

Monthly Noise Monitoring Assessment

Tomingley Gold Mine, August 2022

Prepared for: Tomingley Gold Operations Pty Limited
September 2022
MAC160270-2022RP08



Document Information

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1 Introduction

Muller Acoustic Consulting Pty Ltd (MAC) has been commissioned by Tomingley Gold Operations Pty Ltd (TGO) to complete a Noise Monitoring Assessment (NMA) for Tomingley Gold Mine (the 'mine'), Tomingley, NSW.

The NMA involved quantifying the noise contribution of the mine by direct attended measurements to determine mining noise emissions so that effective management and controls can be implemented where required. The monitoring has been conducted in accordance with the TGO Noise Management Plan and in general accordance with Conditions L4.2 to L4.7 of the EPL at six representative receiver locations. It is noted that this assessment has been completed as part of an internal noise management initiative and does not form part of the annual noise monitoring program to address conditions of the Environmental Protection License (EPL).

The assessment has been conducted in accordance with the following documents:

- NSW Environment Protection Authority (EPA), Noise Policy for Industry (NPI), 2017;
- Environment Protection Licence EPL 20169 (EPL); and
- Australian Standard AS 1055:2018 - Acoustics - Description and measurement of environmental noise - General Procedures.

A glossary of terms, definitions and abbreviations used in this report is provided in **Appendix A**.

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2 Environmental Protection License Noise Limits

Historic assessments for the mine categorise receivers into Noise Assessment Groups (NAGs). The NAGs were derived based on ambient noise data that controlled receiver RBLs.

Table 1 reproduces the operational and sleep disturbance noise limits for assessed receivers referenced from the EPL that have been adopted for this NMA and are consistent with historic EPL monitoring locations.

Table 1 Noise Limits, dBA					
Noise Assessment Group	Receivers	Day	Evening	Night	
		LAeq(15min)	LAeq(15min)	LAeq(15min)	LA1(1min)
NAG A	R4, R5, R6	35	35	35	45
NAG B	R2	36	35	35	45
NAG C	R3, R29	45	35	35	45
NAG D	R23	43	38	36	45

Note: Refer to figure in Appendix 4 of Project Approval 09-0155 for noise locations. However, these criteria do not apply if the Proponent has an agreement with the relevant owner(s) of these residences / land to generate higher noise levels, and the Proponent has advised the Department of Planning and Infrastructure and EPA in writing of the terms of this agreement.

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3 Methodology

3.1 Locality

TGO is located to the south of the village of Tomingley, NSW. Receivers in the locality surrounding the mine are primarily rural/residential and for consistency the naming conventions for each receiver have been retained from historic noise assessments. The monitoring locations with respect to the mine are presented in the locality plan shown in **Figure 1**.

3.2 Assessment Methodology

The attended noise survey was conducted in general accordance with the procedures described in Australian Standard AS 1055:2018, "Acoustics - Description and Measurement of Environmental Noise" and the EPL. Measurements were carried out using a Svantek Type 1, 971 noise analyser between Tuesday 23 August 2022 and Thursday 25 August 2022. The acoustic instrumentation used carries current NATA calibration and complies with AS/NZS IEC 61672.1-2019-Electroacoustics - Sound level meters - Specifications. Calibration of all instrumentation was checked prior to and following measurements. Drift in calibration did not exceed ± 0.5 dBA.

Both evening and night measurements were of 15 minutes in duration. Where possible, throughout each survey the operator quantified the contribution of each significant noise source. Extraneous noise sources were excluded from the analysis to calculate the $L_{Aeq}(15min)$ mine noise contribution for comparison against the relevant EPL limit.

Prevailing meteorological conditions for the monitoring period were sourced from TGO's meteorological station and analysed in accordance with Appendix D1 of the NPI to determine the stability category present at the time of each measured sample. This was undertaken to determine applicability of results in accordance with Condition L4.3 of the EPL. Results obtained during non-prevailing meteorological conditions (ie F Class Stability in conjunction with a 2m/s drainage or G Class Stability) are considered not applicable against the EPL criteria.

