to make a complaint;
- A complaints register, updated monthly (all TRL operations);
- Minutes of CCC Meetings;
- The Annual Reviews of the developments;
- Audit reports prepared as part of any Independent Environmental Audit of the development and the Applicant's response to the recommendations in any audit report; and
- Any other matter required by the Secretary (Tritton), or Bogan Shire Council (Avoca Tank);

16. REVIEW AND IMPROVEMENT

Condition 6B of the TCM Development Consent (DA 41/98) requires that:

'within three months of the submission of an Annual Review, Incident Report, Independent Environmental Audit or any modification to development consents, the applicant shall review, and if necessary, revise, the strategies, plans and programs required under the consents to the satisfaction of the' Secretary (TCM development consent) or Bogan Shire Council (ATP development consent).

The TCM development consent requires that the revisions are completed, and the revised document is submitted to the Secretary within six weeks of the complete review. The six week timeframe is interpreted by TRL to be the date that the revised plan is submitted via the Major Projects Portal for consultation and / or approval.

TRL will review and if required revise applicable management plans and strategies as per these requirements.

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The revision will include, where relevant, any corrective or preventive actions, or opportunities for improvement identified through environmental inspections, audits, incident investigations or non-compliances (Section 14).

Revised management plans are approved as per the TRL delegation of authority and the EMS 'Management Review' process as described in the EMS (TRL-HSET-PLN-0023)

17. RELATED DOCUMENTS

Internal documents referenced within this NVMP are presented in Table 17.

Table 17 Internal Documents Relevant to this NVMP

Doc No.	Document Name	Author
TRL-HSET-PLN-0023	Environmental Management Strategy	TRL
TRL-HSET-RAS-0006	Environmental Risk Register	TRL
TRL-HSET-REG-0002	TRL Legal and Other Obligations Register	TRL
TRL-HSET-MP-004	TRL Emergency Management Plan.	TRL
TRL-HSET-MP-ENV-006	Pollution Incident Response Management Plan (PIRMP)	TRL
TRL-HSET-PLN-0024	Air Quality and Greenhouse Gas Management Plan	TRL
TRL-HSET-PLN-0028	Natural Hazards Management Plan	TRL
TRL-HSET-PLN-0034 TRL-HSET-PLN-0035 TRL-HSET-PLN-0036 TRL-HSET-PLN-0045	Rehabilitation Management Plans: TCM TRL-HSET-PLN-0034 MCM TRL-HSET-PLN-0035 NECM / ATP TRL-HSET-PLN-0036 CP TRL-HSET-PLN-0045	TRL
TRL-HSET-PLN-0043	Traffic Management Strategy	TRL
TRL-HSET-PLN-0050	Out of Hours Work Protocol	TRL

Noise and Vibration Management Plan

18. REFERENCES

- AARC. (2021) Statement of Environmental Effects – Avoca Tank Project, Modification 1 (MOD1).
- Australian and New Zealand Environment and Conservation Council (ANZECC) (1990). Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration.
- Department of Environment and Climate Change (DECC) (2009). Interim Construction Noise Guideline.
- Environmental protection Authority (EPA) (2017). Noise Policy for Industry
- Environmental protection Authority (EPA) (2022). Ambient Air Monitoring Guidance Note.
- McCracken Consulting (1998) Preliminary Hazard Analysis prepared for the Tritton EIS.
- RWC. (1990) Girilambone Copper Project Environmental Impact Statement. *A report prepared by R.W Corkery & Co. Pty Limited for Nord Australex Nominees Pty Ltd.*
- RWC. (1995) Environmental Impact Statement for the development of the Girilambone North Copper Mines. *A report prepared by R.W Corkery & Co. Pty Limited for Girilambone Copper Company Pty Ltd.*
- RWC. (1998) Tritton Copper Project: Environmental Impact Statement. *A report prepared by R.W Corkery & Co. Pty Limited for Nord Australex Nominees Pty Ltd and Straits Mining Pty Ltd.*
- TRL. (2010) Mining Operations Plan for ML1544: Tritton Mine Site January 2011 - December 2015. *Tritton Resources Limited.*

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19. APPENDIX A COMMITMENTS ARISING FROM ENVIRONMENTAL ASSESSMENTS

Section	Commitment	Section Where Addressed
Tritton Environmental Assessments		
Initial EIS Sn 4.5.1.3	The major noise source is considered to be operating equipment. Equipment will be fitted with standard muffler controls	Section 7
4.5.2.3	Blasts would be professionally designed to ensure adverse effects are confined to an acceptable distance from each blast.	Section 7
Mod 4		
Sn 6.3.2	Wherever possible high noise activities will be conducted during daylight hours and on days when there is not a strong temperature inversion. Where noise emissions resulting from strong temperature inversions raise concern from local residents the activity will be halted if possible and recommenced under more suitable conditions.	Section 7
Sn 6.4.2	Haulage will continue to be conducted predominantly during daylight hours, with night haulage only undertaken when necessary.	Section 7
Mod 5		
Sn 4.2.4	Existing operational control measures that have been implemented to manage noise within the Mine Site would be continued under the Proposed Modification. These would include the following.	Section 7
	Maintain all equipment in accordance with the manufacturer's specifications.	Section 7
	Undertake regular communication and consultation with surrounding residents and ensure that feedback or complaints in relation to noise is promptly addressed.	Section 7
Mod 6	No additional mitigation measures	
Mod 7		
Sn 6.3.4	Noise impacts would be largely restricted to the construction of the air rise vents with long-term noise sources limited to the	-

