COWAL GOLD OPERATIONS
NOISE MANAGEMENT PLAN

June 2023

Revision Status Register

Section/Page/ Annexure	Revision Number	Amendment/Addition	Distribution	DPE Approval Date
All	NMP01-P (Nov 2004) Document No. 72777	Original	EPA, DoP	November 2004
Figure 3	Addendum dated 1 July 2007 Document No. 72736	Amendment to the location for noise monitoring site "NO4 - Bird Breeding Area".	DECCW, DoP	August 2007
All	Addendum dated 28 September 2009 Document No. 00286586	Revised to reflect Development Consent as modified on 11 February 2009.	DECCW, DoP	8 April 2010
All	NMP01-Q (30 July 2010) Document No. 00346291	Revised to reflect Development Consent as modified on 10 March 2010.	OEH, EPA, DoP	-
All	NMP01-R (Dec 2012) Document No. 00487546	Revised to reflect DP&I comments dated 14 August 2012.	DP&I	-
All	NMP01-S (Nov 2014) Document No. 00633174	Revised to reflect Development Consent as modified on 22 July 2014.	EPA, DPIE	5 March 2015
All	NMP01-T (July 2017) Document No. 00855920	Revised to reflect Development Consent as modified on 7 February 2017	EPA, DPIE	28 August 2018
All	NMP dated August 2021	Revised to reflect Development Consent as modified on 4 October 2018 and 23 August 2019.	EPA, DPIE	-
All	NMP01-V (March 2022)	Revised to reflect Development Consent DA 14/98 as modified by Mod 16 and SSD 10367 granted on 30 Sep 2021.	EPA, DPE	17 March 2022
All	NMP01-W (June 2023)	General Update	EPA, DPE	TBC

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1 INTRODUCTION

The Cowal Gold Operations (CGO) is an open cut gold mining operation located approximately 38 kilometres (km) north-east of West Wyalong in New South Wales (NSW) (Figure 1). Evolution Mining (Cowal) Pty Limited (Evolution) is the owner and operator of the CGO. All facilities and activities at the CGO occur within Mining Lease (ML) 1535 and ML 1791.

Development Consent (DA 14/98) for the CGO (including the Bland Creek Palaeochannel Borefield water supply pipeline) was originally granted by the Minister for Urban Affairs and Planning under Part 4 of the *Environmental Planning and Assessment Act, 1979* (EP&A Act) on 26 February 1999. Development Consent (DA 2011/64) for the operation of the Eastern Saline Borefield was granted by the Forbes Shire Council on 20 December 2010.

More recently, Evolution sought approval from the NSW Government for proposed underground mining via State-significant Development application No. 10367 and a modification to DA 14/98 for the *Cowal Gold Operations Underground Development Project Modification No.16* (herein referred to as Mod 16). Approval for these applications were granted on 30 September 2021. Collectively, these applications related to the surface (Mod 16) and underground (SSD 10367) components of the Underground Development Project (the Project). SSD 10367 was modified on 7 November 2022, to reflect minor changes in the underground mining method, through Mod 1 (Optimisation Modification).

DA14/98 generally allows:

- Mining operations until 2040.
- Ore processing at a rate of 9.8 Mtpa.
- Tailings and waste rock emplacement on site.
- Operation of a range of ancillary mining infrastructure.

SSD 10367 generally allows:

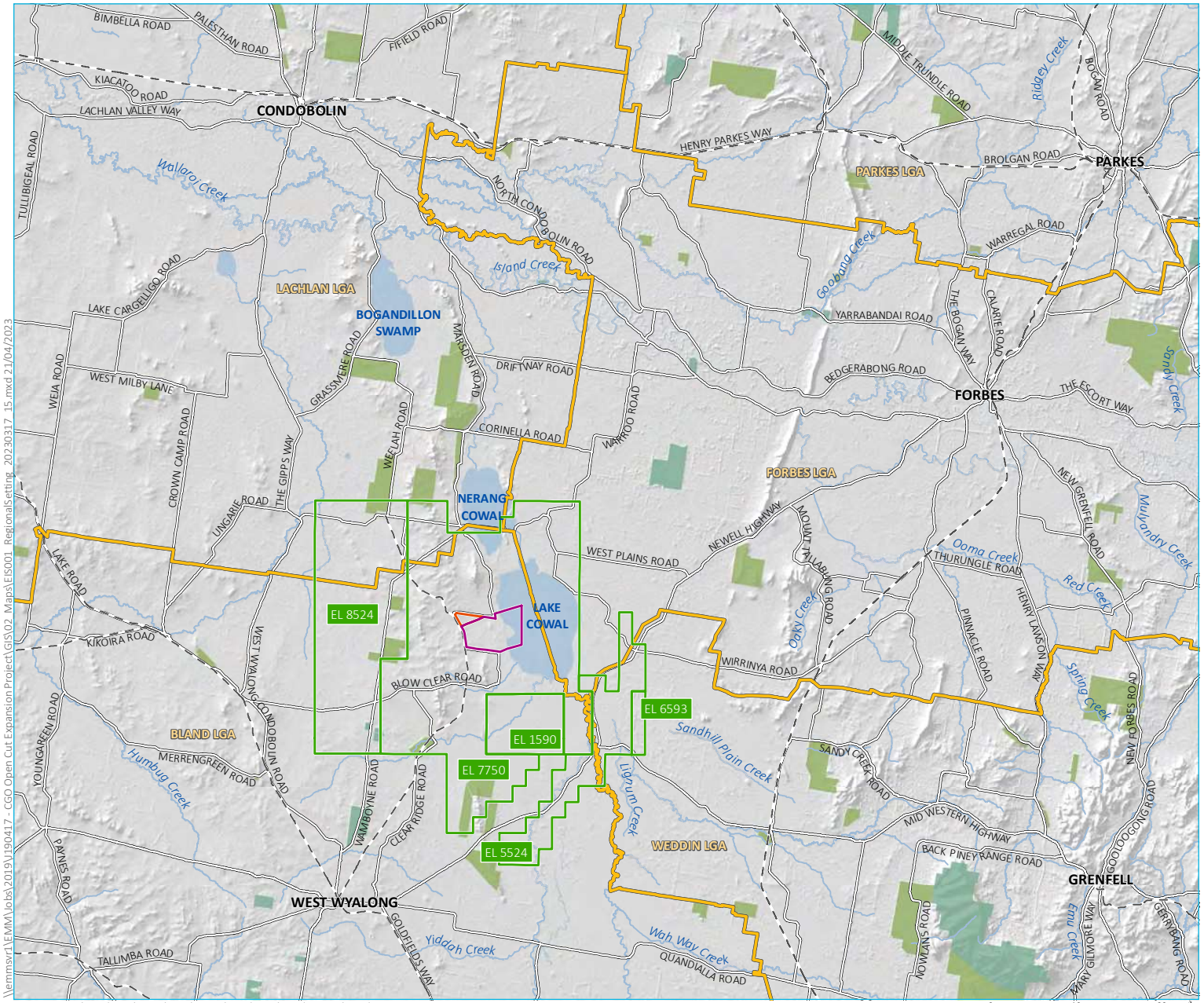
- Underground stope mining until 2040.
- Backfilling the stopes with cemented paste made from tailings.
- Development of ancillary infrastructure including a box-cut to the underground mine and a paste fill plant.

The general arrangement of the approved CGO is provided in Figure 2.

A copy of the CGO's approved development consents (DA 14/98) and SSD 10367 (as approved on 30 September 2021) are available on Evolution's website (www.evolutionmining.com.au).

The CGO's Noise Management Plan (NMP) was originally approved in November 2004, with subsequent Addenda and revisions, prepared to the satisfaction of the then Department of Planning, and more recently the NSW Department of Planning and Environment (DPE).

This revised NMP has been prepared to reflect the conditions on DA 14/98, as approved on 30 September 2021 and 7 November 2022, and supersedes all former versions of the NMP. The conditions on SSD 10367 do not specifically address noise other than the general requirement for environmental management, reporting and auditing.



KEY

- Mining lease (ML1535)
- Mining lease (ML1791)
- Exploration licence (EL)
- Rail line
- Main road
- Named watercourse
- Named waterbody
- Local government area
- NPWS reserve
- State forest

Source: EMM (2023); Evolution (2023); DFSI (2017); GA (2011); ASGC (2006)

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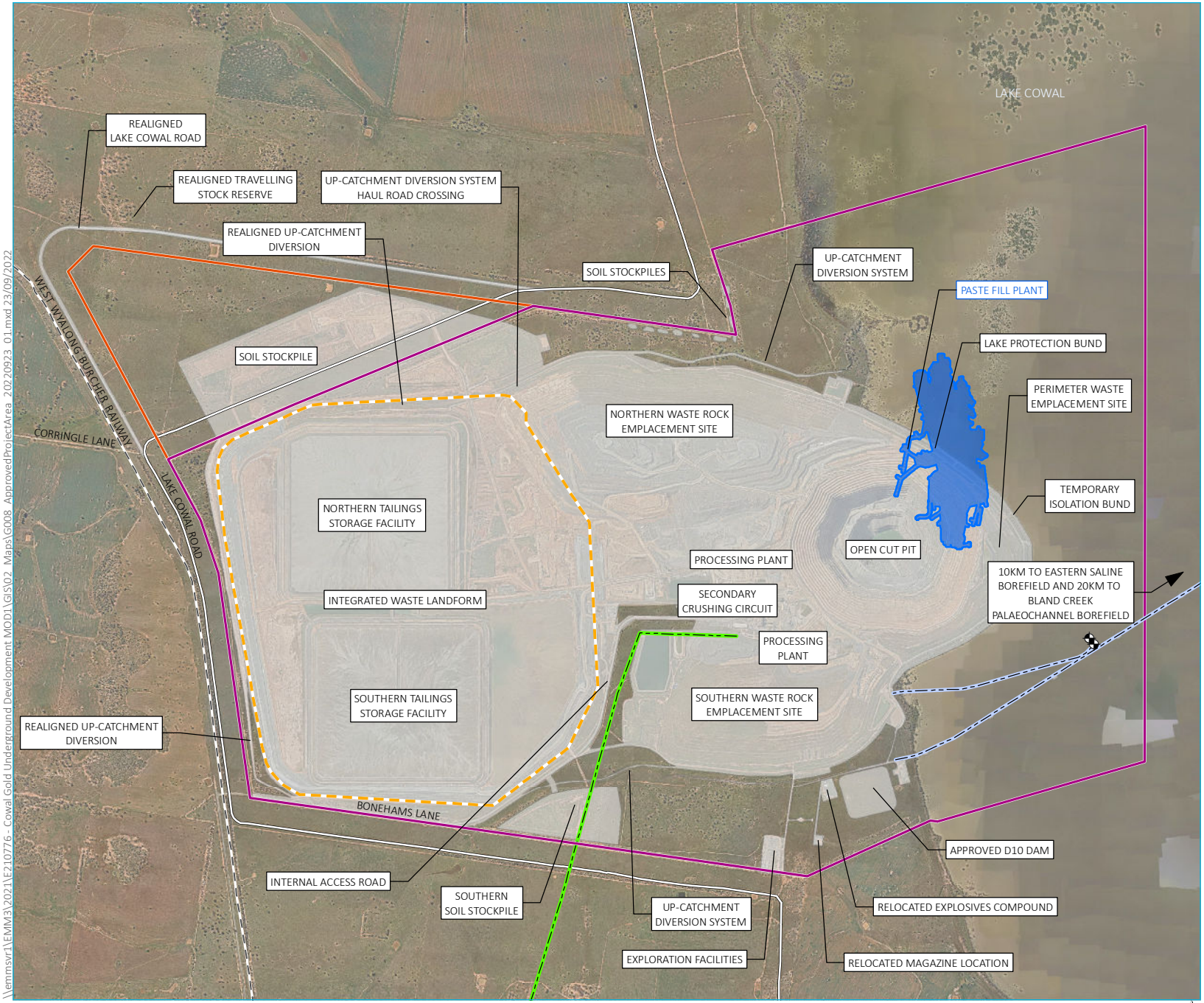
Evolution MINING