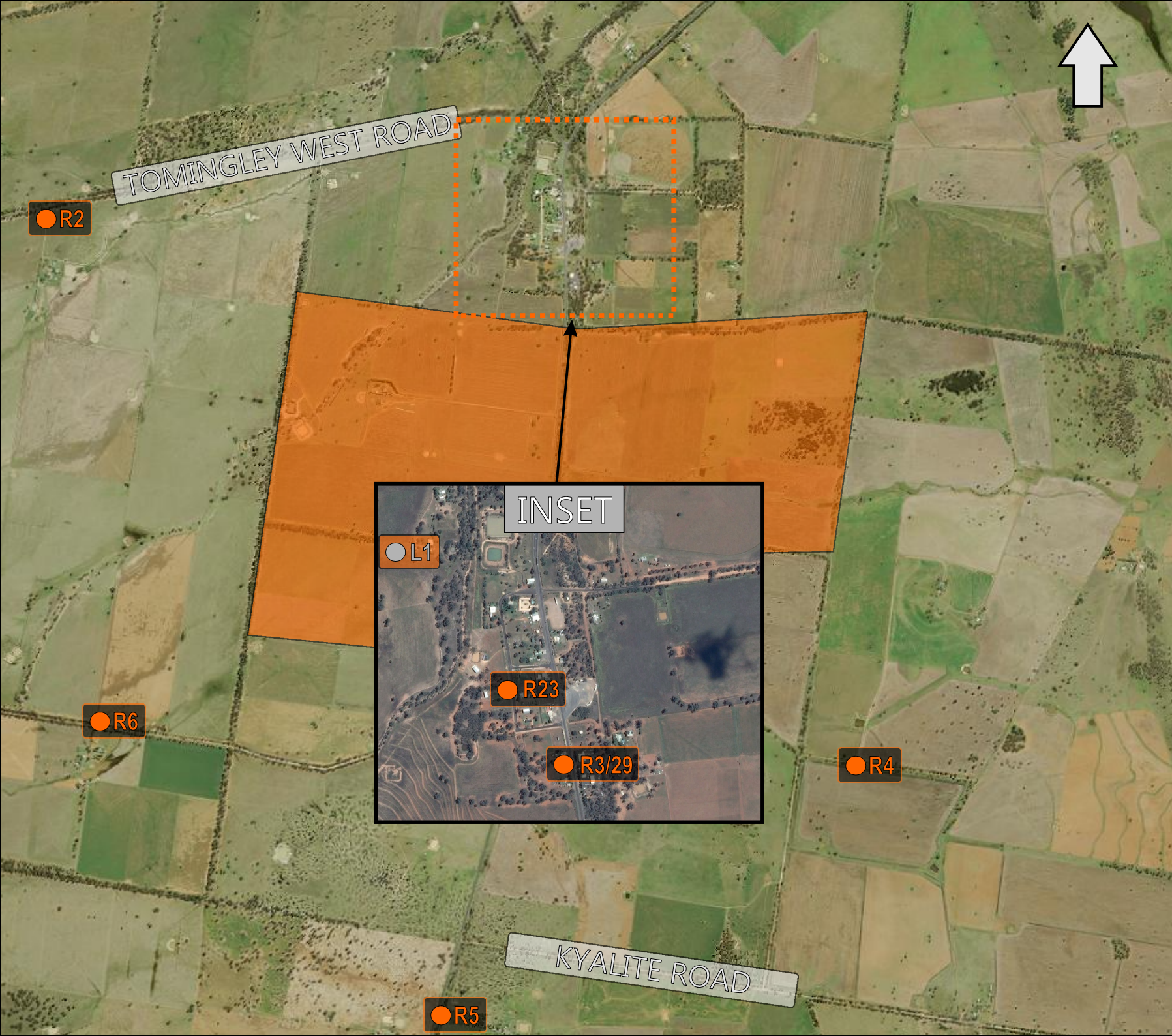





FIGURE 1
LOCALITY PLAN
 REF: MAC160270-2022



KEY	
	UNATTENDED LOGGER LOCATION
	RECEIVER LOCATION
	SITE LOCATION



*Imagery Source - 6MAPS

4 Results

The monitoring and assessment results are presented in individual tables for each assessment location.