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Section	Commitment	Section Where Addressed
	operation of the ventilation fan. The following mitigation measures would be implemented to reduce potential impacts on sensitive receptors.	
	Promptly respond to any complaint relating to noise.	Section 7
	Undertake all proposed activities in accordance with existing plans and approvals including the Noise Management Plan.	Section 7
Mod 8	No additional mitigation measures	
Mod 9	No additional mitigation measures	
Murrawombie Environmental Assessments		
Initial EIS Sn 4.4.	Mining equipment (haul trucks, excavations, dozers and drill rigs) at the Girilambone Copper Project would operate with standard mufflers. Equipment noise would be minimised by regular maintenance to ensure equipment operates in good working condition. The proposed haul road route has been located to minimise the grade (and thereby minimise truck noise) and to maximise noise attenuation of local topography. The waste rock emplacement and low grade ore emplacement have been planned to the west and south to maximise noise attenuation of topography and to obtain maximum distance from the nearest residences.	Section 7
	Monitoring of noise levels at Girilambone and the nearest residences by the Company would be undertaken during full mining and treatment plant operations in satisfaction of Conditions of a Pollution Control Approval.	Section 8
Sn 4.5	The following blast design procedures would be applied in achieving suitable site guidelines for blasting practice:	Section 7
	No unconfined, on-surface explosive designs.	Section 7
	Adequate stemming of the drill holes would ensure that minimum airblast would result.	Section 7
	The amount of explosive in each hole would be adjusted to account for the natural jointing. This would avoid over-charging.	Section 7

Noise and Vibration Management Plan

Section	Commitment	Section Where Addressed
	The type of explosive would be selected to suit the rock type to be fragmented.	Section 7
	Ground vibration would be kept within specified limits by:	-
	Adjusting the total amount of explosive that is initiated at any instant of time (ie by delay detonators) to a maximum weight.	Section 7
	Adjusting the overall size and blast hole pattern of the planned blast.	Section 7
	Restricting the diameter of blast hole pattern of the planned blast	Section 7
	Ensuring that care is taken in the spacing of blast holes.	Section 7
	Test blasting would be carried out using the above safeguards to check fragmentation and re-evaluate site constants. The airblast overpressure and ground vibration would be monitored to ensure that the specified limits are not exceeded and to assist in the design of future blasting.	Section 7
	Further monitoring of airblast overpressure and ground vibration would be undertaken throughout the life of the project, if required.	Section 7
	Nearby residents would be advised of the proposed regular times of blasting.	Section 7
Mod 1 (1995)*		
Table 4.1	All equipment would be fitted with standard exhaust mufflers.	Section 7
	Few controls required given intervening topography and considerable distance to surrounding residences.	Section 7
	Conventional drilling and blasting would be carried out with controls and procedures consistent with good blasting practice.	Section 7
Stage 3 Mod (2007)		
Sn 6.5.2	A blast protocol will be implemented to notify the neighbours of the timing of the initial surface portal blasts.	Section 7

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Section	Commitment	Section Where Addressed
	Should any complaints be received, these will be recorded and investigated.	Section 7
Mod 3 (2015)		
Sn 4.5	Standard operational controls to limit noise emissions would continue to be implemented including:	-
	• Adherence to existing approved hours of operation	Section 7
	• Regular maintenance of all operating machinery	Section 7
	• Regular grading of roads to maintain surface quality	Section 7
	• Maintaining a complaints register for all complaints including those relating to noise	Section 7
	• Blast design would continue to be managed to limit vibration and overpressure levels.	Section 7
Mod 4 (2023)		-
Sn 4.3.4	The following standard operational protocols and mitigation measures would continue to be implemented to reduce potential impacts on any sensitive receptors.	
	• Adherence to existing approved hours of operation	Section 7
	• Regular maintenance of all operating equipment.	Section 7
	• Promptly respond to any complaint relating to noise.	Section 7
	• Undertake all proposed activities in accordance with existing plans and approvals including the Noise Management Plan.	Section 7
Mod 5 (2024)	No additional management measures or commitments	-
North East Environmental Assessments		
Initial EIS*		
Table 4.1	All equipment would be fitted with standard exhaust mufflers.	Section 7