NOISE MANAGEMENT PLAN

Regional Location

Figure 1



KEY

- Approved underground development
- Mining lease (ML1535)
- Mining lease (ML1791)
- DA14/98 approved surface disturbance
- Indicative integrated waste landform perimeter
- Electricity transmission line
- Water supply pipeline
- Rail line
- Main road
- xxx Approved underground development elements
- xxx Approved surface elements

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Source: EMM (2022); Evolution (2020); DFSI (2017)

0 1 2 km

GDA 1994 MGA Zone 55

N

Evolution Mining Cowal

NOISE MANAGEMENT PLAN

General Arrangement of Approved CGO

Figure 2

1.1 OBJECTIVES AND SCOPE OF THIS PLAN

Objectives

The primary objectives of this NMP are to establish a noise management strategy for the CGO and to implement noise management practices in compliance with the requirements of development consent and environment protection licence conditions by:

- describing the measures that would be implemented to comply with noise impact assessment criteria and operating conditions within the development consents;
- detailing the noise monitoring programme that will be used to determine the effectiveness of management measures and compliance with the conditions of the development consent and the CGO's Environment Protection Licence (EPL) No. 11912;
- defining a noise incident, including a protocol for identifying noise incidents and notifying relevant stakeholders; and
- outlining the review, assessment and reporting procedures relevant to this NMP.

Scope

This NMP has been prepared to reflect the current development consent conditions for DA 14/98 and SSD 10367 Part C *Environmental Management, Reporting and Auditing*.

The NSW Environment Protection Authority (EPA) has been consulted during the preparation of this plan in accordance with the requirements of DA 14/98 condition 6.4(e)(i).

The remainder of this NMP is structured as follows:

Section 2: Identifies the development consent conditions, EPL 11912, mining lease conditions (for ML 1535 and ML 1791), legislation and guidelines relevant to this NMP.

Section 3: Identifies the noise impact assessment criteria and other relevant noise emissions criteria.

Section 4: Discusses pre-mine and existing noise levels.

Section 5: Discusses predicted noise impacts associated with the approved CGO.

Section 6: Describes the noise monitoring program to be undertaken to assess compliance with the noise impact assessment criteria and to evaluate and investigate the effectiveness of noise reduction measures implemented. This section also discusses the monitoring and assessment methodology used to determine noise levels.

Section 7: Provides the protocol for the identification and notification of noise incidents.

Section 8: Details the procedure for implementation of noise mitigation measures.

Section 9: Details complaint recording and reporting procedures.

Section 10: Outlines the independent review process in the event that a landowner considers noise levels are in exceedance of relevant criteria at their dwelling.

Section 11: Outlines the property acquisition process for landholders with acquisition rights.

Section 12: Presents community consultation requirements including the Community Environmental Monitoring and Consultative Committee (CEMCC) which provides opportunities for landholders or community members to discuss specific issues of concern.

Section 13: Details the Independent Environmental Audit requirements.

Section 14: Presents the reporting requirements relevant to noise and the requirements for review of this NMP.

Section 15: Lists the references cited in this NMP.

Section 16: Lists the abbreviations and acronyms used in this NMP.

2 STATUTORY REQUIREMENTS

The relevant conditions on the development consents, environment protection licence and mining leases are outlined in Sections 2.1, 2.2 and 2.3. Legislation and guidelines relevant to this NMP are described in Sections 2.4 and 2.5.

2.1 DEVELOPMENT CONSENT CONDITIONS

This NMP has been prepared in accordance with the requirements of condition 6.4(e) of DA 14/98 and Part C of SSD 10367. The requirements of condition 6.4(e) and other conditions relevant to this NMP are outlined in Table 1 below.

Table 1
Conditions on DA 14/98 Relevant to this NMP

Condition		Section
6.4	***Noise Management Plan*** The Applicant shall prepare and implement a Noise Management Plan for the Cowal Gold Operations to the satisfaction of the Planning Secretary. This plan must: • be prepared in consultation with the EPA, and submitted to the Planning Secretary for approval prior to commencing any construction works associated with the Underground Mine Development and/or Modification 16 as described in the EIS, unless the Planning Secretary agrees otherwise; • describe the measures that would be implemented to ensure compliance with the noise criteria and operating conditions in this consent; and • include a monitoring program that: - evaluates and reports on: • compliance with the noise criteria in this consent; and • compliance with the noise operating conditions; - identifying and notifying	This NMP Section 1.1 Sections 3.2 and 8 Sections 6, 7 and 14 Section 7
6.4	***Noise Management*** (a) Acquisition Upon Request Upon receiving a written request for acquisition from the owner of any land listed in Table 7, the Applicant shall acquire the land in accordance with the procedures in condition 8.3. *Table 7: Land subject to acquisition upon request* *Westella* ~~*Westlea*~~ *Note: To interpret the location referred to Table 7, see the map in Appendix 6.*	Sections 3.3 and 11

Table 1 (cont'd)
Development Consent Conditions Relevant to this NMP

<table>
<tr><th colspan="2">Condition</th><th>Section</th></tr>
<tr><td rowspan="3">6.4
(Cont.)</td><td>(b) <u>Additional Noise Mitigation</u>
Upon receiving a written request from the owner of the residences listed in Tables 7 and 7A, the Applicant shall implement additional noise mitigation measures (such as double-glazing, insulation, and/or air conditioning) at the residence in consultation with the landowner. These measures must be reasonable and feasible, and directed towards reducing the noise impacts of the development on the residence.

If within 3 months of receiving this request from the owner, the Applicant and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Planning Secretary for resolution.

Table 7A: Land subject to mitigation upon request
<table><tr><td>Lakeview III</td></tr></table>Note: To interpret the location referred to Table 7A, see the map in Appendix 6.</td><td>Sections 3.2 and 8.3</td></tr>
<tr><td>(c) <u>Impact Assessment Criteria</u>
The Applicant shall ensure that the noise generated by the Cowal Gold Operations does not exceed the noise impact assessment criteria in Table 8 at any residence on privately-owned land.

Table 8: Noise Impact Assessment Criteria dB(A)
<table><tr><th>Land</th><th>Day/Evening/Night
$LA_{eq\ (15\ min)}$</th><th>Night
$LA_{F\ max}$</th></tr><tr><td>Lakeview III</td><td>38</td><td rowspan="4">52</td></tr><tr><td>The Glen</td><td>37</td></tr><tr><td>Lakeview, Foxman Downs II</td><td>36</td></tr><tr><td>All other privately-owned land</td><td>35</td></tr></table>Note: To identify the land referred to in Table 8, see the map in Appendix 6.

Noise generated by the Cowal Gold Operations is to be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the Noise Policy for Industry (EPA, 2017). The noise enhancing meteorological conditions determined by monitoring at the meteorological station required under condition 6.2 and as defined in Part D of the Noise Policy for Industry (EPA, 2017) apply to the noise criteria in Table 8.

However, these criteria do not apply if the Applicant has an agreement with the owner/s of the relevant residence or land to generate higher noise levels, and the Applicant has advised the Department in writing of the terms of this agreement.</td><td>Section 3.1

Section 6

Section 3.1</td></tr>
<tr><td>(d) <u>Operating Conditions</u>
The Applicant shall:

(i) implement best management practice, including all reasonable and feasible mitigation measures, to minimise the operational, low frequency, and road noise of the development, including mitigation measures to:

(ii) minimise the noise impacts of the development during meteorological conditions when the noise limits in this consent do not apply; and

(iii) carry out regular attended monitoring to determine whether the development is complying with the relevant conditions of this consent,

to the satisfaction of the Planning Secretary.</td><td>Sections 3.4 and 8

Section 6

Section 6</td></tr>
</table>

Table 1 (cont'd)
DA 14/98 Conditions Relevant to this NMP

	Condition	Section
8	***ADDITIONAL PROCEDURES***	
	8.1 Notification of Landowners/Tenants	
	a) By the end of September 2014, unless the Planning Secretary agrees otherwise, the Applicant shall notify in writing the owners of;	
	(i) the land listed in Table 7 that they have the right to ask the Applicant to:	Section 3.3
	• *acquire their land at any stage during the development; and*	
	• *install additional noise mitigation measures at any residence on their land;*	
	b) As soon as practicable after obtaining monitoring results showing:	
	(i) an exceedance of any relevant criteria in this consent, the Applicant shall notify the affected landowners in writing of the exceedance, and provide regular monitoring results to the landowner until the development is again complying with the relevant criteria;	Section 3.3
	*(ii) an exceedance of the relevant air quality criteria in this consent, the Applicant shall send a copy of the NSW Health fact sheet entitled "*Mine Dust and You*" (as may be updated from time to time) to the affected landowners and/or existing tenants of the land.*	

In addition to the above, the following Development Consent Conditions are also relevant to this NMP:

- In addition to Condition 6.4(a), Condition 8.3 outlines the process for acquisition of a property in the event of demonstrated noise affectation. This condition is reproduced in full in Section 11.
- Conditions 9.1(b) and 9.1(c) establish the reporting and revision requirements for this NMP and are discussed in Section 14.
- Condition 9.1(d) establishes the requirements for a CEMCC and is reproduced in full and addressed in Section 12.
- Conditions 9.2(a) establishes the requirements for an Independent Environmental Audit. These conditions are reproduced in full and discussed in Section 13.
- Condition 9.4(a)(v) outlines the requirements for a complaints register. This condition is discussed in Section 9.
- Condition 8.2 outlines the independent review process in the event that a landowner of privately-owned land considers the CGO to be exceeding the noise impact assessment criteria. This condition is reproduced in full and discussed in Section 10.

2.2 EPL 11912 CONDITIONS

Condition L4 of the EPL is relevant to the regulation of noise emissions generated from the CGO. The requirements of Condition L4 are consistent with the noise impact assessment criteria requirements of DA 14/98 condition 6.4(c) for average noise levels ($LA_{eq\ 15\ min}$) with the exception of the criteria for instantaneous ($LA_{F\ max}$) noise recently added to DA 14/98.

In addition, Reporting Condition R1 requires the licensee to prepare an Annual Return which reports on compliance with the conditions of the EPL. This condition is addressed in Section 14.2.

