

# **NOISE MANAGEMENT PLAN FOR SAND EXTRACTION OPERATIONS**

Lot 218 and Lot 220  
Nelson Bay Road, Salt Ash NSW

**FINAL**

November 2018



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Nelson Bay Road, Salt Ash NSW

## FINAL

Prepared by  
**Umwelt (Australia) Pty Limited**  
on behalf of  
**Mackas Sand Pty Ltd**

Project Director: Bret Jenkins  
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Report No. 1646/R60  
Date: November 2018



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**Document Status**

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
1 (Draft)	Brendan Rice (Umwelt (Australia) Pty Limited)	July 2016	Peter Jamieson (Umwelt (Australia) Pty Limited)	July 2016
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# 1.0 Introduction

Mackas Sand Pty Limited (Mackas Sand) operations on Lot 218 and Lot 220 Nelson Bay Road are located approximately 25 kilometres (km) north east of Newcastle near Salt Ash in the Port Stephens local government area (LGA), in New South Wales (NSW) (refer to **Figure 1.1**). Mackas Sand directors have operated sand extraction operations in the area since 1992. Lot 218 and Lot 220 are owned by the Worimi Local Aboriginal Lands Council.

Mackas Sand was granted Project Approval No. 08\_0142 (PA 08\_0142) on 20 September 2009 by the Minister for Planning under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to operate sand extraction operations at Lot 220 and Lot 218. It is estimated that in excess of 21 million tonnes (Mt) of sand resource will be extracted from Lot 218 and Lot 220, with Lot 218 having an indefinite extraction life due to the ongoing movement of sand from the adjoining mobile dunes.

As a result of access restrictions to appropriately develop the approved haul route along Lavis Lane, a modification to PA 08\_0142 (MOD 1) was required to develop an alternate haul route. Prior to the approval of MOD 1, operations were restricted to Lot 220 at Mackas Sand.

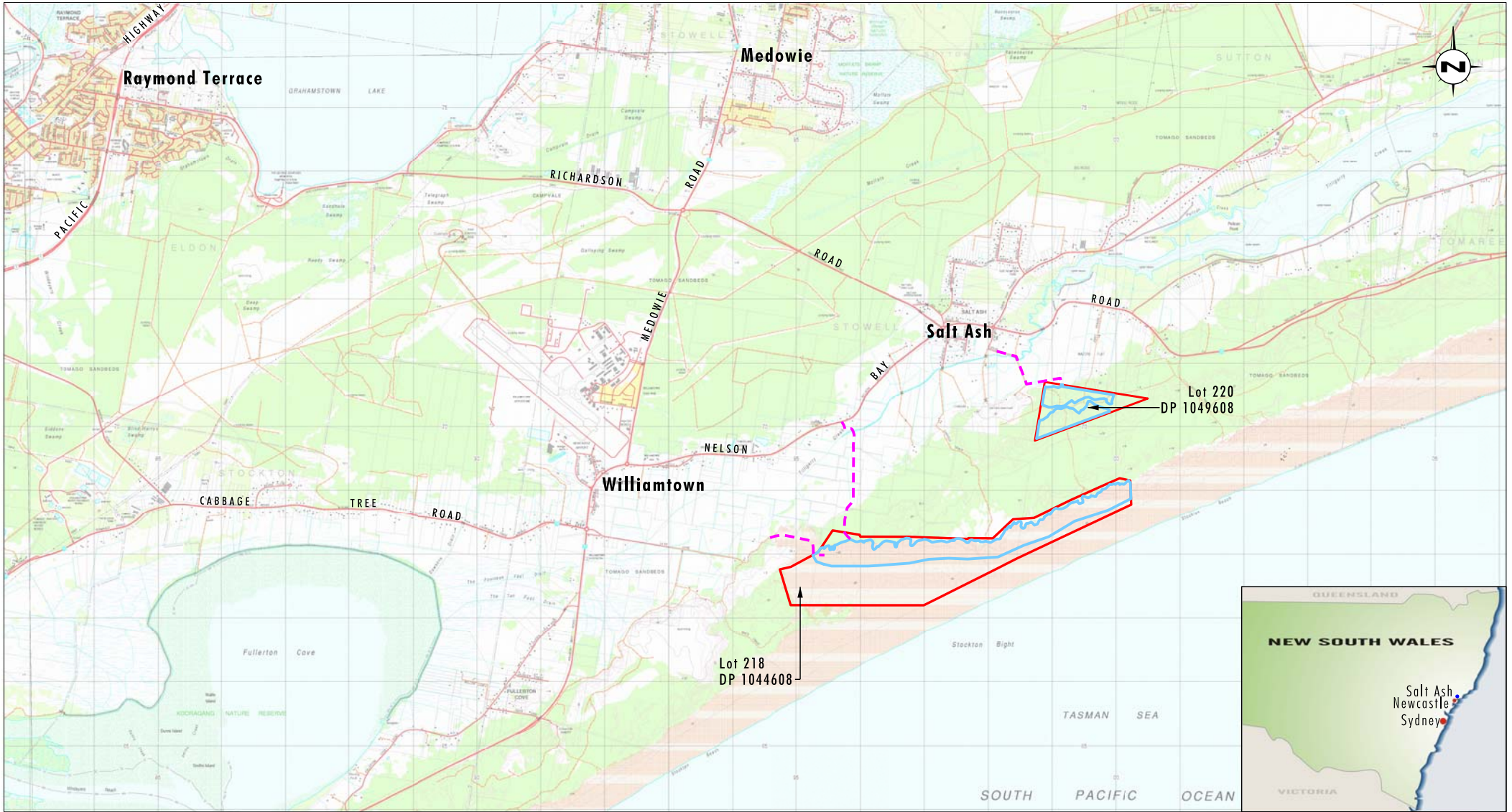
MOD1 was approved on 30 September 2013 by the NSW Planning Assessment Commission (PAC) under delegation of the Minister for Planning and Infrastructure (now Minister for Planning and Environment-DPE). The modification includes a temporary reduction in extraction level and the approval of an alternate route to access Lot 218. The alternate route connects directly from Lot 218, northward to Nelson Bay Road, as depicted within **Figure 1.1**. Construction of the alternate route commenced on 8 December 2013. Approval to use the intersection was received by Roads and Maritime Services (Roads and Maritime) on 16 December 2014. Extractive operations commenced at Lot 218 in February 2015.

A second modification to PA 08\_0142, (MOD2), was approved by the PAC on 15 March 2016. The modification allows for an increase in maximum hourly truck movements (in and out) of Lot 218 via the approved alternate access road. The initial version of this Noise Management Plan (NMP) was prepared in consultation with the Environment Protection Authority (EPA) and submitted to the DPE for approval. In accordance with Schedule 3 Condition 10 (a) of PA 08\_0142, Macka's Sand invited EPA to comment on this revision of the NMP. EPA declined to provide comment in a letter dated 31 October 2017.