4.1 Assessment Results - Location R2

The results of the attended noise measurements at location R2 for the August 2022 survey are summarised in **Table 2** with the relevant EPL limits, the calculated mining noise contribution and prevailing meteorological conditions at the time of each measurement.

Table 2 Operator-Attended Noise Survey Results – Location R2

Date	Time (hrs)	Descriptor (dBA re 20 μ Pa)			EPL Limit	Meteorology ¹	Description and SPL, dBA
		L _{Amax}	L _{Aeq}	L _{A90}			
23/08/2022	20:05 (Evening)	52	42	39	35	WD: SW	Wind in trees 36-52
						WS: 2m/s	Traffic <36
						Stab Class: D	TGO inaudible
TGO Site L _{Aeq} (15min) Contribution							<29
23/08/2022	23:33 (Night)	54	30	25	35	WD: SW	Traffic 20-41
						WS: 0.5m/s	Operator 51-54
						Stab Class: E	TGO processing 23-27
TGO Site L _{Aeq} (15min) Contribution							25
24/08/2022	21:10 (Evening)	55	33	27	35	WD: S	Traffic 25-37
						WS: 1m/s	Insects 27-40
						Stab Class: D	Train 30-55
TGO Site L _{Aeq} (15min) Contribution							25
24/08/2022	23:18 (Night)	55	28	21	35	WD: S	Traffic 20-36
						WS: 0.5m/s	Operator 52-55
						Stab Class: E	TGO processing 20-28
TGO Site L _{Aeq} (15min) Contribution							24
25/08/2022	19:52 (Evening)	68	41	25	35	WD: SE	Insects 23-33
						WS: 0.5m/s	Traffic 20-68
						Stab Class: D	TGO inaudible
TGO Site L _{Aeq} (15min) Contribution							<20
25/08/2022	22:40 (Night)	48	29	26	35	WD: S	Traffic 22-34
						WS: 0.1m/s	Operator 43-48
						Stab Class: E	Livestock 22-30
TGO Site L _{Aeq} (15min) Contribution							25

Note 1: Meteorological data obtained from TGO's on-site weather station or by direct measurement by the operator.

4.2 Assessment Results - Location R3/R29

The results of the attended noise measurements at location R3/R29 for the August 2022 survey are summarised in **Table 3** with the relevant EPL limits, the calculated mining noise contribution and prevailing meteorological conditions at the time of each measurement.

Table 3 Operator-Attended Noise Survey Results – Location R3/R29							
Date	Time (hrs)	Descriptor (dBA re 20 µPa)			EPL Limit	Meteorology ¹	Description and SPL, dBA
		L _{Amax}	L _{Aeq}	L _{A90}			
23/08/2022	20:43 (Evening)	84	67	41	35	WD: SW	Traffic 34-84
						WS: 1m/s	Birds 30-48
Stab Class: D							Wind in trees 30-40
TGO Site L _{Aeq} (15min) Contribution							TGO inaudible
							<31
24/08/2022	00:16 (Night)	79	60	36	35	WD: SW	Traffic 31-79
						WS: 0.5m/s	TGO inaudible
Stab Class: E							
TGO Site L _{Aeq} (15min) Contribution							
							<26
24/08/2022	20:47 (Evening)	82	65	40	35	WD: S	Traffic 36-82
						WS: 1m/s	Insects <33
Stab Class: D							Wind in trees 33-40
TGO processing <33							
TGO Site L _{Aeq} (15min) Contribution							
							<33
24/08/2022	22:55 (Night)	80	60	35	35	WD: S	Traffic 32-80
						WS: 0.5m/s	Insects <30
Stab Class: D							Dog bark 30-46
TGO processing 30-36							
TGO Site L _{Aeq} (15min) Contribution							
							33
25/08/2022	20:33 (Evening)	87	62	32	35	WD: S	Traffic 29-87
						WS: 0.5m/s	Insects 26-33
Stab Class: E							TGO inaudible
TGO Site L _{Aeq} (15min) Contribution							
							<22
25/08/2022	22:58 (Night)	83	59	34	35	WD: S	Traffic 30-83
						WS: 0.1m/s	Insects 31-35
Stab Class: F							TGO processing 30-38
TGO Site L _{Aeq} (15min) Contribution							
							34