2.3 ML 1535 CONDITIONS OF AUTHORITY

The NSW Division of Resources and Geoscience (DRG), within the DPE, regulates the conditions of authority for ML 1535 which includes requirements that relate to the reporting of noise monitoring results within the Annual Environmental Monitoring Report (AEMR) (now known as the Annual Review). Condition 26 provides:

Annual Environmental Management Report (AEMR)

26. (1) Within 12 months of the commencement of mining operations and thereafter annually or, at such other times as may be allowed by the Director-General, the lease holder must lodge an Annual Environmental Management Report (AEMR) with the Director-General.

(2) The AEMR must be prepared in accordance with the Director-General's guidelines current at the time of reporting and contain a review and forecast of performance for the preceding and ensuing twelve months in terms of:

(a) the accepted Mining Operations Plan;

(b) development consent requirements and conditions;

(c) Environment Protection Authority and Department of Land and Water Conservation licences and approvals;

(d) any other statutory environmental requirements;

(e) details of any variations to environmental approvals applicable to the lease area; and

(f) where relevant, progress towards final rehabilitation objectives.

(3) After considering an AEMR the Director-General may, by notice in writing, direct the lease holder to undertake operations, remedial actions or supplementary studies in the manner and within the period specified in the notice to ensure that operations on the lease area are conducted in accordance with sound mining and environmental practice.

(4) The lease holder shall, as and when directed by the Minister, cooperate with the Director-General to conduct and facilitate review of the AEMR involving other government agencies and the local council.

The above and the development consent condition requirements for the Annual Review (formerly the AEMR) are addressed in Section 14.

2.4 ML 1791 CONDITIONS OF AUTHORITY

The NSW DRG regulates the conditions of authority for ML 1791 which includes requirements that relate to the reporting of noise monitoring following an environmental incident. Condition 5 outlines the requirements of the lease holder following an environmental incident:

> **5. Environmental Incident Report**
> The lease holder must provide environmental incident notifications and reports to the Secretary no later than seven (7) days after those environmental incident notifications and reports are provided to the relevant authorities under the *Protection of the Environment Operations Act 1997.*

2.5 LEGISLATION

Protection of the Environment Operations Act, 1997

Section 139 of the *Protection of the Environment Operations Act 1997* (PoEO Act) makes it an offence to operate any plant (other than control equipment) at those premises in such a manner as to cause the emission of noise from those premises if the noise is caused by the occupier's failure to maintain the plant in an efficient condition, or to operate the plant in an efficient manner.

Also relevant to this NMP under Section 148 of the Act, duties are imposed on certain persons to notify the EPA (or local council) where a pollution incident occurs in the course of an activity so that material harm to the environment is caused or threatened. The persons upon whom the duties are imposed include the person carrying on the activity, the employer and the occupier of premises on which the incident occurs.

Licensees are required to publish pollutant monitoring data that has been collected as a result of a licence condition, in accordance with Section 66(6) of the Act and written requirements issued by the EPA. This requirement is addressed in Section 14.2.

Other obligations under the Act relevant to compliance with the requirements of the EPL are detailed in the EPL.

2.6 NOISE POLICIES AND GUIDELINES

NSW Noise Policy for Industry (EPA, 2017a)

The *Noise Policy for Industry* (NPfI) (EPA, 2017a) provides a framework and process for deriving noise limit conditions for consents and licences to facilitate EPA regulation of premises scheduled under the PoEO Act, including mining operations. The NPfI was cited in the Secretary's Environmental Assessment Requirements (SEARs) for the Underground Development Project Environmental Impact Statement (EIS) as the applicable policy hence, the noise assessment for the Project was conducted in accordance with that policy.

The required assessment of potential noise and vibration impacts associated with the Project included:

(i) an assessment of the likely operational noise impacts of the development (including construction noise) under the Noise Policy for Industry (EPA), and the Voluntary Land Acquisition and Mitigation Policy;

(ii) if a claim is made for specific construction noise criteria for certain activities, then this claim must be justified and accompanied by an assessment of the likely construction noise impacts of these activities under the Interim Construction Noise Guideline;

(iii) an assessment of the likely road traffic noise impacts of the development under the NSW Road Noise Policy; and

(iv) an assessment of the likely blasting impacts of the development on people, animals, buildings and infrastructure, and significant natural features, having regard to the relevant ANZECC guidelines.

Interim Construction Noise Guideline

The *Interim Construction Noise Guideline* (ICNG) (Department of Environment and Climate Change [DECC], 2009) has been developed to focus on applying a range of work practices most suited to minimise construction noise impacts, rather than focusing only on achieving numeric noise levels (DECC, 2009). The Noise and Vibration Impact Assessment for Mod 16 and SSD 10367 considered the ICNG noise management levels and relevant work practices/noise management measures would be implemented by Evolution consistent with the strategies and practices recommended in the ICNG (Section 8.3).

3 NOISE CRITERIA

3.1 NOISE IMPACT ASSESSMENT CRITERIA

Noise monitoring will be undertaken to demonstrate compliance with the noise impact assessment criteria set out in Development Consent Condition 6.4(c) and EPL 11912 Condition L4.1, which require that noise generated by the CGO does not exceed the criteria in Table 2.

Table 2
Noise Impact Assessment Criteria

Land	***Day/Evening/Night*** $dB\ LA_{eq\ (15\ min)}$	***Night*** $dB\ LA_{F\ max}$
Lakeview III	*38*	*52*
The Glen	*37*	
Lakeview, Foxman Downs II	*36*	
All other privately-owned land	*35*	

Note: To interpret the locations referred to in Table 8, see the map in Appendix 6 of DA 14/98.

In accordance with Consent Condition 6.4(c), noise generated by the CGO is to be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the NPfI (as may be updated from time to time).

The NPfI provides that noise-enhancing meteorological conditions (including temperature inversions) need to be considered in a compliance assessment for an industrial activity (EPA, 2017a). As temperature inversions are a characteristic of the CGO area, compliance with the noise impact assessment criteria will be undertaken in accordance with the NPfI's requirements and exemptions in relation to temperature inversions.

As stated in Development Consent Condition 6.4(c), if Evolution has an agreement with the relevant owner/s of the residences/land listed in Table 2 to generate higher noise levels and Evolution has advised the DPE of the terms of the agreement, then the criteria in Table 2 do not apply.

3.2 ADDITIONAL MITIGATION MEASURES CRITERIA

In accordance with DA 14/98 condition 6.4(b), upon receiving a written request from the owner of the any land subject to acquisition upon request (i.e. Westella), Evolution will implement additional noise mitigation measures such as double glazing, insulation, and/or air conditioning at any residence on the land in consultation with the landowner. These additional mitigation measures will be directed towards reducing the noise impacts of the development at the residence.

If, within three months of receiving a written request from the landowner, Evolution and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary of the DPE for resolution.

3.3 NOTIFICATION AND ACQUISITION CRITERIA

DA 14/98 conditions 8.1(a)(i), 8.1(b)(i) and 6.4(a) outline the notification and land acquisition requirements for the CGO (that relate to noise emissions). These conditions are reproduced below:

Notification of Landowners/Tenants

8.1 (a) By the end of September 2014, unless the Secretary agrees otherwise, the Applicant shall notify in writing the owners of;

(i) the land listed in Table 7 that they have the right to ask the Applicant to:

- *acquire their land at any stage during the development; and*
- *install additional noise mitigation measures at any residence on their land;*

...

(b) As soon as practicable after obtaining monitoring results showing:

(i) an exceedance of any relevant criteria in this consent, the Applicant shall notify the affected landowners in writing of the exceedance, and provide regular monitoring results to the landowner until the development is again complying with the relevant criteria;

Acquisition Upon Request

6.4 (a) Upon receiving a written request for acquisition from the owner of any land listed in Table 7, the Applicant shall acquire the land in accordance with the procedures in condition 8.3.

Table 7: Land subject to acquisition upon request

Westella
~~Westlea~~

Note: To interpret the location referred to Table 7, see the map in Appendix 6 of DA 14/98.

As required by Development Consent Condition 8.1(a)(i), the owners of "Westella" were informed in writing (and in person) of their right to request land acquisition and additional noise mitigation measures. The previous land acquisition under this condition was the Westlea property on the 3rd of December 2018. The land acquisition process is described in Section 11.

3.4 OPERATING CONDITIONS

In accordance with DA 14/98 condition 6.4(d), Evolution will:

(i) implement best management practice, including all reasonable and feasible mitigation measures, to minimise the operational, low frequency, and road noise of the development, including mitigation measures to:

- minimise the noise impacts of the development during meteorological conditions when the noise limits in this consent do not apply; and
- carry out regular attended monitoring to determine whether the development is complying with the relevant conditions of this consent.

Table 1 outlines where within this NMP, the above operating conditions are addressed.

4 PRE-MINE AND EXISTING NOISE LEVELS

A summary of the background noise (from 1994) and operational noise (from 2005 to 2018) monitoring results is provided below. A discussion of low frequency noise and off-site road noise is also provided in this section.

Background Noise Monitoring, 1994

Background noise surveys to characterise and quantify the background (i.e. prior to the development of the CGO) acoustical environment in the area surrounding ML 1535 were conducted in July and December 1994. Unattended noise loggers were positioned at the following residences: "Coniston" (now Evolution-owned), "Lakeside" (now Evolution-owned), "Lake Cowal" (now Evolution-owned) and "Gumbelah" (Figure 3).

The unattended ambient noise logger data from each monitoring location together with the on-site weather conditions are presented in the *Cowal Gold Project Environmental Impact Statement* (North Limited, 1998). The background noise data was previously processed in accordance with the requirements of the former *Environmental Noise Control Manual* (EPA, 1994) to determine the minimum repeated background noise levels as shown in Table 3.