Noise and Vibration Management Plan

Section	Commitment	Section Where Addressed
	Few controls required given intervening topography and considerable distance to surrounding residences.	Section 7
	Conventional drilling and blasting would be carried out with controls and procedures consistent with good blasting practice.	Section 7
Stage 1 Mod (2007)		
Sn 6.5.2	A blast protocol will be implemented to notify the neighbours of the timing of the initial surface portal blasts.	Section 7
*Note: The 1995 EIS proposed the development of 3 x pits, waste rock emplacements and associated infrastructure at North East, and 2 x additional heap leach pads, associated infrastructure and the diversion of Booroomugga Road at the Murrawombie Mine. The EIS was titled the 'Girilambone North Copper Mines'		
Avoca Tank Environmental Assessments		
Initial EIS (2014)		
Sn 4.5.5	The Applicant would implement the following noise management and mitigation measures throughout the life of the Proposal.	-
	Strictly comply with the proposed hours of operation (being 24-hours per day, 7 days a week for all operational activities and daylight hours, 7 days per week for construction and rehabilitation activities).	Section 7
	Regularly service all on-site equipment to ensure sound power levels of each item remains at or below the default/or factory-set values.	Section 7
	Install frequency modulated reversing alarms to all mobile equipment.	Section 7
	Ensure that all truck drivers would be required to comply with the applicants Drivers Code of Conduct outlining procedures for reducing noise impacts during transportation within the Project Site and off site.	Section 7

Noise and Vibration Management Plan

Section	Commitment	Section Where Addressed
	Maintain an open dialogue with the surrounding community and neighbours to ensure any concerns over noise or vibration are addressed.	Section 7
Sn 4.6	The Applicant would ensure that initial blasts are monitored to determine compliance with the criteria identified in Section 4.6.2 at distances less than 2.4km from the box cut. Once compliance has been demonstrated, monitoring would be discontinued	Section 7
Mod 1 (2021)		
Sn 7.2	Recommencement of operations at North East Copper Mine would require the re-establishment of some noise management measures specific to the proposed modified Project, relevantly including: - Ore haulage would be limited to a "day-shift only" basis, minimising any potential for disturbance. - All equipment would be fitted with standard exhaust mufflers.	Section 7
Sn 7.7	As committed to in the Project EIS, the proposed modified Project would use a Maximum Instantaneous Charge (MIC) volume of less than 1000 kg to ensure compliance. It is acknowledged that this limit was set for blasting of the previously planned box-cut and portal and that the MIC for underground blasting would be considerably less.	Section 7
Constellation Project Environmental Assessment		
NV1	A construction environment management plan will be developed	Section 7 Out of Hours Work Protocol (TRL-HSET-PLN-0050)
NV2	A complaint handling procedure for construction activities will be implemented that includes the following: - A dedicated phone line - A central point of contact	Out of Hours Work Protocol (TRL-HSET-PLN-0050)

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Section	Commitment	Section Where Addressed
	- A register of complains - Reporting procedures	
NV3	Constructions activities proposed to occur 24 hrs a day, seven days a week for the haul road, will be restricted to zones which are located more than 2 km away from any sensitive receptor (Zone 1 and Zone 2).	Out of Hours Work Protocol (TRL-HSET-PLN-0050)
NV4	Graduated mitigation measures for construction noise impacts to sensitive receptors include: 5dB(A) above the noise management level: - Notification as letterbox drop or equivalent >5 to 15dB(A) above the noise management level (additional to the above): - Verification of noise levels - Duration Reduction. >15 to 25dB(A) above the noise management level (additional to the above): - Phone Calls. - Specific Notification letterbox dropped - Individual Briefings by project representatives. >25dB(A) above the noise management level (additional to the above): - Individual Meetings.	Out of Hours Work Protocol (TRL-HSET-PLN-0050)
NV5	Engines will be switched off when not in use for extended periods.	Section 7
NV6	Broadband reversing and low nuisance start-up alarms will be used on mobile equipment to maintain low noise levels.	Section 7
NV7	Assessments will be performed on significant noise-generating mobile equipment to investigate attenuation options.	Section 7
NV8	Operational activities will be modified during periods of meteorological enhancement. Potential worst-case (noise-enhancing) meteorological conditions will be assessed and, where practicable, operational	Section 7

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Section	Commitment	Section Where Addressed
	activities will be modified to minimise noise; for example, during significant wind events.	
NV9	Noise complaints and incidents will be logged and investigated, including any corrective actions.	Section 7
NV10	Prior to the undertaking of an activity that may generate higher than usual noise output, consultation with those who will be potentially affected will be undertaken.	Section 7
NV11	Surface blasting will be limited to daylight hours.	Section 7
NV12	Relevant safety protocols (such as establishing exclusion zones) will be determined prior to blasting.	Section 7
NV13	Meteorological conditions will be considered within the blast design process as a mechanism to prevent exacerbation of impacts.	Section 7
NV14	A process to ensure adequate notification of upcoming blasts to relevant receptors will be established and adopted.	Section 7
NV15	A complaints register will be maintained to record any blasting or vibration related complaints.	Section 7
S5	The haul road will be sealed where possible to mitigate noise and dust from vehicles	Section 7
S7	Aeris will work with affected landowners to address concerns in relation to property impacts.	Section 7
S27	A complaints system will be implemented to identify, track and remediate (when possible) community complaints associated with traffic activities from the Project's construction and operation phases.	Section 7