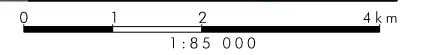
## 1.1 Mackas Sand Operations

Key operational features relevant to this NMP are:

- The approved hours of extraction being 24 hours a day/7 days a week except for operations within 250 metres (m) of the Hufnagl Residence (R27) when operations are limited to 7.00 am to 6.00 pm Monday to Friday with no operations within 250 m of R27 outside these times.
- Ongoing transportation of sand from Lot 220 in accordance with approval conditions which allows for transportation along Oakvale Drive between 5.00 am and 10.00 pm Monday to Saturday and 8.00 am to 12.00 pm Sundays and Public Holidays in accordance with provisions of Condition 9 (b) of Schedule 3 of PA 08\_0142. Mackas Sand has agreements with the owners of residences facing Oakvale Drive. Copies of these agreements have been provided to the DPE.
- Revision of truck movements per hour allowed from Lot 218 as per MOD 2. Ongoing transportation of sand from Lot 218 in accordance with approval conditions which allows for transportation from Lot 218 along the Alternate Access Road between 5.00 am and 10.00 pm Monday to Saturday and 8.00 am to 12.00 pm Sundays and Public Holidays in accordance with provisions of Condition 9 (b) of Schedule 3 of PA 08\_0142. Mackas Sand has an agreement with the owners of 2344, 2353 and 2368 Nelson Bay Road. Copies of these agreements have been provided to the DPE.



Source: Department of Lands (2006)



**Legend**

- ▭ Lot Boundaries
- ▭ Approval Areas
- - - Approved Site Access

FIGURE 1.1

Locality Plan

## 1.2 Purpose and Scope

To satisfy Condition 4 to 10 of Schedule 3 of the Project Approval 08\_0142 (PA 08\_0142 MOD 2), a NMP is required to be prepared and implemented for the project.

The purpose of this NMP is to define the control mechanisms to be implemented for the management and mitigation of potential noise impacts generated by extractive operations at Lot 218 in DP 1044608 and Lot 220 in DP 1049608 (hereafter referred to as the approval areas) Nelson Bay Road, Salt Ash.

This plan outlines the methodology used to determine compliance of the continued operations and response procedures to be followed in the event of non-compliance or measured exceedances of the relevant criteria.

## 1.3 Regulatory Requirements

Mackas Sand will undertake environmental monitoring in accordance with the relevant legislation, Environment Protection License (EPL) and Project Approval Conditions, Australian Standards (AS) and publications listed below. In the event that any of the regulatory requirements change, these amendments will be addressed appropriately:

- *Protection of the Environment Operations Act 1997* (POEO Act) administered by the EPA, formerly the Department of Environment, Climate Change and Water (DECCW).
- Protection of the Environment Operations (Noise Control) Regulation 2008.
- *Environmental Planning and Assessment Act 1979* (EP&A Act), administered by the DPE.
- NSW Industrial Noise Policy (INP) (EPA 2000). In accordance with the Implementation and transitional arrangements for the Noise Policy for Industry (2017), the NSW Industrial Noise Policy (2000) continues to apply as it is referenced in the project approval and the EPL.
- NSW Road Noise Policy (DECCW, 2011).
- AS IEC 61672.1-2004 Electroacoustics – Sound level meters – Specifications.
- AS 1055.1:1997 Acoustics – Description and Measurement of Environment Noise – General Procedures.
- AS 3580.14-2011 Methods for sampling and analysis of ambient air – Meteorological monitoring for ambient air quality monitoring applications.

An Environmental Management Strategy (EMS) (Umwelt, 2014) has been prepared for Mackas Sand and provides the strategic context for the environmental management of the operation.

### 1.3.1 Project Approval

A detailed list of the PA 08\_142 (as modified) conditions and the relevant Statement of Commitments outlined in the Project Approval, and where they are addressed in this document is included below in **Tables 1.1** and **1.2**.



**Table 1.1 Project Approval Conditions**

Conditions		Addressed in Section																																								
<p>Schedule 3 – Environmental Performance Conditions Impact Assessment Criteria</p>																																										
4.	<p>The Proponent shall ensure that the noise generated by the project, except for noise generated by the use of the Alternate access road, does not exceed the noise impact assessment criteria in Table 1.</p> <p><i>Table 1: Noise impact assessment criteria dB(A) L<sub>Aeq</sub> (15min)</i></p> <table border="1"> <thead> <tr> <th>Day</th> <th>Evening</th> <th>Night</th> <th>Night (L<sub>A1</sub> (1 min))</th> <th>Location</th> </tr> </thead> <tbody> <tr> <td>39</td> <td>39</td> <td>40</td> <td>45</td> <td>R18 – 300 Nelson Bay Road</td> </tr> <tr> <td>39</td> <td>39</td> <td>39</td> <td>45</td> <td>R1 – Lavis Lane residence</td> </tr> <tr> <td>36</td> <td>36</td> <td>37</td> <td>45</td> <td>R19 – 316 Nelson Bay Road</td> </tr> <tr> <td>36</td> <td>36</td> <td>35</td> <td>45</td> <td>R26 – Residence opp. Oakdale Farm</td> </tr> <tr> <td>36</td> <td>35</td> <td>35</td> <td>45</td> <td>R27 – Hufnagl residence</td> </tr> <tr> <td>35</td> <td>35</td> <td>36</td> <td>45</td> <td>R17 – 287 Nelson Bay Road</td> </tr> <tr> <td>35</td> <td>35</td> <td>35</td> <td>45</td> <td>All other residences</td> </tr> </tbody> </table> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>To interpret the locations referred to Table 1, see the figure in Appendix 3.</li> <li>Noise generated by the project is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy.</li> <li>The noise limits 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 in writing of the terms of this agreement.</li> </ul>	Day	Evening	Night	Night (L <sub>A1</sub> (1 min))	Location	39	39	40	45	R18 – 300 Nelson Bay Road	39	39	39	45	R1 – Lavis Lane residence	36	36	37	45	R19 – 316 Nelson Bay Road	36	36	35	45	R26 – Residence opp. Oakdale Farm	36	35	35	45	R27 – Hufnagl residence	35	35	36	45	R17 – 287 Nelson Bay Road	35	35	35	45	All other residences	Section 2.1
Day	Evening	Night	Night (L <sub>A1</sub> (1 min))	Location																																						
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35	35	36	45	R17 – 287 Nelson Bay Road																																						
35	35	35	45	All other residences																																						
<p>Schedule 3 – Environmental Performance Conditions Impact Assessment Criteria – Alternate Access Road to Lot 218</p>																																										
4A.	<p>The Proponent shall ensure that the noise generated by the use of the Alternate access road does not exceed the noise impact assessment criteria in Table 1A.</p> <p><i>Table 1A: Alternate access road noise impact assessment criteria dB(A) L<sub>Aeq</sub> (15min)</i></p> <table border="1"> <thead> <tr> <th>Shoulder</th> <th>Day</th> <th>Evening</th> <th>Location</th> </tr> </thead> <tbody> <tr> <td>38</td> <td>40</td> <td>40</td> <td>2344 Nelson Bay Road</td> </tr> <tr> <td>39</td> <td>41</td> <td>41</td> <td>2353 Nelson Bay Road</td> </tr> <tr> <td>36</td> <td>38</td> <td>38</td> <td>2367 Nelson Bay Road</td> </tr> <tr> <td>38</td> <td>40</td> <td>40</td> <td>2368 Nelson Bay Road</td> </tr> <tr> <td>35</td> <td>35</td> <td>35</td> <td>All other residences</td> </tr> </tbody> </table> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>To interpret the locations referred to Table 1A, see the figure in Appendix 3.</li> <li>Noise generated by the project is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy.</li> <li>The noise limits 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 in writing of the terms of this agreement.</li> </ul>	Shoulder	Day	Evening	Location	38	40	40	2344 Nelson Bay Road	39	41	41	2353 Nelson Bay Road	36	38	38	2367 Nelson Bay Road	38	40	40	2368 Nelson Bay Road	35	35	35	All other residences	Section 2.1																
Shoulder	Day	Evening	Location																																							
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39	41	41	2353 Nelson Bay Road																																							
36	38	38	2367 Nelson Bay Road																																							
38	40	40	2368 Nelson Bay Road																																							
35	35	35	All other residences																																							