Table 3
Background Noise Environment in 1994 (dBA)

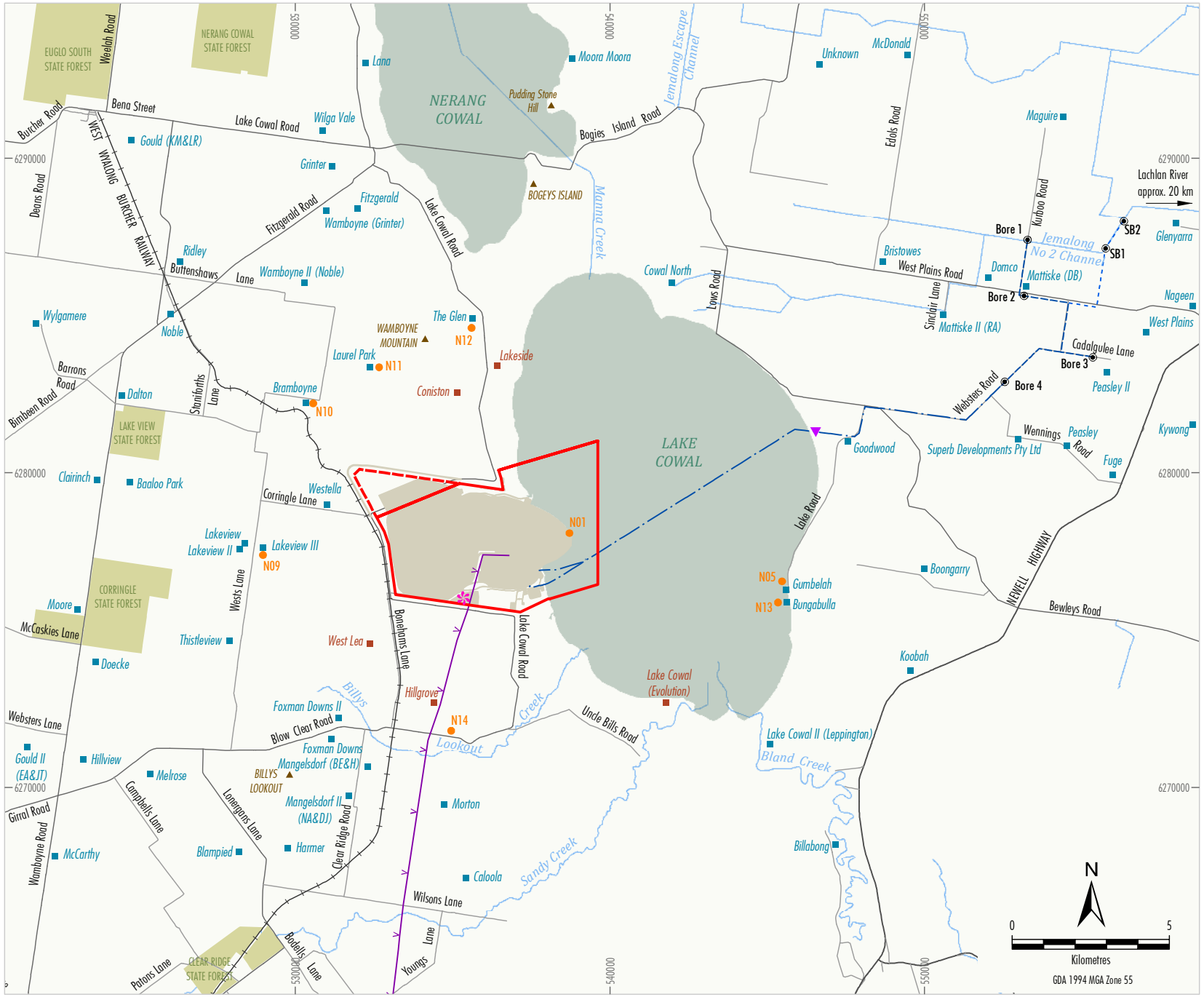
Property Reference	Winter[2] - Minimum Repeated $L_{A90\ (15minute)}$ Background Level		Summer[2] - Minimum Repeated $L_{A90\ (15minute)}$ Background Level	
	Daytime[1]	Night-time[1]	Daytime[1]	Night-time[1]
Coniston (Evolution)	30	25	27	26
Lakeside (Evolution)	30	25	31	34
Lake Cowal (Evolution)	30	25	30	25
Gumbelah	29	27	31	32

1 Daytime/evening 7.00 am to 10.00 pm; night-time 10.00 pm to 7.00 am (EPA, 1994).

2 Measured noise levels less than 31 dBA may have a signal to noise ratio less than 5 dBA.

dBA A-weighted decibel.

The data shows that the background noise levels in the vicinity of the CGO were typically around 30 A-weighted decibels (dBA) (or less), consistent with a relatively remote rural environment comprising agricultural and residential activities together with seasonal fauna noise sources and in the an absence of major industrial development and continuous transportation systems.



Source: Evolution (2018); © NSW Department of Finance, Services & Innovation (2017)

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NOISE MANAGEMENT PLAN

Historic Noise Monitoring Sites

Figure 3

HAL-18-43 CGO MP2018_NoiseMP_203A

Noise Monitoring 2005 to present

Unattended noise logging has previously been carried out at nearby residential monitoring locations on a regular basis since the commencement of construction and mining operations at the CGO. The noise monitoring program at the CGO also includes operator-attended monitoring at locations representative of six privately-owned dwelling locations and has historically also included two reference locations (i.e. at the New Lake Foreshore within ML 1535 and on Evolution-owned land, south of ML 1535) (Figure 3). The noise monitoring programme also includes an on-site Automatic Weather Station and sample temperature gradient measurements coinciding with winter season noise surveys.

Operational noise surveys have demonstrated that the CGO has been operating in compliance with the noise impact assessment criteria imposed in DA 14/98 and EPL 11912 conditions.

Low frequency noise associated with the CGO has been previously assessed by SLR Consulting (2013). SLR Consulting (2013) concluded that based on three years of night-time operator attended noise monitoring results, CGO noise emissions do not contain “dominant low frequency content” in accordance with the INP’s assessment procedures (SLR Consulting, 2013).

5 NOISE IMPACTS

5.1 OPERATIONAL NOISE

5.1.1 Hours of Operation

The hours of mining and processing operations at the CGO are 24 hours per day, seven days per week. In accordance with DA 14/98 condition 1.2(d), construction works on the Tailings Storage Facilities/IWL (including lifts, buttressing works and supplementary IWL activities) will only occur between the hours of 7.00 am to 6.00 pm, 7 days per week.

5.1.2 Description of Operational Activities Contributing to Noise Emissions

Activities contributing to noise emissions during operations would consist of the use of mobile equipment predominantly associated with open pit mining, construction of the TSFs/IWL, paste fill plant, box cut, concrete batch plant, ancillary surface facilities, waste rock emplacements and mineralised material stockpile, soil stripping and stockpiling activities and the operation of the processing plant (including construction of the secondary crusher).

5.1.3 Operational Noise Impacts

The following sections outline the results of the operational noise emissions modelling conducted by EMM Consulting (2020) for the Underground Development Project EIS.

Noise Modelling

An acoustic model was developed by EMM (2020) that simulates the CGO components and noise source information (i.e. sound levels and locations). The noise modelling considered all aspects of the CGO, including open cut and underground operations. The sources of noise identified for the CGO are outlined in Section 5.1.2. The model also considers meteorological effects, surrounding terrain, distance from source to receiver and noise attenuation (i.e. at-source mitigation measures adopted).

To assess the potential total operational noise impacts from the Project, operational noise levels were predicted for 2031 during noise-enhancing meteorological conditions. This is the year when the proposed underground mine will be at maximum production and is considered the worst-case operational scenario for noise emissions. The predicted 2031 noise levels were then combined with the Modification 14 2024 noise predictions for the day, evening and night periods, and represent future operational noise levels.

The noise modelling meteorological parameters were based on analysis of the existing CGO meteorological data set and field measurements and are presented in Table 4.

Table 4
Meteorological parameters adopted for the noise modelling

Assessment period[1]	Modelled meteorological condition
Day	Noise enhancing
Evening	Noise enhancing or strong temperature inversion conditions (8°C/100 m)[2]
Night	Noise enhancing or strong temperature inversion conditions (8°C/100 m)[2]

1. Day: 7 am to 6 pm Monday to Saturday; 8 am to 6 pm Sundays and public holidays; Evening: 6 pm to 10 pm; Night: remaining periods.
2. Whichever provides the higher noise prediction for the relevant assessment location.

In accordance with the NPfI, winter was selected as the appropriate season in which to determine whether temperature inversions were significant, as it represents the season with the highest frequency of occurrence of temperature inversions. The observed winter season meteorological conditions at the CGO can be summarised as follows (Renzo Tonin & Associates, 2018):

- Daytime: Generally unstable atmospheric conditions coinciding with temperature lapses and an absence of prevailing winds. However, moderate temperature inversions may develop in the late afternoon (5.00 pm to 6.00 pm) and dissipate in the early morning (7.00 am to 8.30 am), particularly during winter.
- Evening: Generally stable atmospheric conditions coinciding with strong temperature inversions in the absence of prevailing winds with minimal topographic characteristics to enhance drainage flows.
- Night-time: Generally stable atmospheric conditions coinciding with strong temperature inversions in the absence of prevailing winds with minimal topographic characteristics to enhance drainage flows.

In accordance with the NPfI, the combined frequency of occurrence of moderate to strong (i.e. 1.5 to >4.0°C/100 m) winter temperature inversions is greater than 30% during the combined evening and night-time period and therefore requires assessment (EPA, 2017). The daytime frequency of occurrence of moderate to strong winter temperature inversions is approximately 2% (i.e., much less than 30%).

While the NPfI indicates that temperature inversions are not relevant to assessment of impacts during the evening and daytime, based on the direct temperature gradient measurements at the CGO moderate inversion conditions have been identified in daytime shoulder periods and strong inversion conditions occur during the evening.

Noise Emission Scenarios
Predictive noise emission modelling noise levels from the proposed underground mining operations (i.e., underground mine trucks and paste fill plant) were predicted for 2031 during noise-enhancing meteorological conditions. The predicted 2031 noise levels were then combined with the Mod 14 2024 noise predictions for the day, evening and night periods and represent future operational noise levels..

Private (Non-Evolution Owned) Dwellings
Table 5 identifies the predicted intrusive noise levels at private dwellings (non-Evolution owned) including those within the noise management and affectation zones during CGO mining and processing operations. The locations of the private dwellings are shown on Figure 4 and the noise management and affection zones are shown on Figure 5.

Table 5
Predicted Intrusive Noise Levels for the Approved CGO

Receiver	Receiver ID	Approved CGO[1] (Processing Rate Modification) (dBA $L_{Aeq(15\ minute)}$)
Bramboyne	20	35
Caloola II	90[6]	35
Foxman Downs II[2]	49b	35
Gumbelah[3]	38	35
Lakeview	22a	36
Lakeview II	22b	35
Lakeview III[4]	22c	38
Laurel Park[3]	15	35
The Glen	36a	37
Westella[5]	21	44
Westlea[7]	42	46
All other receivers	-	35 or less

Source: After Evolution (2020b)

Notes: Refer to the Figure 4 for receiver locations.

Receiver in the Noise Management Zone. Receiver in the Noise Affectation Zone.