Note 1: Meteorological data obtained from TGO's on-site weather station or by direct measurement by the operator.

4.3 Assessment Results - Location R4

The results of the attended noise measurements at location R4 for the August 2022 survey are summarised in **Table 4** with the relevant EPL limits, the calculated mining noise contribution and prevailing meteorological conditions at the time of each measurement.

Table 4 Operator-Attended Noise Survey Results – Location R4								
Date	Time (hrs)	Descriptor (dBA re 20 µPa)			EPL Limit	Meteorology ¹	Description and SPL, dBA	
		L _{Amax}	L _{Aeq}	L _{A90}				
23/08/2022	21:46 (Evening)	45	29	20	35	WD: S	Traffic 16-38	
						WS: 0.5m/s	Insects 15-34	
						Stab Class: D	Operator 41-45	
							TGO inaudible	
		TGO Site L _{Aeq} (15min) Contribution						<20
23/08/2022	22:10 (Night)	52	31	21	35	WD: S	Traffic 15-41	
						WS: 0.5m/s	Insects 15-31	
						Stab Class: E	Operator 41-52	
							TGO inaudible	
		TGO Site L _{Aeq} (15min) Contribution						<20
24/08/2022	21:43 (Evening)	44	35	22	35	WD: S	Traffic 20-44	
						WS: 0.5m/s	Insects 15-30	
						Stab Class: E	TGO inaudible	
		TGO Site L _{Aeq} (15min) Contribution						<20
24/08/2022	22:09 (Night)	44	32	20	35	WD: S	Traffic 20-44	
						WS: 0.5m/s	Insects 15-24	
						Stab Class: E	TGO inaudible	
		TGO Site L _{Aeq} (15min) Contribution						<20
25/08/2022	21:43 (Evening)	41	29	22	35	WD: S	Insects 20-28	
						WS: 0.1m/s	Traffic 20-41	
						Stab Class: F	TGO inaudible	
		TGO Site L _{Aeq} (15min) Contribution						<20
25/08/2022	22:09 (Night)	49	28	18	35	WD: S	Insects 20-33	
						WS: 0.1m/s	Traffic 20-49	
						Stab Class: D	TGO inaudible	
		TGO Site L _{Aeq} (15min) Contribution						<18

Note 1: Meteorological data obtained from TGO's on-site weather station or by direct measurement by the operator.

4.4 Assessment Results - Location R5

The results of the attended noise measurements at location R5 for the August 2022 survey are summarised in **Table 5** with the relevant EPL limits, the calculated mining noise contribution and prevailing meteorological conditions at the time of each measurement.