Conditions	Addressed in Section								
<b>Schedule 3 – Environmental Performance Conditions</b> <b>Operating Conditions</b>									
<p>4B. The Proponent shall ensure, for the use of the Alternate access road, that:</p> <ul style="list-style-type: none"> <li>(a) a speed limit of 40 km/hour is applied and enforced for all vehicles;</li> <li>(b) trucks slowing to use the intersection of the access road and Nelson Bay Road do not use engine or compression braking systems;</li> <li>(c) laden truck movements exiting the site do not exceed 14/hour during the period from 5 am to 6 am, Monday to Friday (except for Public Holidays);</li> <li>(d) laden truck movements exiting the site do not exceed 8 per hour during the period from 6 am to 9 am, Monday to Friday (except for Public Holidays);</li> <li>(e) laden truck movements exiting the site do not exceed 24 per hour during the period from 9 am to 10 pm, Monday to Friday (except for Public Holidays);</li> <li>(f) laden truck movements exiting the site do not exceed 5 per hour between 5 am and 6 am on Saturdays (except for Public Holidays);</li> <li>(g) laden truck movements exiting the site do not exceed 9 per hour between 6 am and 7 am on Saturdays (except for Public Holidays);</li> <li>(h) laden truck movements exiting the site do not exceed 24 per hour between 7 am and 4 pm on Saturdays (except for Public Holidays); and</li> <li>(i) combined laden truck movements exiting from Lots 218 and 220 do not exceed 10 per hour in total on Sundays and Public Holidays.</li> </ul> <p><i>Note: In this condition, “per hour” means within any period of 60 minutes following the change of hour.</i></p>	<p><b>Section 3.2</b></p>								
<b>Schedule 3 – Environmental Performance Conditions</b> <b>Land Acquisition Criteria</b>									
<p>5. If the noise generated by the project exceeds the criteria in Table 2 below, the Proponent shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in conditions 6-8 of schedule 4.</p> <p><i>Table 2: Land acquisition criteria dB(A) L<sub>Aeq</sub> (15min)</i></p> <table border="1" data-bbox="300 1489 807 1599"> <thead> <tr> <th><b>Night</b></th> <th><b>Land</b></th> </tr> </thead> <tbody> <tr> <td>42</td> <td>R1 to R4</td> </tr> <tr> <td>41</td> <td>R20 to R23</td> </tr> <tr> <td>40</td> <td>All other residences</td> </tr> </tbody> </table> <p><i>Note: The notes under Table 1 apply equally to Table 2.</i></p>	<b>Night</b>	<b>Land</b>	42	R1 to R4	41	R20 to R23	40	All other residences	<p><b>Section 2.2</b></p>
<b>Night</b>	<b>Land</b>								
42	R1 to R4								
41	R20 to R23								
40	All other residences								

Conditions	Addressed in Section									
<b>Schedule 3 – Environmental Performance Conditions</b> <b>Cumulative Noise Criteria</b>										
<p>6. The Proponent shall take all reasonable and feasible measures to ensure that the noise generated by the quarrying operations combined with the noise generated by other extractive industries does not exceed the following amenity criteria on any privately owned land, to the satisfaction of the Director-General:</p> <ul style="list-style-type: none"> <li>• LAeq(11 hour) 50 dB(A) – Day;</li> <li>• LAeq(4 hour) 45 dB(A) – Evening; and</li> <li>• LAeq(9 hour) 40 dB(A) – Night.</li> </ul> <p><i>Note: Cumulative noise is to be measured in accordance with the relevant procedures in the NSW Industrial Noise Policy.</i></p>	<p><b>Section 2.3</b></p>									
<b>Schedule 3 – Environmental Performance Conditions</b> <b>Traffic Noise Impact Assessment Criteria</b>										
<p>7. The Proponent shall take all reasonable and feasible measures to ensure that the traffic noise generated by the project does not exceed the traffic noise impact assessment criteria in Table 3 below.</p> <p><i>Table 3: Traffic noise impact assessment criteria dB(A)</i></p> <table border="1" data-bbox="296 891 1144 1003"> <thead> <tr> <th>Road</th> <th>Day/Evening</th> <th>Night - Shoulder</th> </tr> </thead> <tbody> <tr> <td>Lavis Lane, Oakvale Road</td> <td>60 LAeq (1 hour)</td> <td>55 LAeq (1 hour)</td> </tr> <tr> <td>Nelson Bay Road</td> <td>60 LAeq (15 hour)</td> <td>55 LAeq (2 hour)</td> </tr> </tbody> </table> <p><i>Note: Traffic noise generated by the project is to be measured in accordance with the relevant procedures in EPA’s Road Noise Policy.</i></p>	Road	Day/Evening	Night - Shoulder	Lavis Lane, Oakvale Road	60 LAeq (1 hour)	55 LAeq (1 hour)	Nelson Bay Road	60 LAeq (15 hour)	55 LAeq (2 hour)	<p><b>Section 2.4</b></p>
Road	Day/Evening	Night - Shoulder								
Lavis Lane, Oakvale Road	60 LAeq (1 hour)	55 LAeq (1 hour)								
Nelson Bay Road	60 LAeq (15 hour)	55 LAeq (2 hour)								
<b>Schedule 3 – Environmental Performance Conditions</b> <b>Additional Noise Mitigation Measures</b>										
<p>8. Upon receiving a written request from:</p> <ul style="list-style-type: none"> <li>• the owner of residence R1, if the residence is habitable in the opinion of the Secretary; or</li> <li>• the owner of any residence where operational noise monitoring shows the noise generated by the project at night is greater than or equal to: <ul style="list-style-type: none"> <li>▪ 40 dB(A) LAeq(15 minute) for residences R1 to R4;</li> <li>▪ 39 dB(A) LAeq(15 minute) for residences R20 to R23; and</li> <li>▪ 38 dB(A) LAeq(15 minute) for all other privately-owned residences.</li> <li>▪ The Proponent shall implement additional noise mitigation measures such as double glazing, insulation, and/or air conditioning at the residence in consultation with the landowner.</li> </ul> </li> </ul> <p>These additional mitigation measures must be reasonable and feasible. If within 3 months of receiving this request from the landowner, the Proponent 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 for resolution.</p> <p><i>Notes:</i></p> <ul style="list-style-type: none"> <li>• <i>To interpret the locations referred to in this condition, see the figure in Appendix 3.</i></li> <li>• <i>The noise limits 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 in writing of the terms of this agreement.</i></li> </ul>	<p><b>Section 2.5</b></p>									