1 Maximum predicted noise level – all scenarios.

2 Formerly known as Foxham Downs II.

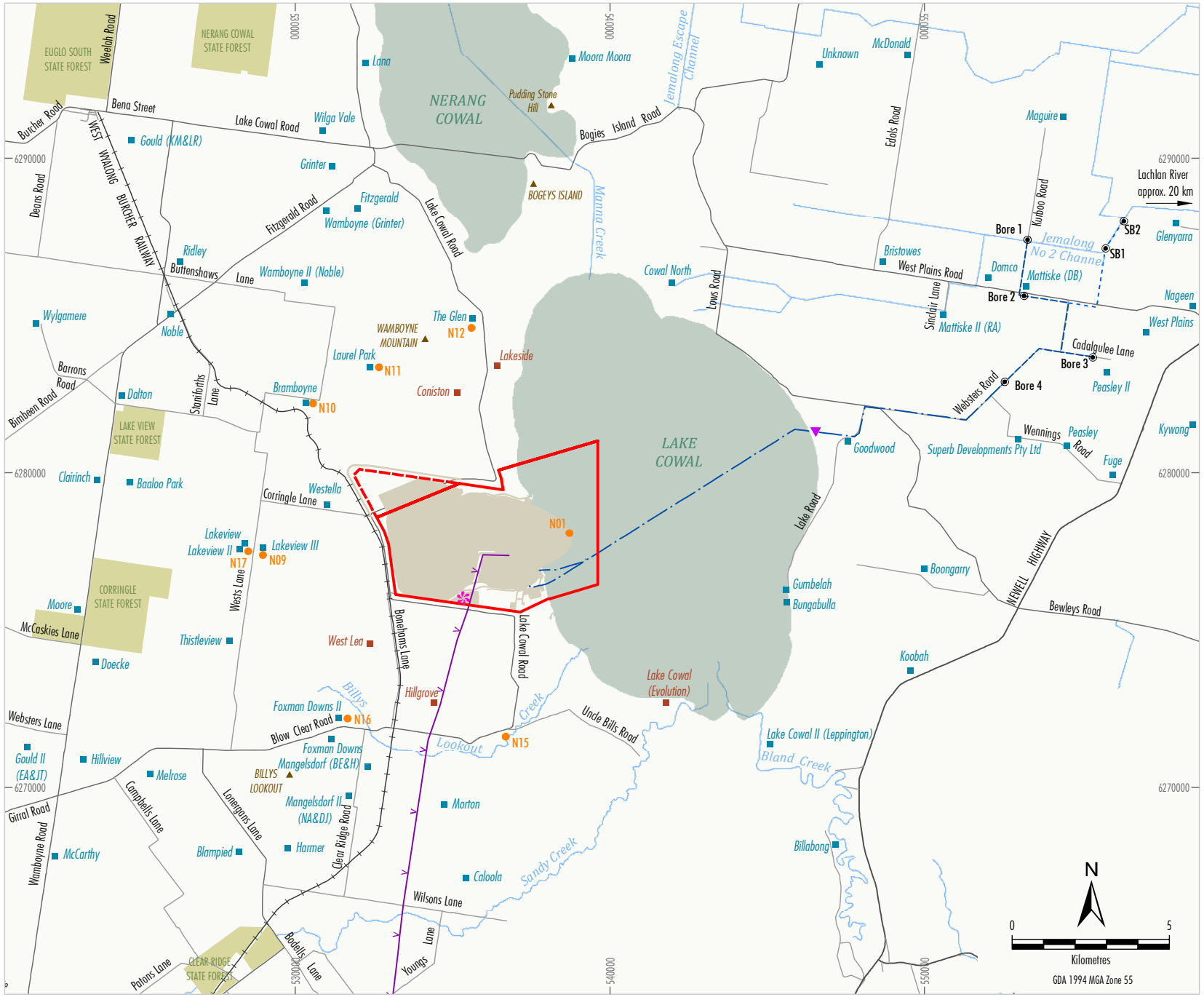
3 Evolution has a noise agreement in place with the owner of this property.

4 Formerly known as Westella.

5 Formerly known as McLintock.

6 It is noted that no dwelling is present at the location of the previously identified receiver known as 'Caloola II' or dwelling ID 90b. The owner of the property has confirmed that no habitable building is present. The dwelling ID for the receiver known as 'Caloola' has therefore changed from 90a to 90.

7 Westlea was acquired by Evolution on 3 December 2018 in accordance with the land acquisition process defined in Development Consent Condition 8.3.



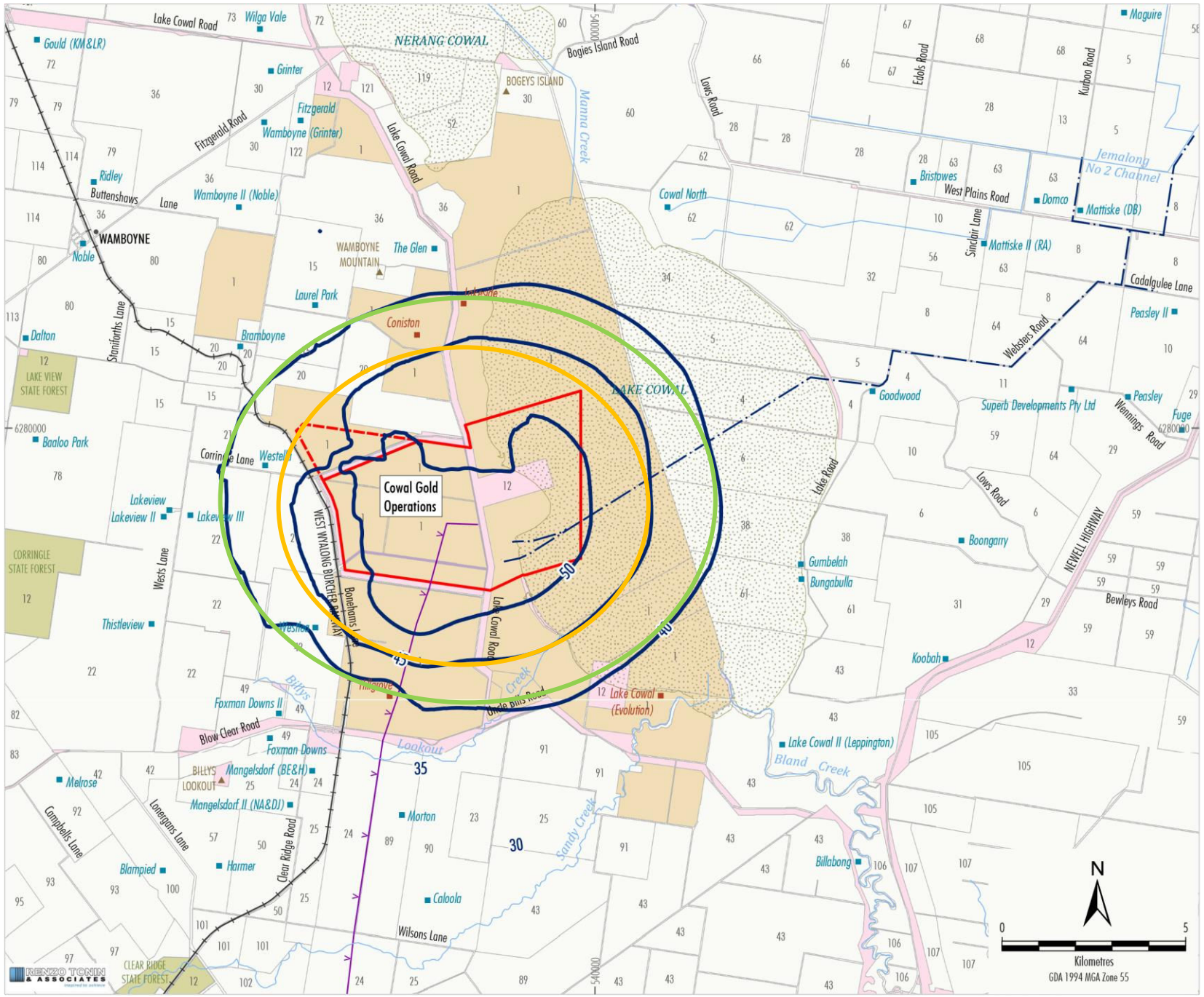
Source: Evolution (2018); © NSW Department of Finance, Services & Innovation (2017)

NOISE MANAGEMENT PLAN

Current Noise Monitoring Locations

Figure 4

HAL-18-43 CGO MP2018_NoiseMP_204A



LEGEND

- Mining Lease Boundary (ML 1535)
- Mining Lease Boundary (ML1791)
- Evolution Mining (Cowal) Pty Limited
- Crown Land
- Local Government
- Private Landholder
- State Forest
- Company-owned Dwelling
- Privately-owned Dwelling
- Railway
- Electricity Transmission Line
- Pipeline
- Noise Contour (dBA)
- Noise Affected Zone
- Noise Management Zone

Source: Evolution (2018); © NSW Department of Finance, Services and Innovation (2017)

Evolution MINING Cowal

NOISE MANAGEMENT PLAN

NOISE AFFECTED vs NOISE MANAGEMENT ZONE

Figure 5

HAL-16-41_Mod14_PRM AppNoise_201B

EMM (2020) predicted that for the approved CGO:

- Future operational noise levels were assessed against the existing limits (DA 14/98) for the day, evening and night periods for noise-enhancing meteorological conditions. The modelling results showed that future operational noise levels (predicted 2031 noise levels combined with the Mod 14 2024 noise predictions) are predicted to satisfy the existing development consent limits at all locations.

5.2 CONSTRUCTION NOISE

5.2.1 Description of Construction Activities Contributing to Noise Emissions

Construction activities that would contribute to noise emissions associated with the approved CGO include:

- Construction of the box-cut, paste fill plant, concrete batch plan, ancillary surface facilities (offices, workshops, park-up, laydowns, mining infrastructure area etc.)

5.2.2 Hours of Construction

In accordance with Development Consent Condition 1.2(d), construction works classified as 'All other activities' will be 24 hours a day, 7 days a week.

5.2.3 Construction Noise Impacts

Noise levels during the box-cut construction were assessed against the existing limits (DA 14/98) for the day, evening and night periods for noise-enhancing meteorological conditions. The modelling results showed that CGO noise levels during the box-cut construction are predicted to satisfy the existing development consent limits at all locations.

5.3 LOW FREQUENCY NOISE

Low frequency noise associated with operational mining and processing activities for the Processing Rate Modification was assessed by Renzo Tonin & Associates (2018). With regard to operational noise, Renzo Tonin & Associates (2018) concluded that based on their experience, "...*noise from all sources, individually and in combination were determined to not likely exhibit tonal, low-frequency, impulsive and/or intermittent characteristics".*

The above conclusions were determined based on manufacturer specifications and other available information including Renzo Tonin & Associates' database of noise levels and previous studies (Renzo Tonin & Associates, 2018).

5.4 ROAD NOISE

The principal guidance to assess the impact of the road traffic noise on assessment locations is the RNP (EPA 2011).

The road traffic noise assessment criteria for residential land uses (i.e. assessment locations), as outlined in the RNP for road categories relevant to the Project is:

- 60 dB $L_{Aeq,15hr}$ (external) for daytime hours (7 am to 10 pm) on freeway/arterial/sub-arterial roads; and
- 55 dB $L_{Aeq,9hr}$ (external) for night-time hours (10 pm to 7 am) on freeway/arterial/sub-arterial roads.

The RNP states that where existing road traffic noise criteria are already exceeded, any additional increase in total traffic noise level should be limited to an increase of up to 2 dB. In addition to meeting the assessment criteria outlined above, any significant increase in total traffic noise at assessment locations must also be considered.

Evolution has previously entered into agreements with residents who may be potentially affected by traffic noise attributable to the CGO. Measures that will continue to be used to minimise road noise associated with the CGO are described in Section 8.

6 NOISE MONITORING PROGRAM

6.1 NOISE MONITORING LOCATIONS

Quarterly attended noise monitoring will continue to be conducted at the following monitoring locations:

- N01 – New Lake Foreshore (reference site);
- N09 – "Lakeview III" residence;
- N10 – "Bramboyne" residence;
- N11 – "Laurel Park" residence;
- N12 – "The Glen" residence;
- N15 – "Caloola II";
- N16 – "Foxman Downs II" residence; and
- N17 – "Lakeview" and "Lakeview II" residences.