Table 5 Operator-Attended Noise Survey Results – Location R5							
Date	Time (hrs)	Descriptor (dBA re 20 µPa)			EPL Limit	Meteorology ¹	Description and SPL, dBA
		L _{Amax}	L _{Aeq}	L _{A90}			
23/08/2022	21:23 (Evening)	82	63	34	35	WD: S	Traffic 26-82
						WS: 0.5m/s	Insects 29-43
						Stab Class: D	TGO inaudible
TGO Site L _{Aeq} (15min) Contribution							<24
23/08/2022	22:39 (Night)	82	64	33	35	WD: S	Traffic 25-82
						WS: 0.5m/s	Insects 24-36
						Stab Class: E	TGO inaudible
TGO Site L _{Aeq} (15min) Contribution							<23
24/08/2022	19:40 (Evening)	81	64	35	35	WD: S	Traffic 30-81
						WS: 0.5m/s	Insects 31-39
						Stab Class: D	TGO inaudible
TGO Site L _{Aeq} (15min) Contribution							<25
25/08/2022	00:12 (Night)	79	58	21	35	WD: S	Insects 15-35
						WS: 0.5m/s	Traffic 20-79
						Stab Class: D	TGO inaudible
TGO Site L _{Aeq} (15min) Contribution							<20
25/08/2022	21:21 (Evening)	81	62	33	35	WD: S	Traffic 25-81
						WS: 0.5m/s	Insects 28-38
						Stab Class: E	TGO inaudible
TGO Site L _{Aeq} (15min) Contribution							<23
25/08/2022	23:38 (Night)	80	59	30	35	WD: S	Traffic 25-80
						WS: 0.1m/s	Insects 26-35
						Stab Class: F	TGO inaudible
TGO Site L _{Aeq} (15min) Contribution							<20

Note 1: Meteorological data obtained from TGO's on-site weather station or by direct measurement by the operator.

4.5 Assessment Results - Location R6

The results of the attended noise measurements at location R6 for the August 2022 survey are summarised in **Table 6** with the relevant EPL limits, the calculated mining noise contribution and prevailing meteorological conditions at the time of each measurement.

Table 6 Operator-Attended Noise Survey Results – Location R6							
Date	Time (hrs)	Descriptor (dBA re 20 µPa)			EPL Limit	Meteorology ¹	Description and SPL, dBA
		L _{Amax}	L _{Aeq}	L _{A90}			
23/08/2022	21:03 (Evening)	53	38	32	35	WD: S	Traffic 25-40
						WS: 1m/s	Wind in trees 25-35
							Operator 49-53
							TGO inaudible
TGO Site L _{Aeq} (15min) Contribution							<22
23/08/2022	23:04 (Night)	50	35	25	35	WD: S	Traffic 20-38
						WS: 0.5m/s	Operator 46-50
							TGO inaudible
TGO Site L _{Aeq} (15min) Contribution							<20
24/08/2022	20:03 (Evening)	46	37	31	35	WD: S	Traffic 25-40
						WS: 1m/s	Livestock 25-38
							Wind in trees 25-46
							TGO inaudible
TGO Site L _{Aeq} (15min) Contribution							<21
24/08/2022	23:49 (Night)	47	35	25	35	WD: S	Insects 20-47
						WS: 0.5m/s	Traffic 20-35
							TGO inaudible
TGO Site L _{Aeq} (15min) Contribution							<20
25/08/2022	21:00 (Evening)	46	32	28	35	WD: S	Insects 25-46
						WS: 0.5m/s	Traffic 25-36
							TGO inaudible
TGO Site L _{Aeq} (15min) Contribution							<20
25/08/2022	23:59 (Night)	50	32	24	35	WD: S	Operator 46-50
						WS: 0.1m/s	Livestock 20-38
							Traffic 20-35
							TGO inaudible
TGO Site L _{Aeq} (15min) Contribution							<20

Note 1: Meteorological data obtained from TGO's on-site weather station or by direct measurement by the operator.

4.6 Assessment Results - Location R23

The results of the attended noise measurements at location R23 for the August 2022 survey are summarised in **Table 7** with the relevant EPL limits, the calculated mining noise contribution and prevailing meteorological conditions at the time of each measurement.

