



14 September 2022

Ref: 8413/29868

**Metromix Pty Ltd**  
 150 Rhondda Road  
 Teralba NSW 2284

### SEPTEMBER 2022 NOISE MONITORING RESULTS – TERALBA QUARRY

This letter report presents the results of attended noise monitoring conducted for the Metromix operated Teralba Quarry (TQ) commencing on Monday 5<sup>th</sup> and finishing on Thursday 8<sup>th</sup> of September, 2022. Noise monitoring was carried out in accordance with the conditions of the TQ Noise Management Plan (NMP) as shown in extract on page 2 (referenced from EPL 536).

Although the project approval nominates noise criteria at nine locations, Metromix recognises that meaningful monitoring data will continue to be collected from the closest locations to the active operational areas. As a result of this, and as outlined within the approved NMP, for periods when operations are confined to areas south of Rhondda Road, noise monitoring will be undertaken at Locations EPL-A, B, D, E and H.

Further to this, location EPL-C and EPL-F have been omitted from the noise monitoring programme given they are not required as other monitoring locations are nearby and closer to quarry related noise sources. This has been recognised by the EPA by the removal of these locations from the monitoring locations detailed in EPL 536. **Table 1** lists the address and coordinates of each noise monitoring location, with the relevant monitoring locations that were monitored during the September 2022 period highlighted in **bold**. The locations are shown on the figure in **Appendix I**.

Table 1 Noise Monitoring Locations (from PA 10-0183)			
Location in EPL	Address	Easting	Northing
<b>EPL-A</b>	<b>Awaba Street, Teralba</b>	<b>369080</b>	<b>6351470</b>
<b>EPL-B<sup>1</sup></b>	<b>Rhondda Road, Teralba</b>	<b>369250</b>	<b>6351915</b>
EPL-C	Rhondda Road, Teralba <sup>2</sup>	369205	6352015
<b>EPL-D</b>	<b>Rhondda Road, Teralba</b>	<b>369150</b>	<b>6352135</b>
<b>EPL-E</b>	<b>Victoria Avenue, Teralba</b>	<b>369060</b>	<b>6352620</b>
EPL-F	Victoria Avenue, Teralba <sup>2</sup>	369130	6352945
<b>EPL-H</b>	<b>School Road, Wakefield</b>	<b>366210</b>	<b>6352520</b>

1. See text in relation to changes to monitoring location
2. Metromix has obtained permission for this monitoring location to be omitted.

It is noted that during the period when monitoring is undertaken at Location B, Metromix is required to provide a spotter to record the number of trucks departing from the Quarry and not the Teralba Business Park. Spectrum Acoustics personnel undertook identification of quarry trucks as part of the noise monitoring procedure.

As part of pre monitoring protocols Spectrum Acoustics notified, by letterbox drop, all landowners in the close vicinity of each site of the impending monitoring. The resident at Location B has previously told Metromix that they didn't want monitoring to be done near their residence so monitoring was undertaken at a point approximately 30m south (as shown in Appendix I).

The following presents noise related conditions of EPL 536 relevant to the compliance noise monitoring programme.