The monitoring locations listed above have been developed in consideration of the requirements of DA 14/98 condition 6.4, those properties which are afforded acquisition and noise mitigation rights and those properties with noise mitigation agreements in place. Additional monitoring points may be added at the discretion of the CGO, in line with operational requirements.

Monitoring will be conducted at the above locations to evaluate, assess and report the $L_{Aeq(15\ minute)}$ noise emission levels due to normal operations of the mine. Noise generated by the CGO will be measured in accordance with the relevant requirements and exemptions (including meteorological conditions) of the NPfI (Sections 6.2.3 and 6.2.4).

If necessary, one or more monitoring locations will be used to assess noise impacts at other residences surrounding the CGO beyond those listed above in addition to consideration of the prevailing meteorological conditions and areas of key operational activities during the relevant monitoring period.

Bird Behaviour Monitoring

Waterbird behaviour and breeding activity will continue to be monitored during bird breeding periods by a suitably qualified person during operational activities in accordance with the CGO's Flora and Fauna Management Plan. This monitoring will be conducted in the identified bird breeding areas and will include observations and photography from a bird hide or a boat as well as correlation with data collected during surveys.

Noise and bird behaviour monitoring is conducted at the CGO, with a focus on abrupt events more likely to affect waterbird behaviour. Results of waterbird behaviours monitoring conducted at the CGO found there was no abrupt change in the behaviour of any bird species to noise (or other effects) from blasts conducted at the CGO (Gell, 2005; Gell and Peake, 2011). EMM (2020) anticipated that there would be no significant noise impact from blasting at the CGO.

6.2 EVALUATION AND ASSESSMENT METHOD

The measures and procedures presented in this section will be used to determine noise levels and assess compliance with the noise impact assessment criteria.

6.2.1 Establishing the Mine's Operating Configuration

Details regarding potential noise sources during the operational phase of the CGO are presented in Section 5.1.

6.2.2 Survey Intervals and Times of Measurement

Operator attended noise monitoring will be conducted at quarterly intervals at the locations identified in Section 6.1.

At each monitoring site, operator attended noise monitoring will be conducted using a sound level meter over a 15-minute period on at least one occasion during the daytime (7.00 am to 6.00 pm), evening (6.00 pm to 10.00 pm) and night (10.00 pm to 7.00 am). In accordance with NPfI noise monitoring procedures (Section 6.2.6), an additional 15-minute monitoring period may be undertaken to further characterise noise levels. During the survey, the operator will identify the character and duration of acoustically significant noise sources. This monitoring is referred to as short-term monitoring in the NPfI (Fact Sheet B).

6.2.3 Meteorological Monitoring

Data from the on-site meteorological station will be used for predicting noise impacts on nearby residences. The meteorological station is located near the southern ML 1535 boundary (Figures 3 and 4) and measures real-time wind speed and direction, standard deviation of wind direction, temperature (2 m, 10 m), barometric pressure, humidity, solar radiation and rainfall.

Meteorological conditions will be recorded with each monitoring activity or complaint (Section 7).

6.2.4 Applicable Metorological Conditions

The noise criteria in Section 6 are applicable under standard and noise-enhancing metorological conditions defined in Table D1 of Fact Sheet D of the NPfi as follows:

Table D1: Standard and noise-enhancing meteorological conditions.

Meteorological conditions	Meteorological parameters
Standard meteorological conditions	Day/evening/night: stability categories A–D with wind speed up to 0.5 m/s at 10 m AGL.
Noise-enhancing meteorological conditions	Daytime/evening: stability categories A–D with light winds (up to 3 m/s at 10 m AGL). Night-time: stability categories A–D with light winds (up to 3 m/s at 10 m AGL) and/or stability category F with winds up to 2 m/s at 10 m AGL.

Notes: m/s = metres per second; m = metres; AGL = above ground level; where a range ofconditions is nominated, the meteorological condition delivering the highest-predicted noise levelshould be adopted for assessment purposes. However, feasible and reasonable noise limits in consents and licences derived from this process would apply under the full range of meteorological conditions nominated under standard or noise- enhancing conditions as relevant. All wind speeds are referenced to 10 m AGL. Stability categories are based on the Pasquill–Gifford stability classification scheme.

For ‘very noise-enhancing meteorological conditions’ a limit is set based on the limit derivedunder standard or noise-enhancing conditions plus 5 dB. In this way CGO is subject to noise limits under all meteorological conditions. The NPfI Glossary defines ‘very noise-enhancing meteorological conditions ’as meteorological conditions outside of the range of either standard or noise- enhancing meteorological conditions as defined in Table D1.

when the difference between the measured existing noise and the noise level generated by thenew or existing development is greatest).

2. Field-calibrate the noise monitoring equipment.
3. Measure the noise level continuously for a 15-minute period, excluding all distinct extraneousnoises.
4. At the end of the 15-minute period, check the field calibration in accordance withAS IEC 61672.1:2004 and AS 2659. Re-monitoring may be required if there is a calibration driftgreater than that allowed by relevant Australian Standards.
   For 'very noise-enhancing meteorological conditions' a limit is set based on the limit derived under standard or noise-enhancing conditions plus 5 dB. In this way CGO is subject to noise limits under all meteorological conditions.

Calibration Checks

Equipment calibration procedures are described in AS IEC 61672.1:2004 and AS 2659. These standards provide specific details on how calibration should be undertaken and outline checks to be undertaken *in situ* to determine the validity of calibration performed on the instrument.

The calibration check will be performed in the field by applying an acoustic calibrator, which provides a known sound pressure level to the sound level and confirming that a correct indication of the calibrator's reference level is obtained on the meter. It may be necessary to trim the gain of the meter (usually a screwdriver adjustment) until a correct meter indication can be obtained.

An acoustic calibration check will be performed both before and after each series of measurements. If the series of measurements spans a long period, more frequent checks should be performed. As stated in Section 5.6 of AS 1055.1-2018 if the instrumentation system registers a discrepancy equal to or greater than 1 decibel (dB) between consecutive checks, any measurements in the interval between the two checks shall be invalid.

6.2.7 Compliance Assessment Protocol

The results of attended noise monitoring will be compared against the relevant noise impact assessment criteria (Section 3.1). The comparison will be undertaken following the exclusion of data where meteorological conditions are not relevant to the site in accordance with the NPfI (Section 3.1), as well as observations of non-mine noise by the person undertaking the attended noise monitoring program.

In the event of an exceedance of the noise criteria, an assessment will be conducted to determine:

- Timing of the exceedance.
- Location of the exceedance.
- Exclusion of non-mine related noise and noise from non-CGO mining activities (e.g., can the exceedance be attributed directly to the CGO). This will include consideration of:
  - the methods and type of equipment being used by the CGO at the time of the exceedance and proximity to the locations at which the exceedance was recorded; and
  - the location of non-CGO mining activities or agricultural activities and proximity to the locations at which the exceedance was recorded.
- Meteorological conditions at the time of the exceedance, including confirmation that meteorological conditions are relevant to the site in accordance with the NPfI and the noise criteria apply.

Exceedances of the noise criteria will be determined in consideration of the meteorological conditions under which they apply in accordance with the NPfI.

For the purposes of the NMP, the monitored noise level is the attended noise monitoring results at the locations listed in Section 6.1.

If the above assessment determines that an exceedance is due to CGO related noise then management strategies detailed in Section 8 to help prevent recurrence will be implemented in an effort to reduce noise levels below those defined in Table 8 of DA 14/98 condition 6.4(c) (Section 3.1). The notification protocol for reporting a noise incident (i.e., a confirmed exceedance of the noise impact assessment criteria) is provided in Section 7.

Additionally, in accordance with DA 14/98 condition 9.3(b) the CGO will notify the DPE in writing via the Major Projects website and any other relevant agencies, within seven days after becoming aware of any non-compliance with the DA conditions. Evolution will provide in writing to the DPE a detailed report of the non-compliance which identifies, the development application number for the CGO, the DA condition of which the CGO is non-compliant, the way in which the CGO does not comply and the reason for the non-compliance. The CGO will also provide details around any actions which have been or will be taken, to address the non-compliance.

6.3 OPERATIONAL NOISE MONITORING REPORT

An operational noise monitoring report will be prepared following the quarterly operational noise monitoring surveys (Section 6.2.2). This report will contain details of monitoring method, monitoring results, a summary of the key findings and any recommended mitigation measures (if necessary). The outcome of the quarterly monitoring reports will be summarised in the Annual Review (Section 14).

7 PROTOCOL FOR IDENTIFICATION AND NOTIFICATION OF NOISE INCIDENTS

In accordance with definitions contained within DA 14/98, an incident is defined as:

> *a set of circumstances that causes or threatens to cause material harm to the environment.*

Accordingly, a noise incident would be an exceedance of the noise impact assessment criteria in consideration of the meteorological conditions under which they apply in accordance with the NPfI (Sections 3.1 and 6.2.7).

In the event that the noise impact assessment criteria (detailed in Section 3.1) is considered to have been exceeded, Evolution will implement the following procedure:

- An assessment of the noise criteria will be undertaken in accordance with the Compliance Assessment Protocol (Section 6.2.7).
- If the compliance assessment verifies an exceedance of the noise criteria, the Sustainability Manager, General Manager and Mining Manager will be notified as soon as practicable after becoming aware of the exceedance.
- Evolution will report the exceedance of the noise criteria to the EPA and DPE immediately after Evolution becomes aware of the exceedance.
- Evolution will conduct the following review and assessment procedures to determine the likely cause of the exceedance and to identify appropriate mitigation measures:
  - review of operational activities to identify any simple explanation for the exceedance of noise impact assessment criteria;
  - review of temperature inversion data (Section 6.2.4) to determine if temperature inversions contributed to the exceedance of criteria;
  - review of noise and meteorological monitoring results (Section 6.2.3) to identify whether other meteorological conditions may have contributed to the exceedance; and
  - identify appropriate mitigation measures (Section 8) and assess additional controls or improvements that can be incorporated in the operational activity(s) contributing to noise levels.

If the above assessment determines that an exceedance is due to CGO-related noise then management strategies detailed in Section 8 to help prevent recurrence will be implemented in an effort to reduce noise levels below those defined in Table 8 of DA 14/98 condition 6.4(c) (Section 3.1).

In accordance with DA 14/98 condition 9.3(a) and condition R2.2 of the EPL, Evolution will notify the DPE in writing via the Major Projects website, the EPA, all other relevant agencies and any affected landholder immediately after becoming aware of an noise related incident.

In accordance with DA 14/98 condition 9.3(b) and condition R2.2. of the EPL, Evolution will provide written details of the non-compliance within 7 days of after becoming aware of the non-compliance, including details of measures taken or proposed to be taken to prevent or mitigate recurrence of the incident.

It will be the responsibility of the Sustainability Manager in consultation with the General Manager and Mining Manager to implement the procedures above.

8 IMPLEMENTATION OF NOISE MITIGATION MEASURES

In the event that monitoring indicates an exceedance of the noise impact assessment criteria, mitigation measures will be implemented in accordance with the procedures described below.