Conditions	Addressed in Section
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**Schedule 3 – Environmental Performance Conditions**  
**Operating Hours**

9. The Proponent shall comply with the operating hours in Table 4 below.

**Section 1.1**

*Table 4: Operating hours*

<b>Activity</b>	<b>Day</b>	<b>Time</b>
Quarrying Operations (other than transportation)	Any day	Any time
Quarrying Operations on Lot 220 (other than transportation), when operating less than 250 metres from residence R27	Monday – Friday	7.00am to 6.00pm
	Weekends and Public Holidays	None
Transportation	Monday – Friday	6.00am to 6.00pm (EST) 6.00am to 7.00pm (DST)
	Saturday	7.00am to 4.00pm
	Sunday and Public Holidays	None

However, the Proponent may undertake:

- (a) quarrying operations within 250 m of residence R27 if the Proponent has an agreement with the owner of the residence to extend the hours of operation; and/or
- (b) transportation outside the hours in Table 4, to a maximum of 5.00am to 10.00pm Monday to Saturday, and 8.00am to 12.00pm on Sundays and public holidays, if the Proponent has agreements to extend the hours of transportation with the following:
  - all owners of privately owned land with frontage to Lavis Lane (between the site and Nelson Bay Road), for transportation from Lot 218 the using Lavis Lane access road; and/or
  - all owners of 2344, 2353 and 2368 Nelson Bay Road, for transportation from Lot 218 using the Alternate access road; and/or
  - all owners of privately owned land with frontage to Oakvale Road (between the site and Nelson Bay Road), for transportation to Lot 220, and
  - the Proponent has advised the Department in writing of the terms of these agreements.

**Notes:**

- *To interpret the residence location referred to in this condition; see the figure in Appendix 3.*
- *For the purposes of this condition, transportation includes all laden and unladen truck movements on site access roads, Lavis Lane, the Alternate access road and Oakvale Road.*
- *Transportation is further restricted under condition 32 below.*
- *Maintenance activities may be conducted outside the hours in Table 4 provided that the activities are not audible at any privately-owned residence.*
- *This condition does not apply to delivery of material if that delivery is required by police or other authorities for safety reasons, and/or the operation or personnel or equipment are endangered. In such circumstances, notification is to be provided to EPA and the affected residents as soon as possible, or within a reasonable period in the case of emergency.*

Conditions		Addressed in Section
<b>Schedule 3 – Environmental Performance Conditions</b>		
<b>Noise Monitoring</b>		
10.	<p>The Proponent shall prepare a Noise Management Plan for the project to the satisfaction of the Secretary. This plan must:</p> <ul style="list-style-type: none"> <li>(a) be prepared in consultation with EPA, and be submitted to the Secretary for approval within 3 months of the date of this approval;</li> <li>(b) include: <ul style="list-style-type: none"> <li>• a description of the measures that would be implemented to minimise noise emissions from the project, with particular focus on: <ul style="list-style-type: none"> <li>▪ quarrying operations within 250 metres of residences on privately-owned land;</li> <li>▪ transportation activities; and</li> <li>▪ continual improvement of noise performance</li> </ul> </li> <li>• a noise monitoring protocol for evaluating compliance with the relevant noise limits in this approval (including traffic noise)</li> <li>• a protocol for the investigation, notification and mitigation of identified exceedances of the relevant noise limits; and</li> <li>• a continual improvement program for investigation, implementing and reporting on reasonable and feasible measures to reduce noise generated by the project</li> </ul> </li> </ul> <p>The Proponent shall implement the approved management plan as approved from time to time by the Secretary.</p>	<p><b>Sections 3.0, 3.1, 3.2 and 3.3</b></p> <p><b>Section 4.0</b></p> <p><b>Section 5.3</b></p> <p><b>Section 3.3</b></p>
<b>Schedule 3 – Environmental Performance Conditions</b>		
<b>Traffic Restrictions</b>		
32.	<p>The Proponent shall restrict truck movements (in plus out) on Lavis Lane and Oakvale Road to a maximum of 10 per hour during the night time period and on Sundays and public holidays, unless otherwise approved by the Secretary.</p> <p><i>Note: The Secretary may consider allowing additional truck movements if the Proponent has agreements with residents on Lavis Lane and Oakvale Road, as described in condition 9 above.</i></p>	<b>Section 2.4</b>

**Table 1.2 Statement of Commitments**

Conditions		Addressed in Section
1.6.1	<p>An Operational Noise Management Plan will be developed for the proposal and implemented prior to sand extraction commencing. The plan will incorporate a noise monitoring program to monitor noise emissions and determine compliance with the project specific noise goals. The plan will include specific measures to monitor and address potential noise impacts at residential receiver R27 (Hufnagl Residence).</p>	<b>This document</b>
1.6.2	<p>No sand extraction will be undertaken within 250 m of receiver R27 during evening and night periods unless agreement is reached with the landholder.</p>	<b>Section 3.1</b>
1.6.3	<p>A Traffic Noise Management Plan will be developed and implemented for truck movements on the private haul road from Lot 220. The Plan will focus on but not be limited to truck movements between the hours of 5.00 am and 7.00 pm.</p>	<b>Section 3.2</b>

### 1.3.2 Environment Protection Licence

Noise monitoring at Mackas Sand will be undertaken in accordance with the conditions of EPL 13218. The EPL was issued on 30 November 2009 for sand extraction operations on Lot 218 and Lot 220 Salt Ash.

A full list of the EPL conditions relating to noise limits and an indication of where they are addressed within this document are included in **Table 1.3**.