Condition	Requirement																																								
L5.2	<p>The licensee must ensure that noise generated by the activities within the premises do not exceed the following criteria measured by dB(A) at any residence or privately owned land.</p> <table border="1" data-bbox="331 846 1423 1238"> <thead> <tr> <th data-bbox="331 846 619 925">Location</th> <th data-bbox="619 846 810 925">Day Shoulder 6:00am - 7:00am</th> <th data-bbox="810 846 1034 925">Day 7:00am - 6:00pm</th> <th data-bbox="1034 846 1257 925">Evening 6:00pm – 10:00pm</th> <th data-bbox="1257 846 1423 925">Night 10:00pm – 6:00am</th> </tr> <tr> <td></td> <td data-bbox="619 925 810 958">L<sub>Aeq</sub> (15 minute)</td> <td data-bbox="810 925 1034 958">L<sub>Aeq</sub> (15 minute)</td> <td data-bbox="1034 925 1257 958">L<sub>Aeq</sub> (15 minute)</td> <td data-bbox="1257 925 1423 958">L<sub>Aeq</sub> (15 minute)</td> </tr> </thead> <tbody> <tr> <td data-bbox="331 958 619 992">EPL-A</td> <td data-bbox="619 958 810 992">38</td> <td data-bbox="810 958 1034 992">38</td> <td data-bbox="1034 958 1257 992">37</td> <td data-bbox="1257 958 1423 992">L<sub>A1</sub>(1min) 35</td> </tr> <tr> <td data-bbox="331 992 619 1025">EPL-B</td> <td data-bbox="619 992 810 1025">42</td> <td data-bbox="810 992 1034 1025">46</td> <td data-bbox="1034 992 1257 1025">36</td> <td data-bbox="1257 992 1423 1025">45</td> </tr> <tr> <td data-bbox="331 1025 619 1059">EPL-C</td> <td data-bbox="619 1025 810 1059">42</td> <td data-bbox="810 1025 1034 1059">42</td> <td data-bbox="1034 1025 1257 1059">35</td> <td data-bbox="1257 1025 1423 1059">35</td> </tr> <tr> <td data-bbox="331 1059 619 1093">EPL-D, EPL-E, EPL-H</td> <td data-bbox="619 1059 810 1093">35</td> <td data-bbox="810 1059 1034 1093">35</td> <td data-bbox="1034 1059 1257 1093">35</td> <td data-bbox="1257 1059 1423 1093">45</td> </tr> <tr> <td data-bbox="331 1093 619 1126">EPL-F</td> <td data-bbox="619 1093 810 1126">37</td> <td data-bbox="810 1093 1034 1126">38</td> <td data-bbox="1034 1093 1257 1126">38</td> <td data-bbox="1257 1093 1423 1126">35</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td data-bbox="1257 1126 1423 1160">45</td> </tr> </tbody> </table> <p data-bbox="331 1238 1423 1317">Note: The licensee may provide to the EPA written evidence of any agreement with a landholder which is subject to the above noise limits. The written evidence may be submitted with a licence variation to remove the landholder from the above table.</p>	Location	Day Shoulder 6:00am - 7:00am	Day 7:00am - 6:00pm	Evening 6:00pm – 10:00pm	Night 10:00pm – 6:00am		L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)	EPL-A	38	38	37	L <sub>A1</sub> (1min) 35	EPL-B	42	46	36	45	EPL-C	42	42	35	35	EPL-D, EPL-E, EPL-H	35	35	35	45	EPL-F	37	38	38	35					45
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L5.3	<p>For the purposes of Condition L5.2:</p> <ul style="list-style-type: none"> <li>a) Day-Shoulder is defined as the period between 6am to 7am Monday to Saturday.</li> <li>b) Day is defined as: <ul style="list-style-type: none"> <li>a. the period from 7am to 6pm Monday to Saturday; and</li> <li>b. the period from 8am to 6pm Sundays and Public Holidays.</li> </ul> </li> <li>c) Evening is defined as the period from 6pm to 10pm.</li> <li>d) Night is defined as: <ul style="list-style-type: none"> <li>a. the period from 10pm to 7am Monday to Saturday; and</li> <li>b. the period from 10pm to 8am Sundays and Public Holidays.</li> </ul> </li> </ul>																																								
L5.4	<p>The contributed noise level from the premises must not exceed the noise limits specified within EPL 536 at the most noise-affected point on or within the boundary of any residential premises to the north and/or south of the premises, except as expressly provided by this licence, or by the EPA in writing.</p>																																								
L5.5	<p>The noise limits set out in conditions L5.2 apply under all meteorological conditions except for anyone of the following:</p> <ul style="list-style-type: none"> <li>a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or</li> <li>b) Stability category F temperature inversion conditions and wind speeds greater the 2 metres/second at 10 metres above ground level; or</li> <li>c) Stability category G temperature inversion conditions.</li> </ul>																																								
L5.6	<p>For the purpose of condition L5.5:</p>																																								