Table 7 Operator-Attended Noise Survey Results – Location R23							
Date	Time (hrs)	Descriptor (dBA re 20 µPa)			EPL Limit	Meteorology ¹	Description and SPL, dBA
		L _{Amax}	L _{Aeq}	L _{A90}			
23/08/2022	20:25 (Evening)	57	46	37	38	WD: SW	Wind in trees 31-44
						WS: 1m/s	Traffic 34-57
TGO Site L _{Aeq} (15min) Contribution							<27
23/08/2022	23:57 (Night)	63	47	42	36	WD: SW	Traffic 37-63
						WS: 0.5m/s	TGO inaudible
TGO Site L _{Aeq} (15min) Contribution							<32
24/08/2022	20:28 (Evening)	59	45	37	38	WD: S	Traffic 35-59
						WS: 1m/s	Wind in trees 32-43
TGO Site L _{Aeq} (15min) Contribution							<32
24/08/2022	22:36 (Night)	56	44	35	36	WD: S	Traffic 30-56
						WS: 0.5m/s	Insects 28-33
TGO Site L _{Aeq} (15min) Contribution							32
25/08/2022	20:15 (Evening)	56	43	32	38	WD: S	Traffic 29-56
						WS: 0.5m/s	Insects 26-35
TGO Site L _{Aeq} (15min) Contribution							<22
25/08/2022	23:17 (Night)	57	43	35	36	WD: S	Traffic 30-57
						WS: 0.1m/s	Insects 32-36
TGO Site L _{Aeq} (15min) Contribution							<30

Note 1: Meteorological data obtained from TGO's on-site weather station or by direct measurement by the operator.

5 Discussion

5.1 Discussion of Results - Location R2

Monitoring between Tuesday 23 August 2022 and Thursday 25 August 2022 identified that TGO activities were audible on four occasions at location R2. The estimated mining contributions were measured between 24dBA and 25dBA, therefore TGO emissions remained below the relevant noise limit of 35dB LAeq(15min). Extraneous sources such as wind in trees, traffic, insects, train, operator noise and livestock were audible during the measurement period.

5.2 Discussion of Results - Location R3/R29

Monitoring between Tuesday 23 August 2022 and Thursday 25 August 2022 identified that TGO activities were audible on three occasions at location R3/29. The estimated mining contribution was measured between 33dBA and 34dBA, therefore, TGO emissions remained below the relevant noise limit of 35dB LAeq(15min). Extraneous sources such as traffic, birds, wind in trees, insects and dogs barking were audible during the measurement period.

5.3 Discussion of Results - Location R4

Monitoring between Tuesday 23 August 2022 and Thursday 25 August 2022 identified that TGO remained inaudible during all measurements at location R4. The estimated mining contribution remained below 20dBA, therefore the relevant noise limit of 35dB LAeq(15min) was satisfied. Extraneous sources such as traffic, insects and operator noise were audible during the measurement period.

5.4 Discussion of Results - Location R5

Monitoring between Tuesday 23 August 2022 and Thursday 25 August 2022 identified that TGO remained inaudible during all measurements at location R5. The estimated mining contribution remained below 25dBA, therefore the relevant noise limit of 35dB LAeq(15min) was satisfied. Extraneous sources such as insects and traffic were audible during the measurement period.

5.5 Discussion of Results - Location R6

Monitoring between Tuesday 23 August 2022 and Thursday 25 August 2022 identified that TGO remained inaudible during all measurements at location R6. The estimated mining contribution remained below 22dBA, therefore the relevant noise limit of 35dB LAeq(15min) was satisfied. Extraneous sources such as traffic, wind in trees, operator noise, insects and livestock were audible during the measurement period.

5.6 Discussion of Results - Location R23

Monitoring between Tuesday 23 August 2022 and Thursday 25 August 2022 identified that TGO activities were audible on three occasions at location R23. The estimated mining contribution was measured between 30dBA and <32dBA therefore, the relevant noise limit of 38dB LAeq(15min) for evening and 36dB LAeq(15min) for night was satisfied. Extraneous sources such as wind in trees, traffic, local residential noise and insects were audible during the measurement period.

6 Comparison of Attended and Unattended Monitoring Results

To address Condition 6 of Schedule 3 of the Project Approval, a program to calibrate and validate the real-time noise monitoring results with the attended monitoring results has been completed.

The validation compares monthly attended monitoring results against the closest assessed unattended monitoring location. Currently, TGO has an unattended real-time monitoring terminal installed at the Brooklands property (nearest to R23). **Figure 1** identifies the location of the monitor with respect to the attended monitoring locations. It is noted that the Brooklands unattended monitor is situated 600m west of the attended noise monitoring location R23, therefore, background (LA90) noise levels are significantly lower due to offset distance to highway traffic.