**Table 1.3 Environment Protection Licence Conditions**

Conditions		Addressed in Section																									
L3.1	<p>Noise from the premises must not exceed the limits specified in the following table:</p> <table border="1" data-bbox="331 663 1129 920"> <thead> <tr> <th>Location</th> <th>Limit dBA LAeq(15 minute) Day</th> <th>Limit dBA LAeq(15 minute) Evening</th> <th>Limit dBA LAeq(15 minute) Night</th> <th>Limit dBA LA1(1 minute) Night</th> </tr> </thead> <tbody> <tr> <td>Residences north of the private haul road servicing the premises</td> <td></td> <td>40</td> <td>40</td> <td>45</td> </tr> <tr> <td>Residence R27</td> <td>36</td> <td>36</td> <td>35</td> <td>45</td> </tr> <tr> <td>Residences R1, R2, R3, R4, R5, R6, R7 and R8</td> <td>39</td> <td>39</td> <td>39</td> <td>45</td> </tr> <tr> <td>All other residences</td> <td></td> <td>36</td> <td>35</td> <td>45</td> </tr> </tbody> </table>	Location	Limit dBA LAeq(15 minute) Day	Limit dBA LAeq(15 minute) Evening	Limit dBA LAeq(15 minute) Night	Limit dBA LA1(1 minute) Night	Residences north of the private haul road servicing the premises		40	40	45	Residence R27	36	36	35	45	Residences R1, R2, R3, R4, R5, R6, R7 and R8	39	39	39	45	All other residences		36	35	45	<b>Section 2.6</b>
Location	Limit dBA LAeq(15 minute) Day	Limit dBA LAeq(15 minute) Evening	Limit dBA LAeq(15 minute) Night	Limit dBA LA1(1 minute) Night																							
Residences north of the private haul road servicing the premises		40	40	45																							
Residence R27	36	36	35	45																							
Residences R1, R2, R3, R4, R5, R6, R7 and R8	39	39	39	45																							
All other residences		36	35	45																							
L3.2	<p>For the purposes of the table above:</p> <ol style="list-style-type: none"> <li>Where LAeq means the equivalent noise level – the level of noise equivalent to the energy average of noise levels occurring over a measurement period.</li> <li>Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sunday and Public Holidays.</li> <li>Evening is defined as the period 6pm to 10pm.</li> <li>Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8 am Sunday and Public Holidays.</li> <li>Residence locations are shown on Figure 4.4 of the report “Environmental Assessment – Sand Extraction Operations from Lot 218 and Lot 220, Salt Ash”. A copy of which has been filed on EPA file LIC08/1532.</li> </ol>	<b>Section 4.0</b>																									
L3.3	<p>The noise limits set out in the licence apply under all meteorological conditions except for the following:</p> <ol style="list-style-type: none"> <li>Wind speeds greater than 3 m/second at 10 m above ground level; or</li> <li>Stability category F temperature inversion conditions and wind speeds greater than 2 m/second at 10 m above ground level; or</li> <li>Stability category G temperature inversion conditions.</li> </ol>	<b>Section 4.0</b>																									
L3.4	<p>For the purposes of determining meteorological conditions:</p> <ol style="list-style-type: none"> <li>Data recorded by the meteorological station identified as Bureau of Meteorology (BOM) Williamtown Weather Station (station 061078) must be used; and</li> <li>Temperature inversion conditions (stability category) are to be determined by the sigma theta method referred to in Part E2 of Appendix E to the NSW Industrial Noise Policy.</li> </ol>	<b>Section 4.0</b>																									

Conditions	Addressed in Section
<p>L3.5</p> <p>To determine compliance:</p> <ul style="list-style-type: none"> <li>a) With the Leq(15 minute) noise limits detailed in this licence, the noise measurement equipment must be located: <ul style="list-style-type: none"> <li>▪ Approximately on the property boundary, where any dwelling is situated 30 m or less from the property boundary closest to the premises; or</li> <li>▪ Within 30 m of a dwelling facade, but not closer than 3 m, where any dwelling on the property is situated more than 30 m from the property boundary closest to the premises; or, where applicable</li> <li>▪ Within approximately 50 m of the boundary of a National Park or a Nature Reserve.</li> </ul> </li> <li>b) With the LA1(1minute) noise limits detailed in the licence, the noise measurement equipment must be located within 1 m of a dwelling facade.</li> <li>c) With the noise limits detailed in the licence, the noise measurement equipment must be located: <ul 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 (a) or (b) of this licence condition.</li> </ul> </li> </ul>	<p><b>Section 4.0</b></p>
<p>L3.6</p> <p>For the purpose of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy, January 2000, must be applied as appropriate, to the noise levels measured by the noise monitoring equipment.</p> <p>Note: Development Consent 08_0142 requires additional noise mitigation measure and land acquisition where certain criteria cannot be met.</p>	<p><b>Section 4.3.1</b></p>
<p>O2.1</p> <p>All plant and equipment installed at the premises or used in connection with the licensed activity:</p> <ul style="list-style-type: none"> <li>a) must be maintained in a proper and efficient condition; and</li> <li>b) must be operated in a proper and efficient manner.</li> </ul>	<p><b>Section 3.0</b></p>
<p>O4.1</p> <p>There must be no extraction equipment operated within 250 m of residence R27, as shown in 'Figure 4.4 Residential Receivers and Noise Logger Locations' of the Environmental Assessment, during evening and night periods unless agreement is reached with the landholder.</p>	<p><b>Section 3.0</b></p>
<p>O4.2</p> <p>Prior to sand extraction occurring within 250 m of Residence R27 as shown in 'Figure 4.4 Residential Receivers and Noise Logger Locations' of the Environmental Assessment, a NMP that specifically addresses noise controls to achieve compliance with the noise limits for R27, must be prepared and approved by EPA.</p> <p>Note: Specific controls were detailed in the Environmental Assessment when extraction works are conducted within 250 m of residence R27.</p>	<p><b>NA</b></p>

Conditions	Addressed in Section
<p>O4.3</p> <p>Prior to activities commencing on site the proponent must develop and implement a Traffic Noise Management Plan (TNMP). The TNMP must include, but need not be limited to, particular focus on truck movements on the private access road between the hours of 5am and 7am to ensure that the licence noise limit is not exceeded:</p> <ul style="list-style-type: none"> <li>• truck speed limits;</li> <li>• maintenance of the road in good conditions free of potholes, corrugations and other features causing generation of excessive noise;</li> <li>• use of quietest available trucks that meet operational requirements;</li> <li>• driver training; and</li> <li>• conditions in driver’s contracts of employment requiring them to minimise noise generation; abide by the speed limits and other reasonable instructions to minimise noise, together with a system of sanctions for non-compliance.</li> </ul>	<p><b>Section 3.2</b></p>
<p>M4.1</p> <p>The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which the licence applies.</p>	<p><b>Section 5.2</b></p>
<p>M5.1</p> <p>The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant unless otherwise specified in the licence.</p>	<p><b>Section 5.2</b></p>
<p>M5.2</p> <p>The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.</p>	<p><b>Section 5.2</b></p>
<p>M6.1</p> <p>To assess compliance with the noise limits of this licence, attended noise monitoring must be undertaken in accordance with limit requirements of this licence:</p> <ol style="list-style-type: none"> <li>a) at the locations listed in the noise limit conditions of this licence;</li> <li>b) occur annually in a reporting period;</li> <li>c) occur during the time of year when noise propagation from the premises is likely to be its worst, that is, generally winter conditions; and</li> <li>d) occur during each day, evening and night period as defined by the NSW Industrial Noise Policy.</li> </ol> <p>Note: It is the intention of the EPA to review the noise monitoring results required under this condition after a period of 3 years to assess the suitability of the required noise monitoring.</p>	<p><b>Section 4.0</b></p>
<p>R4.1</p> <p>A noise compliance assessment report must be submitted to the EPA within 30 days of the completion of the yearly monitoring. The assessment must be prepared by a suitability qualified and experienced acoustical consultant and include:</p> <ol style="list-style-type: none"> <li>a) an assessment of compliance with the noise limits detailed in this licence; and</li> <li>b) an outline of any management actions taken within the monitoring period to address any exceedances of the limits contained in this licence.</li> </ol>	<p><b>Section 5.1</b></p>