	<p>a) the meteorological data to be used for determining meteorological conditions is the data recorded at the meteorological station identified in this licence as EPA Identification Point W1.</p> <p>b) Stability category temperature inversion conditions are to be determined by the sigma-theta method referred to in Part E4 of Appendix E to the <i>NSW industrial Noise Policy (EPA 2000)</i></p> <p>Note: The weather station must be designed, commissioned and operated in a manner to obtain the necessary parameters required under the above condition.</p>																
L5.7	<p>To determine compliance:</p> <ol style="list-style-type: none"> <li>With the <math>L_{Aeq(15\text{ min})}</math> noise limits in condition L5.2, the licensee must locate noise monitoring equipment;             <ol style="list-style-type: none"> <li>approximately on the boundary, where any dwelling is situated 30 metres or less from the property boundary that is closest to the premises; or,</li> <li>within 30 metres of a dwelling facade (but not closer than 3 metres) where any dwelling on the property is situated more than 30 metres from the property boundary that is closest to the premises; or where applicable</li> <li>within approximately 50 metres if the boundary of a national park or nature reserve.</li> </ol> </li> <li>With the <math>LA1(1\text{ minute})</math> noise limits in condition L5.2, the noise monitoring equipment must be located within 1 metre of a dwelling facade.</li> <li>With the noise limits in condition L5.2, the noise monitoring equipment must be located;             <ol style="list-style-type: none"> <li>at the most affected point at a location where there is no dwelling at the location, or</li> <li>at the most affected point within an area at a location prescribed by conditions L5.7 1(a) or L5.7 1(b).</li> </ol> </li> </ol>																
L5.8	<p>A non-compliance will still occur where noise generated from the premises in excess of the appropriate noise limit is measured:</p> <ol style="list-style-type: none"> <li>at a location other than an area prescribed by the conditions of this licence, and /or</li> <li>at a point other than the most affected point at a location.</li> </ol>																
L5.9	<p>For the purpose of determining the noise generated at the premises the licensee must use a Class 1 or Class 2 noise monitoring device as defined by AS IEC61672.1 and AS IEC61672.2-2004, or other noise monitoring equipment accepted by the EPA in writing.</p>																
L5.10	<p>For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.</p>																
L7.1	<p>The licensee must comply with the operating hours specified in Column 2, Column 3, and Column 4 of the table below:</p> <table border="1" data-bbox="331 1406 1305 1646"> <thead> <tr> <th>Day</th> <th>Loading and Dispatch of Quarry Trucks</th> <th>Extraction and Processing</th> <th>Receipt of Concrete</th> </tr> </thead> <tbody> <tr> <td>Monday - Friday</td> <td>4:00am Monday to midnight Friday</td> <td>7:00am to 7:00pm</td> <td>7:00am to 5:00pm</td> </tr> <tr> <td>Saturday</td> <td>Midnight Friday to 6:00pm Saturday</td> <td>7:00am to 2:00pm</td> <td>7:00am to 2:00pm</td> </tr> <tr> <td>Sundays and Public Holidays</td> <td>None</td> <td>none</td> <td>none</td> </tr> </tbody> </table> <p>Note: Maintenance activities may occur at any time provided they are inaudible at privately-owned residence.</p> <p>*VENM = Virgin Excavated Natural Material</p> <p>**ENM = Excavated Natural Material</p>	Day	Loading and Dispatch of Quarry Trucks	Extraction and Processing	Receipt of Concrete	Monday - Friday	4:00am Monday to midnight Friday	7:00am to 7:00pm	7:00am to 5:00pm	Saturday	Midnight Friday to 6:00pm Saturday	7:00am to 2:00pm	7:00am to 2:00pm	Sundays and Public Holidays	None	none	none
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Sundays and Public Holidays	None	none	none														

**M9 Noise monitoring**

M9.1 To assess compliance with the noise limits specified within this licence, the licensee must undertake operator attended noise monitoring at each specified noise monitoring point in accordance with the table below.

**POINT 12,13,15,16,18**

Assessment period	Minimum frequency in a reporting period	Minimum duration within assessment period	Minimum number of assessment period
Day	2 times a year	1.5 hours	3 consecutive operation days
Evening	2 times a year	30 minutes	3 consecutive operation days
Night	2 times a year	1 hour	3 consecutive operation days

M9.2 The licensee must undertake the operator attended noise monitoring at each one of or at one or more noise monitoring points that is representative of the worse-case location(s) listed in this licence.