Historically, a comparison of mine noise contributions between attended and unattended noise monitoring demonstrates a general consistency between attended and unattended results. It was noted that wind, insects, birds, and highway traffic noise influenced measured noise levels for this assessment. Furthermore, for August 2022, results remained below the relevant criteria for both attended and unattended locations.

Table 8 provides a summary comparison of results between the attended and unattended noise surveys for R23.

Table 8 Comparison of Attended and Unattended Results

Assessment Type	Time (hrs)	Descriptor (dBA re 20 µPa)			Criteria	Mine Noise Contribution	Meteorology ¹	Description and SPL, dBA
		LA _{max}	LA _{eq}	LA ₉₀				
Tuesday 23 August 2022								
Attended	20:25	57	46	37	38	<27	WD: SW WS: 1m/s Stab Class: D Wind in trees 31-44 Traffic 34-57 Local residential noise 30-43 TGO inaudible	
Unattended	20:30	51	41	36	38	<26	No audio trigger	
Attended	23:57	63	47	42	36	<32	WD: SW WS: 0.5m/s Traffic 37-63 TGO inaudible	
Unattended	23:45	52	41	35	36	<25	Stab Class: E Traffic	
Wednesday 24 August 2022								
Attended	20:28	59	45	37	38	<32	WD: S WS: 1m/s Stab Class: D Traffic 35-59 Wind in trees 32-43 TGO processing <32	
Unattended	20:30	52	40	36	38	<26	No audio trigger	
Attended	22:36	56	44	35	36	32	WD: S WS: 0.5m/s Stab Class: D Traffic 30-56 Insects 28-33 TGO processing 31-34	
Unattended	22:30	51	41	36	36	<26	No audio trigger	
Thursday 25 August 2022								
Attended	20:15	56	43	32	38	<22	WD: S WS: 0.5m/s Stab Class: E Traffic 29-56 Insects 26-35 TGO inaudible	
Unattended	20:15	53	40	33	38	<23	No audio trigger	
Attended	23:17	57	43	35	36	<30	WD: S WS: 0.1m/s Stab Class: D Traffic 30-57 Insects 32-36 TGO processing <30	
Unattended	23:15	54	42	35	36	<25	No audio trigger	

Note 1: Meteorological data obtained from TGO's on-site weather station or by direct measurement by the operator.

7 Conclusion

Muller Acoustic Consulting Pty Ltd (MAC) has completed a Noise Monitoring Assessment on behalf of Tomingley Gold Operations (TGO). The assessment was completed to provide monthly monitoring data so that TGO can actively quantify and manage site noise emissions.

Attended monitoring conducted between Tuesday 23 August 2022 and Thursday 25 August 2022 identified that TGO mine noise was audible on several occasions during the measurement period. A review of monitoring data and operator attended observations determined that TGO contributions remained below relevant limits during applicable meteorological conditions.

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Appendix A - Glossary of Terms