### 1.3.3 Stakeholder Consultation Regarding this Document

This Plan was first submitted to the Department of Planning (now the Department of Planning & Environment (DPE)) on 21 December 2009. Previous revisions of the NMP were provided to EPA concurrently with DPE. Mackas Sand invited EPA to comment on this revision of the NMP. EPA declined to comment in a letter dated 31 October 2017. A copy of their correspondence is provided in **Appendix 1**.

## 1.4 Roles and Responsibilities

The Quarry Manager will be responsible for ensuring that the development is undertaken in accordance with the requirements of PA 08\_142 (MOD2) and EPL 13218. Responsibilities in relation to noise management and monitoring are outlined in **Table 1.4**.

**Table 1.4 Role and Responsibilities**

Role	Responsibilities
<b>Quarry Manager</b>	<ul style="list-style-type: none"> <li>• provide that sufficient resources are allocated for the implementation of this NMP</li> <li>• ensure that noise impacts are considered when infrastructure or extraction planning changes</li> <li>• ensure strategies to reduce noise impacts for the operation are effectively implemented</li> <li>• ensure that the outcomes of monitoring are systematically evaluated</li> <li>• ensure noise management measures are implemented and maintained</li> <li>• authorise internal and external reporting requirements as well as subsequent revisions of this program</li> <li>• ensure that the plan is relevant to current operations</li> <li>• update monitoring data on the Mackas Sand website</li> <li>• coordinate incident investigation processes including associated reporting requirements and the implementation of corrective actions and evaluate their effectiveness</li> <li>• ensure that all personnel are aware of noise management obligations.</li> </ul>
<b>All employees and contractors</b>	<ul style="list-style-type: none"> <li>• undertake all activities in accordance with this NMP</li> <li>• undertake the compulsory site induction.</li> </ul>

## 2.0 Noise Assessment Criteria

Noise assessment criteria for Mackas Sand have been derived from PA 08\_142 (MOD2) conditions and Statement of Commitments in the EA (Umwelt, 2012) and EPL 13218. The noise assessment criteria are specified for day, evening and night-time periods at locations which are considered to be representative of residences potentially impacted by Mackas Sand.

### 2.1 Impact Assessment Criteria for Extraction Operations

The Project Approval conditions, including the noise impact assessment criteria are provided in **Table 2.1**. The noise impact assessment criteria for the alternate access route to Lot 218 are provided in **Table 2.2** with consideration of the notes within Condition 4A and Condition 8 listed within **Table 1.1**.

**Table 2.1 Noise Impact Assessment Criteria, dB(A)**

Location	Day LAeq, 15 min	Evening LAeq, 15 min	Night LAeq, 15 min	Night LA1, 1 min	Written Agreement Obtained
R18 – 300 Nelson Bay Road	39	39	40	45	No
R1 – Lavis Lane residence	39	39	39	45	No
R19 – 316 Nelson Bay Road	36	36	37	45	No
R26 – Residence opp. Oakvale Farm	36	36	35	45	No
R27 – Hufnagl Residence	36	35	35	45	No
R17 – 287 Nelson Bay Road	35	35	36	45	No
All other residences	35	35	35	45	No

Note: R1 Lavis Lane residence is an uninhabitable structure as identified in Mackas Sand Project Environmental Assessment (EA) (2009). Mackas Sand will liaise with the landowner should R1 become habitable.

**Table 2.2 Noise Impact Assessment Criteria – Alternate Access to Lot 218, dB(A)**

Location	Day LAeq, 15 min	Evening LAeq, 15 min	Shoulder LAeq, 15 min	Written Agreement Obtained
2344 Nelson Bay Road	40	40	38	Yes
2353 Nelson Bay Road	41	41	39	Yes
2367 Nelson Bay Road	38	38	36	Yes
2368 Nelson Bay Road	40	40	38	Yes
All other residences	35	35	35	No

The monitoring program, designed to assess compliance with these criteria, and prepared in accordance with the INP (EPA, 2000) is outlined in **Section 4.0**. Noise agreements were obtained from residents at 2344, 2353, 2367 and 2368 Nelson Bay Rd in April 2015 to generate higher noise levels. In accordance with Schedule 3 Condition 4A of PA 08\_0142, Mackas Sand advised DPE in writing of the noise agreements 30 April 2015.

## 2.2 Land Acquisition Criteria

The Project Approval Conditions relating to land acquisition are provided in **Table 2.3**. If the noise generated by the operation of Mackas Sand exceeds the land acquisition criteria at any privately-owned residence, Mackas Sand will follow the acquisition process outlined in **Section 4.5**.

**Table 2.3 Land Acquisition Criteria, dB(A)**

Property Location	Night LAeq, 15 min
R1 to R4	42
R20 to R23	41
All other privately-owned residences	40

## 2.3 Cumulative Noise Criteria

The Proponent shall take all reasonable and feasible measures to ensure that the noise generated by the quarrying operations combined with the noise generated by other extractive industries does not exceed the amenity criteria on any privately-owned land, to the satisfaction of the Secretary:

- LAeq(11 hour) 50 dB(A) – Day
- LAeq(4 hour) 45 dB(A) – Evening
- LAeq(9 hour) 40 dB(A) – Night.

Cumulative noise is to be measured in accordance with the relevant procedures in the NSW Industrial Noise Policy.

## 2.4 Traffic Noise Impact Assessment Criteria

The Project Approval Conditions relating to road traffic noise generated by quarry operations are provided in **Table 2.4**.

**Table 2.4 Traffic Noise Impact Assessment Criteria, dB(A)**

Road	Day/Evening	Night - Shoulder
Lavis Lane, Oakvale Drive	60 LAeq (1 hour)	55 LAeq (1 hour)
Nelson Bay Road	60 LAeq (15 hour)	55 LAeq (9 hour)

Condition 32 of Schedule 3 of the Project Approval requires Mackas Sand to restrict truck movements (in plus out) on Lavis Lane and Oakvale Drive to a maximum of 10 per hour during the night time period and on Sundays and public holidays, unless otherwise approved by the Secretary.