**NOISE MEASUREMENTS**

Attended noise monitoring was conducted with Brüel & Kjær Type 2250 Precision Sound Analysers. These instruments have Type 1 characteristics as defined in AS1259-1982 “Sound Level Meters” and have current NATA calibration. Field calibration of each instrument was carried out at the start and end of each monitoring period.

The noise monitoring was conducted in general accordance with the requirements of Section 9 of the NMP (Noise Monitoring Protocol and Evaluation of Compliance) as follows;

*“Metromix proposes to adopt a noise monitoring protocol that provides feedback on the effectiveness of the noise control measures and demonstrate compliance with the conditions within the Project Approval 10\_0183 and Environment Protection Licence 0536.*

*The approach to monitoring compliance is based substantially upon Metromix’s experience to date which has identified the on-site activities have not been the source of noise complaints or any recorded non-compliance. Hence, it is considered the monitoring program needs to reflect this fact.”*

A-weighted noise levels were measured over 15 minute monitoring periods with data acquired at 1 second statistical intervals and the meter set to “fast” response. Each 1 second measurement is accompanied by a third-octave band spectrum from 20 - 20k Hz which is required for analysing INP ‘modifying factors’. Time based field notes allow for determination of the relative contributions to the overall noise level of all significant noise sources.

The worst case 15 minute Leq noise level for each monitoring period is shown in the tables below. Where the noise from TQ was audible, Bruel & Kjaer “Evaluator” analysis software was used to quantify the contributions of the quarry and other significant noise sources to the overall level.

Quarry noise from TQ is shown in the tables in bold type. Noise levels identified in the tables as “industrial” relates to noise emissions from other industrial premises in Teralba, not related to TQ. Noise levels were recorded for each of the L10, Leq, Lmax, L1, L90 and Lmin percentiles. All noise levels shown in the tables of results are in dB(A) Leq (15 min). Levels for the other percentiles are not shown as they have no compliance criteria for comparison but are available on request.

Meteorological data used in this report was obtained from the quarry-operated weather station at the site. The wind speeds and directions shown in the tables of results are for the most closely related one hour period to the noise monitoring survey at each site.

### Noise Compliance Assessment

The results of the noise measurements undertaken throughout the various time periods are provided in **Tables 2 to 16**. EPL 536 refers to the various time periods as follows:

- a) Day-Shoulder is defined as the period between 6am to 7am Monday to Saturday.
- b) Day is defined as:
  - (i) the period from 7am to 6pm Monday to Saturday; and
  - (ii) the period from 8am to 6pm Sundays and Public Holidays.
- c) Evening is defined as the period from 6pm to 10pm.
- d) Night is defined as:
  - (i) the period from 10pm to 7am Monday to Saturday; and
  - (ii) the period from 10pm to 8am Sundays and Public Holidays.

Table 2 Teralba Quarry Noise Monitoring Results – 5 September 2022 (Day)					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed (m/s) / direction	Identified Noise Sources (Leq (15 min))
A	2:32 pm	51	38	2.4/164	Trains (48), birds (46), traffic (39), industries (32), insects (30), <b>TQ inaudible</b>
B	12:54 pm	60	46	2.0/163	Train (59), traffic (54), industries (40), birds (38), <b>TQ inaudible</b>
D	11:06 am	51	35	2.4/132	Traffic (51), birds (41), <b>TQ inaudible</b>
E	9:30 am	41	35	1.8/183	Birds & frogs (40), traffic (34), <b>TQ (30)</b>
H	11:19 am	45	35	2.4/132	Birds (41), insects (40), traffic (39), <b>TQ inaudible</b>

Table 3 Teralba Quarry Noise Monitoring Results – 5 September 2022 (Evening)					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed (m/s) / direction	Identified Noise Sources (Leq (15 min))
A	8:32 pm	53	37	1.4/215	Frogs (53), trains (41), traffic (30), <b>TQ inaudible</b>
B	7:13 pm	46	36	1.0/210	Frogs (44), traffic (42), insects (27), <b>TQ inaudible</b>
D	6:39 pm	46	35	1.3/194	Traffic (45), frogs (38), <b>TQ inaudible</b>
E	7:51 pm	49	35	1.0/210	Frogs (47), traffic (45), insects (29), <b>TQ inaudible</b>
H	6:00 pm	54	35	1.3/194	Birds (53), traffic (47), <b>TQ (27)</b>