Section 3.1 of the NPfI states that there are three main mitigation measures for noise control:

1. Controlling noise at the source.
2. Controlling the transmission of noise.
3. Controlling noise at the receiver.

Section 3.1 of the NPfI states these measures in the above order of preference. Section 1.1 of the NPfI states that land use controls as an additional strategy is most preferable and relates to strategic decisions in land use planning. Whilst it is considered that this strategy is beyond the scope of the NMP, property acquisition is addressed in Section 11.

8.1 CONTROLLING NOISE AT THE SOURCE

There are two approaches discussed in Section 3.4.1 of the NPfI:

1. Best management practice; and
2. Best available technology economically achievable.

These approaches are described further below.

Best Management Practice

Best management practices that may be applied to reduce CGO noise emissions include:

- Restricting movement of trucks on ridgelines and exposed haul routes where their noise can propagate over a wide area, especially at night. This means restricting night-time movement of material to areas shielded by barriers or mounds and reserving large-scale material movement for daytime. The lake protection bund and perimeter waste rock emplacement provide some noise shielding, thereby reducing the potential for noise levels to propagate from the open pit across Lake Cowal.
- Scheduling the use of any noisy equipment during daytime.
- Not operating or reducing operations at night. To minimise potential noise impacts from the CGO during the evening and night-time, tailings storage facility/IWL lift construction and supplementary IWL development works (e.g. soil stripping activities) will be limited to daytime hours only (i.e. 7.00 am to 6.00 pm) (Section 5.1.1).
- Siting noisy equipment behind structures that act as barriers, or at the greatest distance from the noise-sensitive area or orienting the equipment so that noise emissions are directed away from any sensitive areas, to achieve the maximum attenuation of noise.
- Where there are several noisy pieces of equipment, scheduling operations so they are used separately rather than concurrently.
- Keeping equipment well maintained.
- Employing ‘quiet’ practices when operating equipment (e.g. positioning idling trucks in appropriate areas).

- Reducing the speed limit on the portions of the mine access road where residents may be affected by mine generated traffic in consultation with relevant authorities.
- Educating staff on the effects of noise and the use of quiet work practices.
- Specify maximum noise/sound levels when purchasing equipment.
- Include maximum noise/sound levels in tender documents and contracts.

Best Available Technology Economically Achievable

Best available technology economically achievable that may be applied to reduce CGO noise emissions include:

- using equipment with efficient mufflers and using quieter engines (such as electric instead of internal combustion);
- using efficient enclosures for noise;
- using vibratory piling in place of impact piling;
- using high-pressure hydraulic systems to split rock instead of hydraulic or pneumatic hammers;
- damping or lining metal trays; and/or
- employing active noise control measures.

8.2 CONTROLLING NOISE IN TRANSMISSION

As stated in Section 3.4.2 of the NPfI, barriers are an effective measure to control transmission of noise from the noise source and are most effective if they are near the noise source or noise receiver. Their effectiveness is also determined by their height, the properties of materials used (absorptive or reflective) and their density. The construction of the waste rock emplacements generally north, south and east of the open pit is considered to provide a barrier to the transmission of noise generated from mining of the open pit.

8.3 CONTROLLING NOISE AT THE RECEIVER

Section 3.4.3 of the NPfI states that there are two major controls for noise reduction at the receiver:

- insulation; and
- double glazing of windows.

Installation of air conditioning, construction of noise bunding and/or tree screening at any affected dwelling(s) may be used as an alternative or additional mitigation measure.

Evolution has entered into noise mitigation agreements with the landowners of two private receivers (Laurel Park and Gumbelah). Noise mitigation/management agreements have also been discussed with other privately-owned receivers in accordance with the *Voluntary Land Acquisition and Mitigation Policy for State Significant, Mining, Petroleum and Extractive Industry Developments* (VLAMP) (NSW Government, 2014).

As described in the Mod 16 and SSD 10367 documents (Evolution, 2020a, 2020b) Evolution will provide mitigation to privately-owned receivers with predicted noise levels 3 to 5 dBA above the Project Specific Noise Levels (PSNLs), if requested, in accordance with the VLAMP (NSW Government, 2014). Moderate Exceedances (3 to dBA above the PSNLs) are predicted at the Lakeview III residence (Figure 4).

Evolution has consulted with the owner of Lakeview III and has explained the noise modelling results in the context of the VLAMP (NSW Government, 2014). In particular, Evolution has advised that noise mitigation measures at the receiver are available and these measures would be formalised either via private agreements with Evolution and/or via the CGO's modified Development Consent (DA 14/98) conditions.

Reasonable and feasible acoustic mitigation measures (including provision of mechanical ventilation/comfort systems [e.g. air conditioning] to enable windows to be closed without compromising internal air quality/amenity) would be considered at Lakeview III (Evolution, 2018).

In accordance with the VLAMP, the above mitigation measures would also be offered to those privately-owned receivers where voluntary acquisition rights apply (e.g. Westella).

Again, as described in the Mod 16 and SSD 10367 documents (Evolution, 2020a and 2020b), Evolution will consult with those receivers predicted to experience short-term construction noise impacts (i.e. Goodwood and Westella) (Section 5.2.3). Excessive noise impacts would be minimised by managing construction activities to avoid unnecessary noise (e.g. by switching off equipment not in use).

In addition to noise mitigation measures, Section 3.4.3 of the NPfI discusses property acquisition as part of the process of controlling noise at the receiver. Evolution has purchased several properties adjoining and adjacent to the CGO. The resulting buffer zone serves to increase the distance between noise emitting sources and non-Evolution-owned residences.

9 COMPLAINTS REGISTER

A complaints register will be maintained by the Sustainability Manager (or delegate) in accordance with EPL Condition M5.1 and displayed on the Evolution website in accordance with DA 14/98 condition 9.4(a)(v).

As required by EPL Condition M6.1, a dedicated Community Complaints Line has been established (via phone [02] 6975 3454 or email community.cowal@evolutionmining.com.au) that is available 24 hours, seven days a week for community members who have enquiries or who wish to lodge complaints in relation to Evolution's activities at the CGO.

Information recorded in the complaints register with respect to each complaint will include:

- date of complaint;
- the method by which the complaint was made;
- name, address and telephone number of complainant;
- nature of complaint; and
- response action taken to date (if no action was taken, the reasons why no action was taken).

An initial response will be provided to the complainant within 24 hours. Preliminary investigations into the complaint will commence within 48 hours of complaint receipt.

In the event that the complainant is not satisfied with Evolution's response to the complaint, or exceedance of the noise impact assessment criteria has been demonstrated, an independent review process will be undertaken (Section 10).

Dispute Resolution

In the event that dispute resolution is necessary or where noise levels are subsequently demonstrated to be below the relevant criteria (Section 3), the resolution process will be one of informed discussion involving the complainant and Evolution. Evolution may also refer the dispute (with the complainant's agreement) to the CGO's CEMCC for mediation (Section 12). In the event that the complainant is still unsatisfied, the matter may be referred to the DPE for consideration of further measures. Every effort will be made to ensure that concerns are addressed in a manner that results in a mutually acceptable outcome.

10 INDEPENDENT REVIEW PROCESS

DA 14/98 condition 8.2 outlines the independent review process in the event that a landowner of privately-owned land considers the CGO to be exceeding the noise impact assessment criteria (Section 3.1) (or any other criteria defined in the development consent). In accordance with EPA requirements, consideration will be given to the general principles for reviewing performance outlined in Section 7 of the NPfI during the independent review process. DA 14/98 condition 8.2 is reproduced below.

8.2 Independent Review

If an owner of privately-owned land considers the development to be exceeding the criteria in this consent, then he/she may ask the Planning Secretary in writing for an independent review of the impacts of the development on his/her land.

If the Planning Secretary is satisfied that an independent review is warranted, then within 2 months of the Planning Secretary's decision, the Applicant shall:

(a) commission a suitably qualified, experienced and independent expert, whose appointment has been approved by the Planning Secretary, to:

- *consult with the landowner to determine his/her concerns;*
- *conduct monitoring to determine whether the development is complying with the relevant impact assessment criteria in condition 6 of this consent; and*
- *if the development is not complying with these criteria then:*
  - *determine if more than one mine or development is responsible for the exceedance, and if so the relative share of each mine or development regarding the impact on the land; and*
  - *identify the measures that could be implemented to ensure compliance with the relevant criteria; and*

(b) give the Planning Secretary and landowner a copy of the independent review.

In the event that a written request is received by Evolution from a landholder with acquisition rights, the land acquisition process would be initiated (Section 11).

11 PROPERTY ACQUISITION DUE TO NOISE IMPACTS

DA 14/98 condition 8.3 (below) outlines the process for acquisition of a property from a landowner with land acquisition rights:

8.3 Land Acquisition

a) *Within 6 months of receiving a written request from a landowner with acquisition rights, the Applicant shall make a binding written offer to the landowner based on:*

i. *the current market value of the landowner's interest in the property at the date of this written request, as if the property was unaffected by the development, having regard to the:*
- *existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and*
- *presence of improvements on the property and/or any approved building or structure which has been physically commenced at the date of the landowner's written request, and is due to be completed subsequent to that date, but excluding any improvements that have resulted from the implementation of any additional noise and/or visual mitigation measures under this consent;*

ii. *the reasonable costs associated with:*
- *relocating within the same local government area, or to any other local government area determined by the Planning Secretary;*
- *obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is to be acquired; and*

iii. *reasonable compensation for any disturbance caused by the land acquisition process.*

However, if at the end of this period, the Applicant and landowner cannot agree on the acquisition price of the land and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Planning Secretary for resolution.

Upon receiving such a request, the Planning Secretary shall request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer to:

1. *consider submissions from both parties;*
2. *determine a fair and reasonable acquisition price for the land and/or the terms upon which the land is to be acquired, having regard to the matters referred to in paragraphs (i)-(iii) above;*
3. *prepare a detailed report setting out the reasons for any determination; and*
4. *provide a copy of the report to both parties.*

Within 14 days of receiving the independent valuer's report, the Applicant shall make a binding written offer to the landowner to purchase the land at a price not less than the independent valuer's determination.

However, if either party disputes the independent valuer's determination, then within 14 days of receiving the independent valuer's report, they may refer the matter to the Planning Secretary for review. Any request for a review must be accompanied by a detailed report setting out the reasons why the party disputes the independent valuer's determination. Following consultation with the independent valuer and both parties, the Planning Secretary shall determine a fair and reasonable acquisition price for the land, having regard to the matters referred to in paragraphs (i)-(iii) above, the independent valuer's report, the detailed report of the party that disputes the independent valuer's determination and any other relevant submissions.

Within 14 days of this determination, the Applicant shall make a binding written offer to the landowner to purchase the land at a price not less than the Planning Secretary's determination. If the landowner refuses to accept the Applicant's binding written offer under this condition within 6 months of the offer being made, then the Applicant's obligations to acquire the land shall cease, unless the Planning Secretary determines otherwise.

b) *The Applicant shall pay all reasonable costs associated with the land acquisition process described in condition 8.3(a) above.*

c) *If the Applicant and landowner agree that only part of the land shall be acquired, then the Applicant shall also pay all reasonable costs associated with obtaining Council approval for any plan of subdivision (where permissible), and registration of the plan at the Office of the Registrar-General.*

12 COMMUNITY CONSULTATION

Community Environmental Monitoring and Consultative Committee

A CEMCC has been established for the CGO in accordance with DA 14/98 condition 9.1(d). SS10367 condition A11 requires that the CEMCC be operated in accordance with the Department's *Community Consultative Committee Guidelines: State Significant Projects* (2019) during the life of the development, or other timeframe agreed by the Planning Secretary.