Condition 32 notes that the Secretary may consider allowing additional truck movements if the Proponent has agreements with residents on Lavis Lane and Oakvale Road. Agreements have been obtained from all relevant residents along Oakvale Drive and relevant residents near the approved intersection to the Alternate Access Road on Nelson Bay Road. Following the approval of MOD 1 which relates to the Alternate Access Haul Road, Mackas Sand committed not to using Lavis Lane for operational purposes. No agreements have been or are proposed to be sought from the residents on Lavis Lane.

If the traffic noise generated by the operation of Mackas Sand exceeds the traffic noise criteria at any privately-owned residence that does not have a written agreement, Mackas Sand will develop preventative/corrective actions in accordance with **Section 5.3**.

## 2.5 Additional Noise Mitigation Criteria

The Project Approval conditions relating to additional noise mitigation are provided in **Table 2.5**. Further information regarding additional mitigation measures is outlined in **Section 4.3.1**.

**Table 2.5 Additional Noise Mitigation Criteria, dB(A)**

Property Location	Night LAeq, 15 min
Residences R2 to R4 and R1*	40
Residences R20 to R23	39
All other privately-owned residences	38

\* If the residence is habitable in the opinion of the Secretary.

## 2.6 EPL Criteria

Additionally, EPL 13218 for sand extraction operations on Lot 218 and Lot 220 Salt Ash, requires that noise from the premises must not exceed the limits specified in **Table 2.6**.

**Table 2.6 EPL 13218 Condition L3.1 Noise Limits, dB(A)**

Location	Day LAeq, 15 min	Evening LAeq, 15 min	Night LAeq, 15 min	Night LA1, 1 min
Residences north of private haul road servicing Lot 220	-	40	40	45
Residence R27	36	36	35	45
Residences R1, R2, R3, R4, R5, R6, R7 and R8.	39	39	39	45
All other residences	-	36	35	45

## 3.0 Noise Management Controls

In order to minimise noise emissions, Mackas Sand is committed to implementing a range of controls which have been developed for different phases of the operation. These controls are detailed in **Sections 3.1** and **3.2** below.

### 3.1 Operational Controls

Mackas Sand is committed to implementing and/or maintaining the following operational controls to manage noise generation:

- controlling noise at the source through the use of equipment with appropriate sound attenuation fitted, where practical
- maintaining quarrying equipment to high standards to ensure high availability and to meet noise emission criteria
- ensuring all new mobile equipment is procured against a specification for noise emission to meet noise criteria at the nearest private residences for total operations
- no sand extraction will be undertaken within 250 m of receiver R27 during evening and night periods unless agreement is reached with the landholder
- conducting noise management training with relevant personnel and completion of regular tool-box talks to enforce the importance of noise mitigation
- undertaking the process of change management when operations change, including quarrying in new areas or when quarrying equipment changes (refer to **Section 3.6**).

Additional controls relating to traffic management are outlined in **Section 3.2**.

### 3.2 Traffic Management

Noise emissions generated by haul trucks movements can be present in the form of:

- vibration caused by excessive speed and deterioration of roads caused by heavy loads
- excessive engine noise caused poorly maintained or old vehicles
- engine braking of haul trucks.

To minimise road traffic noise impacts, Mackas Sand has implemented the following TNMP as required by Condition O4.3 of EPL 13218. Mackas Sand is committed to implementing and maintaining the following controls to manage noise generation:

- All trucks used to remove extracted sand from Lot 218 and Lot 220 will be modern and preferably the Best Available Technology Economically Achievable (BATEA). This will reduce engine noise and vibrations associated with older machinery.
- Mackas Sand has written agreements in regard to traffic noise and hours of operations with landholders adjacent to Oakvale Drive and the corresponding private haul road utilised by Lot 220 sand extraction operations.

- Mackas Sand has written agreements in regard to traffic noise and hours of operations with landholders adjacent to the intersection to the alternate access road to Lot 218 sand extraction operations.
- Bitumen sealing of internal haul roads at Lot 218 and Lot 220.
- Truck speed on the private haul road off Oakvale Drive is limited to 20 km/h and the use of exhaust brakes limited is prohibited by Mackas Sand Quarry Traffic Rules.
- Truck speed on the Alternate access road to Lot 218 limited to 40 km/h.
- The Alternate Access Road closest to Nelson Bay Road will be regularly maintained and repair any potholes or bumps that may occur.
- All trucks transporting sand from Lot 218 and Lot 220 are to be regularly maintained
- Mackas Sand has prepared a Drivers' Code of Conduct which details management measures relating to hauling operations and speed limits on Lots 218 and 220 to be adhered to by drivers of all project-related vehicles. Management measures include minimising truck noise impacts to residences.
- Truck drivers will be suitably trained and informed as to the requirements for noise prevention under EPL 13218. This is included within driver contracts, where practicable. A system of sanctions for non-compliance is in place if exceedances due to driver fault are a regular occurrence.

### **3.3 Continuous Improvement**

Where practicable, Mackas Sand will implement all reasonable and feasible best practice noise mitigation measures. The basis for continuous improvement of noise mitigation measures will be through the ongoing monitoring of noise impacts and the corrective/preventative action process.

Following the commencement of extraction operations at Lot 220, the following continuous improvement actions have been undertaken following performance monitoring events:

- installation of conveyor belt beneath the cattle grate at the access to Lot 220 to minimise truck noise on entry and exit from the site
- installation of conveyor belt on the tail gates of dump trucks to minimise operational noise
- sealing of all road surfaces associated with off-site haulage to minimise vehicle noise
- training refreshers provided to drivers as required when issues are identified.

It is noted that future noise-compliance monitoring will aim to be conducted during periods where there is minimal noise contribution from military aircraft operations. Air Force jet aircraft undertake bombing run sorties at the Williamstown RAAF situated north of the site and significantly influence measured noise levels.

### **3.4 Change Management**

When change is considered to have an impact on the objectives of the NMP, the process below must be followed:

- identify the change
- assess the potential risks associated with the change and develop a risk management plan

- approve the change subject to the risk management plan
- communicate and implement the change and risk management actions.

### **3.5 Training**

To ensure the effective implementation of this NMP, all Mackas Sand personnel and contractors working on the site (i.e. not truck drivers) will undertake an induction which outlines environmental awareness including the importance of noise management at the Mackas Sand site.

## 4.0 Noise Monitoring Methodology

### 4.1 Monitoring Standards

Noise monitoring will be undertaken in accordance with the relevant Australian Standards and OEH approved methods for sampling including:

- AS1055-1997 Acoustics - Description and Measurement of Environment Noise – General Procedures
- AS2702-1984 Acoustics - Methods for the Measurement of Road Traffic Noise
- AS IEC 61672.1 – 2004 - Electroacoustics – Sound Level Meters
- NSW Industrial Noise Policy (EPA, 2000).