**Table 4**  
**Teralba Quarry Noise Monitoring Results – 6 September 2022 (Night)**

Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed (m/s) / direction	Identified Noise Sources (Leq (15 min))
A	5:35 am	46	35	1.4/232	Birds (45), frogs (37), traffic (34), <b>TQ inaudible</b>
B	4:30 am	49	35	1.5/236	Trains (48), traffic (39), frogs (36), insects (28), <b>TQ inaudible</b>
D	4:30 am	45	35	1.5/236	Traffic (44), birds (36), <b>TQ inaudible</b>
E	5:35 am	44	35	1.4/232	Birds & frogs (42), traffic (40), <b>TQ (30)</b>
H	5:30 am	55	35	1.4/232	Dog (54), birds (45), traffic (39), <b>TQ (28)</b>

**Table 5**  
**Teralba Quarry Noise Monitoring Results – 6 September 2022 (Day Shoulder)**

Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed (m/s) / direction	Identified Noise Sources (Leq (15 min))
A	6:35 am	48	38	1.8/239	Birds (48), traffic (35), insects (32), industries (30), <b>TQ inaudible</b>
B	6:45 am	60	42	1.8/239	Traffic (60), industries (45), birds (36), <b>TQ inaudible</b>
D	6:25 am	53	35	1.8/239	Traffic (53), birds (39), <b>TQ (31)</b>
E	6:35 am	50	35	1.8/239	Birds (50), traffic (42), <b>TQ (32)</b>
H	6:01 am	53	35	1.8/239	Dog (53), traffic (43), birds (37), <b>TQ (25)</b>

**Table 6**  
**Teralba Quarry Noise Monitoring Results – 6 September 2022 (Day)**

Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed (m/s) / direction	Identified Noise Sources (Leq (15 min))
A	12:06 am	54	38	1.0/141	Birds (52), traffic (49), insects (35), <b>TQ inaudible</b>
B	7:00am	57	46	1.6/227	Traffic (56), trains (50), birds (43), industries (29), <b>TQ inaudible</b>
D	7:00 am	49	35	1.6/227	Traffic (48), industries (40), birds (37), <b>TQ (25)</b>
E	10:27 am	50	35	1.3/143	Birds (50), traffic (37), insects (30), <b>TQ inaudible</b>
H	8:43 am	55	35	1.2/158	Birds (55), traffic (37), insects (36), <b>TQ inaudible</b>

**Table 7**  
**Teralba Quarry Noise Monitoring Results – 6 September 2022 (Evening)**

Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed (m/s) / direction	Identified Noise Sources (Leq (15 min))
A	6:00 pm	51	37	0.7/233	Frogs (51), traffic (33), insects (28), <b>TQ inaudible</b>
B	7:12 pm	50	36	0.5/242	Trains (48), traffic (44), frogs (41), insects (30), <b>TQ inaudible</b>
D	7:47 pm	47	35	0.5/242	Traffic (45), trains (42), frogs (35), <b>TQ inaudible</b>
E	6:36 pm	51	35	0.7/233	Frogs (51), insects (33), traffic (28), <b>TQ inaudible</b>
H	8:26 pm	50	35	0.8/257	Birds (48), dog (43), traffic (42), <b>TQ inaudible</b>

Table 8 Teralba Quarry Noise Monitoring Results – 7 September 2022 (Night)					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed (m/s) / direction	Identified Noise Sources (Leq (15 min))
A	5:35 am	49	35	0.6/202	Traffic (48), birds (45), industries (26), <b>TQ inaudible</b>
B	4:30 am	61	35	0.4/127	Trains (61), traffic (43), frogs (33), industries (27), <b>TQ inaudible</b>
D	4:30 am	49	35	0.4/127	Traffic (49), industries (38), birds & frogs (30), <b>TQ inaudible</b>
E	5:35 am	49	35	0.6/202	Traffic (47), birds & frogs (44), <b>TQ inaudible</b>
H	5:30 am	53	35	0.6/202	Birds (51), traffic (46), dog (45), <b>TQ inaudible</b>