DA 14/98 condition 9.1(d) is reproduced below:

> ***9.1 Environmental Management***
>
> *(d) Community Environmental Monitoring and Consultative Committee*
>
> (i) *The Applicant shall establish and operate a Community Environmental Monitoring and Consultative Committee (CEMCC) for the Cowal Gold Operations to the satisfaction of the Planning Secretary. This CEMCC must:*
> - *be comprised of an independent chair and at least 2 representatives of the Applicant, 1 representative of BSC, 1 representative of the Lake Cowal Environmental Trust (but not a Trust representative of the Applicant), 4 community representatives (including one member of the Lake Cowal Landholders Association);*
> - *be operated in general accordance with the Department's Community Consultative Committee Guidelines: State Significant Projects (2019 or its latest version); and*
> - *monitor compliance with conditions of this consent and other matters relevant to the operation of the Cowal Gold Operations during the term of the consent.*
>
> *Note: The CEMCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Applicant complies with this consent.*
>
> (ii) *The Applicant shall establish a trust fund to be managed by the Chair of the CEMCC to facilitate the functioning of the CEMCC and pay $2000 per annum to the fund for the duration of gold processing operations. The annual payment shall be indexed according to the Consumer Price Index (CPI) at the time of payment. The first payment shall be made by the date of the first Committee meeting. The Applicant shall also contribute to the Trust Fund reasonable funds for payment of the independent Chairperson, to the satisfaction of the Planning Secretary*
>
> (iii) *At least four years prior to mine closure the Applicant shall, in consultation with the CEMCC, identify and discuss post-mining issues, particularly in relation to reduced employment and consequent impacts on West Wyalong, and develop a mine workforce phase out plan. This plan shall be reviewed and updated in consultation with the CEMCC at the commencement of the final year of mining operations.*
>
> (iv) *The Applicant shall, in consultation with the CEMCC, develop appropriate strategies to support activities which promote special interest tourism related to the co-existence of mining and the Lake Cowal environment.*

As required by Development Consent Condition 9.1(d)(i), the CEMCC is comprised of:

- four community representatives (including one member of the Lake Cowal Landholders Association);
- one representative of the Lake Cowal Environmental Trust;
- one representative of the Bland Shire Council, Forbes Shire Council and Lachlan Shire Council;
- one representative of the Wiradjuri Condobolin Corporation;
- an independent chairperson; and
- two representatives of Evolution.

The CEMCC will continue to provide opportunities for members of the community to attend CEMCC meetings to discuss specific issues relevant to them. This will be achieved by landholders making a request to the CEMCC regarding a particular issue, or by the landowner registering a complaint in the

complaints register. Landowners who register complaints will be invited to join in discussion of the issue at the next CEMCC meeting.

The CEMCC meets quarterly and meeting minutes are provided on Evolution's website (www.evolutionmining.com.au)

13 INDEPENDENT ENVIRONMENTAL AUDIT

Independent Environmental Audit

An Independent Environmental Audit will be conducted in accordance with DA 14/98 condition 9.2(a) and SSD 10367 condition C11. It may include noise-related issues. Development Consent Condition 9.2(a) is reproduced below:

9.2 Independent Auditing and Review

(a) Independent Environmental Audit

(i) By the end of July 2016, and every 3 years thereafter, unless the Planning Secretary directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the Cowal Gold Operations. This audit must:

- *be prepared in accordance with the Independent Audit Post Approval Requirements (2020 or as amended from time to time);*
- *be led and conducted by a suitably qualified, experienced and independent team of experts (including ecology and rehabilitation experts, and in field's specified by the Planning Secretary) whose appointment has been endorsed by the Secretary;*
- *be carried out in consultation with the relevant agencies, BSC and the CEMCC;*
- *assess whether the development complies with the relevant requirements in this consent, and any strategy, plan or program required under this consent; and*
- *recommend appropriate measures or actions to improve the environmental performance of the development and any strategy, plan or program required under this consent.*

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14 REPORTING AND REVIEW

14.1 ANNUAL REVIEW

An Annual Review will be prepared in accordance with the requirements of DA 14/98 condition 9.1(b) and will be submitted to the Planning Secretary of the DPE by the end of July each year, or as otherwise agreed with the Planning Secretary. DA 14/98 condition 9.1(b) is reproduced below:

9.1 Environmental Management

b) Annual Review

By the end of March each year, or as otherwise agreed with the Planning Secretary, the Applicant shall review the environmental performance of the Cowal Gold Operations to the satisfaction of the Planning Secretary. This review must:

(i) describe the development that was carried out in the previous calendar year, and the development that is proposed to be carried out over the next year;

(ii) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against the:
- *the relevant statutory requirements, limits or performance measures/criteria;*
- *the monitoring results of previous years; and*
- *the relevant predictions in the EIS;*

(iii) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;

(iv) identify any trends in the monitoring data over the life of the development, including the ongoing interaction between the Cowal Gold Mine and Lake Cowal;

(v) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and

(vi) describe what measures will be implemented over the next year to improve the environmental performance of the development.

The Annual Review will also address the AEMR requirements of condition 26 of ML 1535. The requirements of condition 26 are detailed in Section 2.3.

The Annual Review will report on the following noise related issues:

- noise monitoring results;
- comparison of noise monitoring results with the relevant criteria in Section 3;
- measures employed to minimise/prevent excessive noise emissions;
- noise related complaints and amelioration measures undertaken in the event of any confirmed exceedances of noise impact assessment criteria;
- interpretation and discussion of the noise monitoring results and management measures by a suitably qualified person; and
- any CEMCC decisions relating to CGO noise issues.

14.2 ANNUAL RETURN

In accordance with Reporting Condition R1 of the EPL 11912, Evolution will prepare an Annual Return for submission to the EPA, which reports on compliance with the conditions of the EPL. The Annual Return will report on compliance with the noise limits and noise monitoring requirements of the EPL. In addition, in accordance with Section 66(b) of the PoEO Act and written requirements of the EPA, noise monitoring data collected as a result of an EPL condition will be made publicly available on Evolution's website.

14.3 REVISIONS

In accordance with DA 14/98 condition 9.1(c), within three months of the submission of:

(i) the submission of an annual review under condition 9.1(b) above;
(ii) the submission of a non-compliance or incident notification under condition 9.3(a) or 9.3(b) below;
(iii) the submission of an audit under condition 9.2 (a) below;
(iv) the approval of any modification to the conditions of this consent; or
(v) a direction of the Planning Secretary under condition 1.1(b) of this consent;

the suitability of existing strategies, plans and programs required under this consent must be reviewed by the Applicant.

If necessary, to either improve the environmental performance of the development or cater for a modification or comply with a direction, the strategies, plans and programs required under this consent must be revised, to the satisfaction of the Planning Secretary. Where revisions are required, the revised document must be submitted to the Planning Secretary for approval within six weeks of the review.

This NMP will be made publicly available on Evolution's website (www.evolutionmining.com.au) in accordance with DA 14/98 condition 9.4(a)(iii). A hard copy of the NMP will also be kept at the CGO.

15 REFERENCES

EMM Consulting (2020) *Noise and Vibration Impact Assessment, Cowal Gold Operations Underground Development and Modification 16 (August 2020)*

Environment Protection Authority (1994) *Environmental Noise Control Manual*.

Environment Protection Authority (2017a) *NSW Noise Policy for Industry*.

Environment Protection Authority (2017b) *Implementation and transitional arrangement for the Noise Policy for Industry (2017)*.

Evolution Mining (Cowal) Pty Limited (2018) *Cowal Gold Operations Processing Rate Modification Environmental Assessment.*

Evolution Mining (Cowal) Pty Limited (2020a) *Cowal Gold Operations Underground Development Environmental Impact Statement*

Evolution Mining (Cowal) Pty Limited (2020b) *Cowal Gold Operations- Modification 16 Modification Report*

Gell (2005) *Lake Cowal Waterbird Monitoring Survey: Progress Report – October 2005.*

Gell and Peake (2011) *Lake Cowal Waterbird Monitoring Survey: Progress Report January 2011*.

GTA Consultants (2018) *Cowal Gold Operations Modification 14 Road Transport Assessment*.

North Limited (1998) *Cowal Gold Project Environmental Impact Statement.*

NSW Government (2014) *Voluntary Land Acquisition and Mitigation Policy for State Significant Mining, Petroleum and Extractive Industry Developments.*

NSW Department of Environment and Climate Change (2009) *Interim Construction Noise Guideline.*

NSW Department of Environment, Climate Change and Water (2011) *Road Noise Policy.*

Renzo Tonin & Associates (2018) *Cowal Gold Operations – Processing Rate Modification Noise and Blasting Assessment.*

SLR Consulting (2013) *Cowal Gold Mine Extension Modification Noise and Blasting Impact Assessment.*

16 LIST OF ABBREVIATIONS AND ACRONYMS

AEMR	Annual Environmental Management Report
AS	Australian Standard
CEMCC	Community Environmental Monitoring and Consultative Committee
CGO	Cowal Gold Operations
DA 14/98	Development Consent (DA 14/98) for the CGO including the Bland Creek Palaeochannel Borefield and water supply pipelines
DA 2011/64	Development Consent (DA 2011/64) for the operation of the Eastern Saline Borefield
dB	Decibel
dBA	A-weighted decibel
DECC	Department of Environment and Climate Change (former)
DPE	NSW Department of Planning and Environment
DRG	NSW Division of Resources and Geoscience within the NSW Department of Planning and Environment
EP&A Act	NSW *Environment Planning & Assessment Act, 1979*
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
Evolution	Evolution Mining (Cowal) Pty Limited
IEC	International Electrotechnical Commission
ICNG	Interim Construction Noise Guideline (DECC, 2009)
INP	NSW *Industrial Noise Policy* (EPA, 2000)
IWL	Integrated Waste Landform
km	kilometre
m	metre
m/s	metres per second
Mtpa	million tonnes per annum
$L_{A90\ (15minute)}$	The noise level which is exceeded for 90% of a 15 minute sampling period
$L_{Aeq\ (15minute)}$	The equivalent continuous noise level over a 15 minute sampling period

$L_{AF\ max}$	The maximum root mean squared 'A-weighted' sound pressure level (or maximum noise level) received during a measuring interval. equivalent continuous noise level over a 15 minute
ML	Mining Lease
NMP	Noise Management Plan
NPfI	*Noise Policy for Industry* (EPA, 2017)
NSW	New South Wales
PoEO Act	NSW *Protection of the Environment Operations Act 1997*
PSNL	Project Specific Noise Level
VLAMP	*Voluntary Land Acquisition and Mitigation Policy for State Significant, Mining, Petroleum and Extractive Industry Developments* () (NSW Government, 2014).
^{o}C/100 m	degrees Celsius per hundred metre