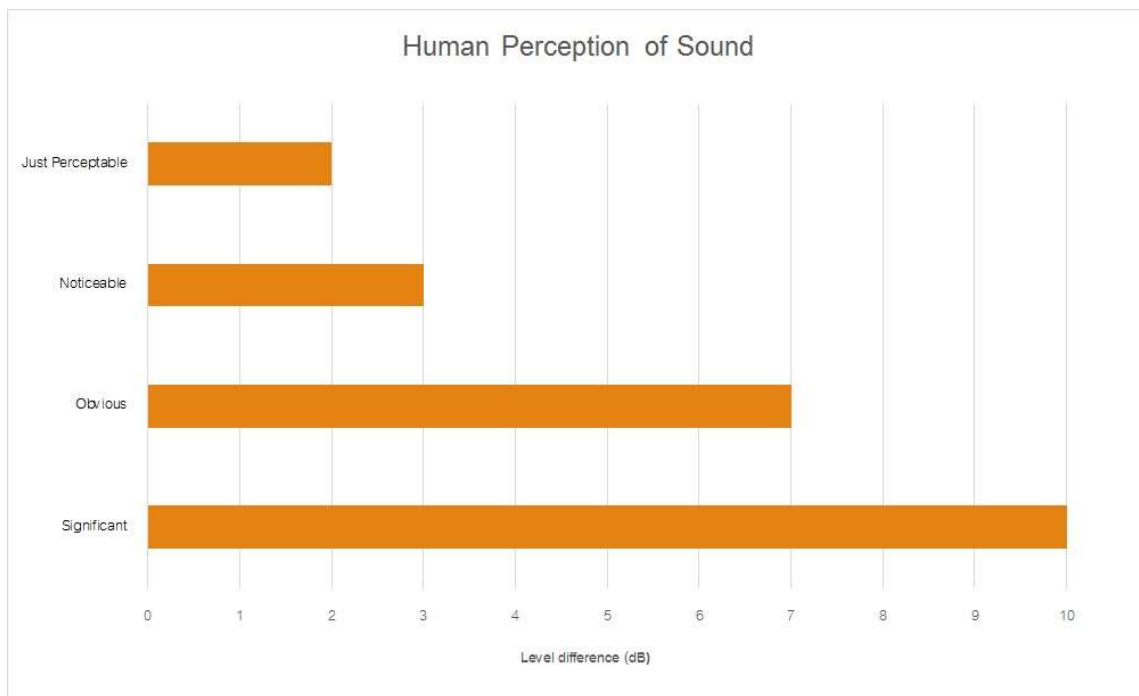
Several technical terms have been used in this report and are explained in **Table A1**.

Table A1 Glossary of Terms	
Term	Description
1/3 Octave	Single octave bands divided into three parts
Octave	A division of the frequency range into bands, the upper frequency limit of each band being twice the lower frequency limit.
ABL	Assessment Background Level (ABL) is defined in the NPI as a single figure background level for each assessment period (day, evening and night). It is the tenth percentile of the measured L90 statistical noise levels.
Ambient Noise	The noise associated with a given environment. Typically a composite of sounds from many sources located both near and far where no particular sound is dominant.
A Weighting	A standard weighting of the audible frequencies designed to reflect the response of the human ear to noise.
dBA	Noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This attempts to closely approximate the frequency response of the human ear.
dB(Z)	Decibels Linear or decibels Z-weighted.
Hertz (Hz)	The measure of frequency of sound wave oscillations per second - 1 oscillation per second equals 1 hertz.
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	The summation of noise over a selected period of time. It is the energy average noise from a source, and is the equivalent continuous sound pressure level over a given period.
LAm _{ax}	The maximum root mean squared (rms) sound pressure level received at the microphone during a measuring interval.
RBL	The Rating Background Level (RBL) is an overall single figure background level representing each assessment period over the whole monitoring period. The RBL is used to determine the intrusiveness criteria for noise assessment purposes and is the median of the ABL's.
Sound power level (SWL)	This is a measure of the total power radiated by a source. The sound power of a source is a fundamental location of the source and is independent of the surrounding environment. Or a measure of the energy emitted from a source as sound and is given by : $= 10 \cdot \log_{10} (W/W_0)$ Where : W is the sound power in watts and W ₀ is the sound reference power at 10-12 watts.

Table A2 provides a list of common noise sources and their typical sound level.

Table A2 Common Noise Sources and Their Typical Sound Pressure Levels (SPL), dBA	
Source	Typical Sound Level
Threshold of pain	140
Jet engine	130
Hydraulic hammer	120
Chainsaw	110
Industrial workshop	100
Lawn-mower (operator position)	90
Heavy traffic (footpath)	80
Elevated speech	70
Typical conversation	60
Ambient suburban environment	40
Ambient rural environment	30
Bedroom (night with windows closed)	20
Threshold of hearing	0

Figure A1 – Human Perception of Sound



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