Table 9 Teralba Quarry Noise Monitoring Results – 7 September 2022 (Day Shoulder)					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed (m/s) / direction	Identified Noise Sources (Leq (15 min))
A	6:35 am	53	38	2.7/235	Traffic (51), birds (48), industries (25), <b>TQ inaudible</b>
B	6:44 am	59	42	2.7/235	Traffic (59), trains (47), industries (43), birds (42), <b>TQ inaudible</b>
D	6:24 am	57	35	2.7/235	Traffic (57), birds (38), <b>TQ inaudible</b>
E	6:35 am	50	35	2.7/235	Traffic (48), birds & frogs (45), <b>TQ inaudible</b>
H	6:00 am	49	35	2.7/235	Birds (47), traffic (49), dog (32), <b>TQ inaudible</b>

Table 10 Teralba Quarry Noise Monitoring Results – 7 September 2022 (Day)					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed (m/s) / direction	Identified Noise Sources (Leq (15 min))
A	11:54 am	51	38	1.7/106	Birds (49), trains (45), traffic (40), insects (30), <b>TQ inaudible</b>
B	7:00 am	55	46	0.9/168	Traffic (54), trains (50), birds (43), industries (31), <b>TQ inaudible</b>
D	7:00 am	55	35	0.9/168	Traffic (53), birds (49), industries (43), <b>TQ (25)</b>
E	10:16 am	54	35	1.0/114	Traffic (54), birds (41), insects (29), <b>TQ inaudible</b>
H	8:39 am	55	35	0.8/112	Birds (54), traffic (45), insects (36), <b>TQ inaudible</b>

Table 11 Teralba Quarry Noise Monitoring Results – 7 September 2022 (Evening)					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed (m/s) / direction	Identified Noise Sources (Leq (15 min))
A	6:20 pm	52	37	1.7/56	Frogs (51), trains (43), traffic (41), insects (38), <b>TQ inaudible</b>
B	7:33 pm	55	36	2.2/44	Trains (55), traffic (40), frogs (38), <b>TQ inaudible</b>
D	8:07 pm	48	35	1.3/55	Traffic (48), insects (33), <b>TQ inaudible</b>
E	6:57 pm	51	35	2.2/44	Frogs (50), traffic (41), insects (35), <b>TQ inaudible</b>
H	8:45 pm	54	35	1.3/55	Dog (54), traffic (37), frogs (36), <b>TQ inaudible</b>

Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed (m/s) / direction	Identified Noise Sources (Leq (15 min))
A	5:37 am	52	35	1.0/351	Traffic (50), birds (46), insects (42), industries (25), <b>TQ inaudible</b>
B	4:41 am	50	35	4.3/359	Trains (49), traffic (40), frogs (35), birds (31), <b>TQ inaudible</b>
D	4:30 am	47	35	1.2/359	Traffic (47), birds & frogs (37), <b>TQ inaudible</b>
E	5:35 am	50	35	1.0/351	Birds (50), traffic (40), <b>TQ inaudible</b>
H	5:30 am	54	35	1.0/351	Dog (53), birds (46), traffic (42), <b>TQ inaudible</b>

Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed (m/s) / direction	Identified Noise Sources (Leq (15 min))
A	6:35 am	53	38	1.4/23	Birds (51), traffic (47), trains (44), industries (26), <b>TQ inaudible</b>
B	6:44 am	60	42	1.4/23	Traffic (59), trains (50), industries (42), birds (39), <b>TQ inaudible</b>
D	6:24 am	54	35	1.4/23	Traffic (54), birds (37), <b>TQ inaudible</b>
E	6:35 am	46	35	1.4/23	Birds (45), traffic (40), <b>TQ inaudible</b>
H	6:00 am	51	35	1.4/23	Traffic (50), birds (42), dog (40), <b>TQ inaudible</b>

The results shown in Tables 2 to 13 show that, under the operational and atmospheric conditions at the time of monitoring, noise emissions from TQ did not exceed the relevant criterion at any monitoring location during any part of the survey.

Monitoring location EPL-B is situated close to the corner of Rhondda Road and Railway Street. This monitoring location is included predominantly to measure quarry noise from emissions from trucks exiting the site along the private section of the access road (through the Teralba Business Park). From the monitoring location it was possible to determine which trucks were associated with the quarry and a dedicated spotter was not required during this monitoring period.

When measuring noise at the EPL-B location, the noise emissions from the exiting quarry trucks (whilst on the private section of the access road) was measured and the worst case 15-minute Leq noise level calculated based on the time each truck was on the private road. The noise from trucks on the access road was not audible at this location throughout the survey.

At location EPL-D the acoustic environment is significantly influenced by noise from traffic on Rhondda Rd and birds. Noise from trains and other industries within the vicinity also contributed to the acoustic environment. Noise emissions from the batching plant which is located adjacent to TQ also contributes to the received noise during some monitoring periods. Due to the relative proximity of the batch plant to the quarry it is not possible to determine the relative contributions of each to the received noise.

Data from those times where TQ operations were audible were analysed using the “*Evaluator*” software. This analysis showed the noise did not contain any tonal, impulsive or low frequency components as per definitions of “modifying factor corrections” in the Noise Policy for Industry.



In addition to the operational noise, the noise from TQ must not exceed **45 dB(A) L1 (1 min)** within the night-time period i.e. between the hours of 10 pm and 7 am, in accordance with *Condition L4.1* of EPL 536. This is to minimise the potential for sleep disturbance as a result of individual loud noises from the quarry. The compliance measurement locations are different for each of the operational and sleep disturbance noise. That is, the sleep disturbance criterion is typically applicable at 1m from the facade of a bedroom window.

To avoid undue disturbance to residents, the L1 (1 min) noise level from the operational measurements are used to show general compliance with the sleep disturbance criterion. That is, as the distance between the noise source and the operational noise monitoring location is significantly greater than the distance between the operational noise monitoring location and the sleep disturbance monitoring location (i.e. 1m from the facade of the house) there will be little variation in L1 (1 min) levels between the two monitoring locations. It must be noted, however, that the sleep disturbance criterion is to be measured near a bedroom window. As the internal layout of each residence is not known, to consider a worst case, a bedroom window is assumed to be facing the operational noise monitoring location.

The results of the sleep disturbance measurements are shown in **Tables 14 to 16**.

Table 14 Teralba Quarry (L1 (1min)) Noise Monitoring Results – 6 September 2022 (Night)					
Location	Time	dB(A) L1 (1 min)	Wind speed (m/s) / direction	L1 source	Identified Quarry Sources (L1 (1 min))
A	5:35 am	54	1.4/232	Birds	n/a
B	4:30 am	55	1.5/236	Train	n/a
D	4:30 am	50	1.5/236	Traffic	n/a
E	5:35 am	45	1.4/232	Birds	Reverse alarms (32)
H	5:00 am	57	1.4/232	Dogs	Engine Revs (30)

Table 15 Teralba Quarry (L1 (1min)) Noise Monitoring Results – 7 September 2022 (Night)					
Location	Time	dB(A) L1 (1 min)	Wind speed (m/s) / direction	L1 source	Identified Quarry Sources (L1 (1 min))
A	5:35 am	55	0.6/202	Traffic	n/a
B	4:30 am	66	0.4/127	Train	n/a
D	4:30 am	62	0.4/127	Traffic	n/a
E	5:35 am	52	2.0/202	Birds	n/a
H	5:00 am	54	2.0/202	Birds	n/a

Table 16 Teralba Quarry (L1 (1min)) Noise Monitoring Results – 8 September 2022 (Night)					
Location	Time	dB(A) L1 (1 min)	Wind speed (m/s) / direction	L1 source	Identified Quarry Sources (L1 (1 min))
A	5:35 am	58	1.0/351	Birds	n/a
B	4:30 am	65	1.2/359	Train	n/a
D	4:30 am	59	1.2/359	Traffic	n/a
E	5:35 am	53	1.0/351	Birds	n/a
H	5:01 am	54	1.0/351	Traffic	n/a

As shown in Tables 14 to 16, during the night time measurement circuits the L1 (1 min) noise from TQ did not exceed 45 dB(A) at any monitoring location.

In summary the results of the noise monitoring programme have shown that the Teralba Quarry continues to operate within approved noise limits. No actions are recommended with respect to noise management at Teralba Quarry.

We trust this report fulfils your requirements at this time, however, should you require additional information or assistance please contact the undersigned on 4954 2276.

Yours faithfully,

**SPECTRUM ACOUSTICS PTY LIMITED**

Author:



**Neil Pennington MAIP, MAAS**

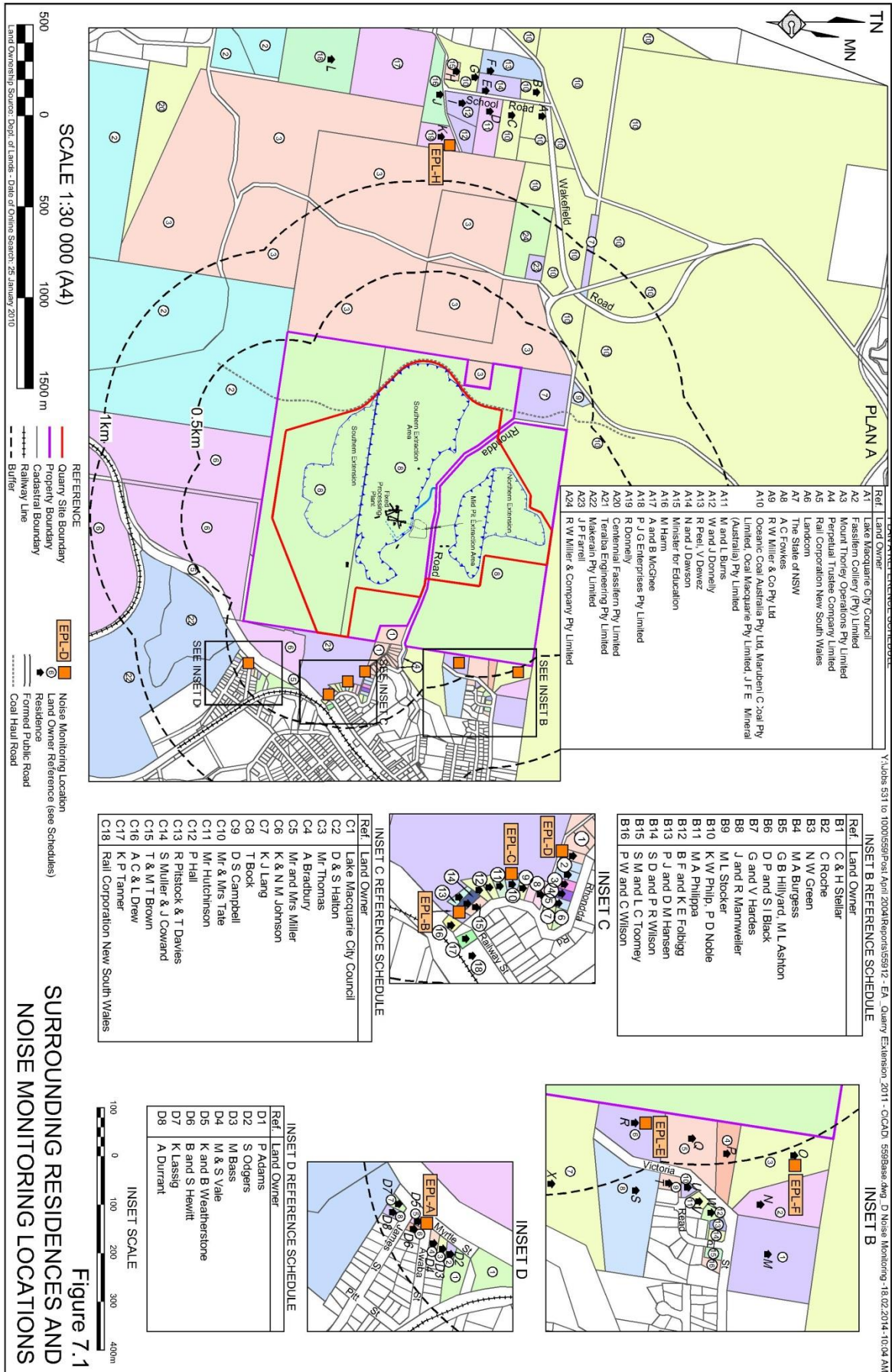
Acoustical Consultant

Review:



**Ross Hodge MAAS**

Acoustical Consultant





Location EPL – B Modified noise monitoring location