All acoustic instrumentation used for monitoring under the Noise Monitoring Program shall comply with the requirements of AS 1259.2-1990 - Sound Level Meters and will have current NATA or manufacturer calibration certificates.

### 4.2 Noise Monitoring Program

Noise monitoring at Mackas Sand will be undertaken in accordance with the requirements of PA 08\_142 (as modified) and EPL 13218. Monitoring will be undertaken annually in accordance with EPL condition M6.1 at the locations outlined in **Table 4.1**.

Monitoring locations outlined in **Table 4.1** were selected to be representative of the nearest residential receivers in proximity to extractive and haulage operations at Mackas Sand. As identified in Section 4.7 of the MOD 1 Environmental Assessment, upon approval haul trucks would no longer drive along Lavis Lane and past residential receivers R3 and R4, effectively reducing the potential noise impacts of the development. Monitoring was therefore deemed not required along Lavis Lane and was reflected in previous revisions of this NMP.

All noise monitoring locations are shown on **Figure 4.1**. Ongoing monitoring will be undertaken on an annual basis during the winter months, until it is considered that maximum operations have been reached. Winter is generally when noise propagation from the premises is likely to be at its worst. 'Maximum operations' is defined on a per site basis, as annual extraction and transport of over 900,000 tonnes from either Lot 220 or Lot 218. If at that time it is shown that Mackas Sand can operate at maximum operations without exceeding compliance criteria discussed within **Section 2.0**, compliance monitoring will be undertaken in response to noise complaints, or otherwise in compliance with PA 08\_142 (MOD2) and EPL 13218, in consultation with DPE and EPA.

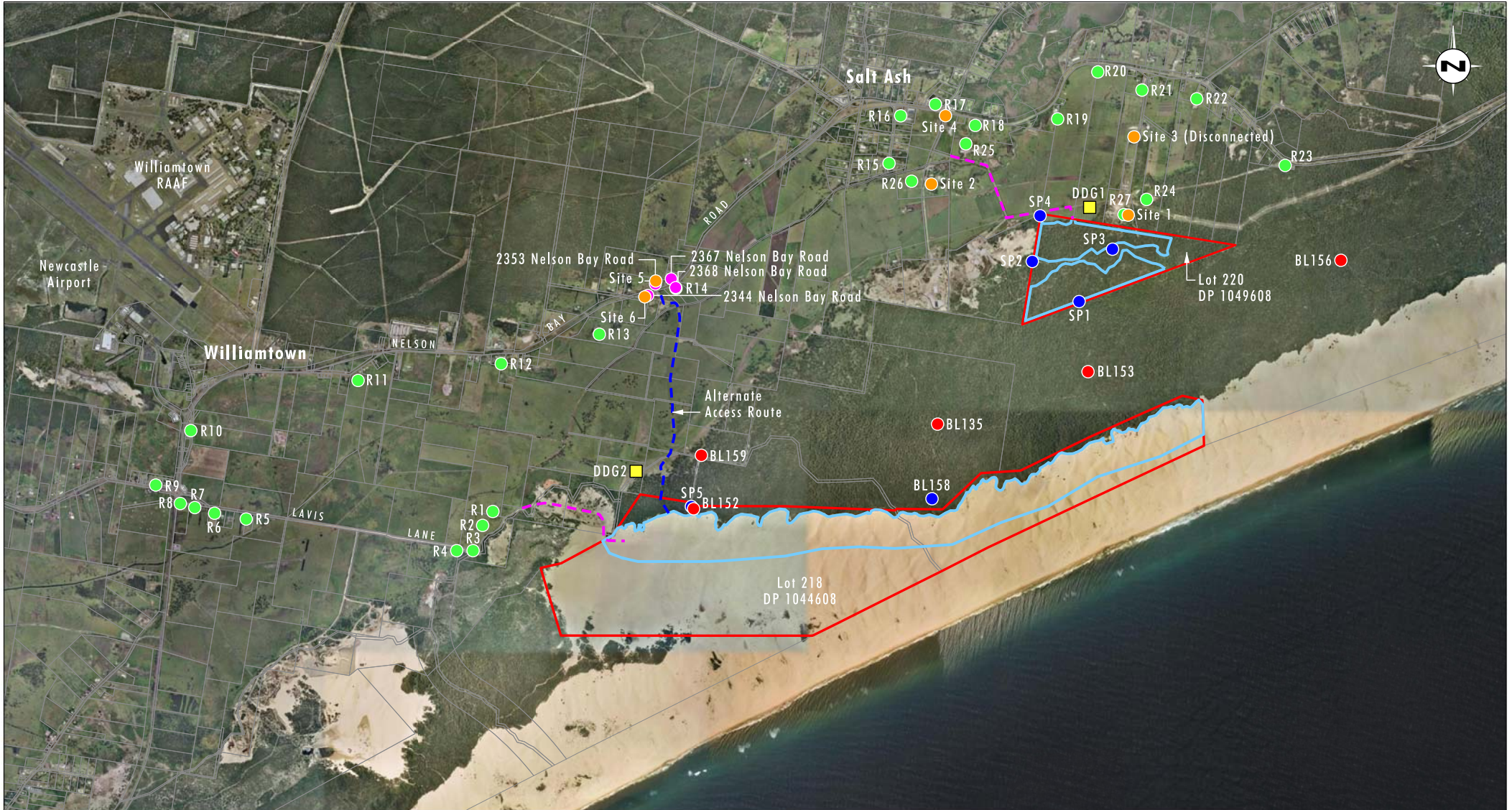
Additional performance monitoring will be undertaken up to quarterly if/as required by Mackas Sand as part of their continuous improvement policy.



**Table 4.1 Noise Monitoring Locations**

Monitoring Location*	Description
Site 1	<p>Private residence (Hufnagl residence, 10 Janet Parade, Salt Ash) MGA N = 6370639, MGA E = 399542</p> <p>Noise monitoring Site 1 is considered to be representative of the residential Receiver R27 (i.e. the Hufnagl residence at 10 Janet Parade, Salt Ash). R27 is the nearest residential receiver to the approved extraction boundary at Lot 220. If compliance at Site 1 is achieved, then by extrapolation it is assumed compliance at residential receivers further away is also achieved (e.g. R24).</p> <p>In such cases monitoring at more distant monitoring locations is not undertaken.</p> <p>As previously discussed with DPE (2014), compliance at Site 1 also infers compliance at Site 3 (discontinued) due to the greater distance from the operation. Site 3 previously representative of R19-R23.</p>
Site 2	<p>Private residence (6 Oakvale Drive, Salt Ash) MGA N = 6370830, MGA E = 397906</p> <p>Noise monitoring Site 2 is considered to be representative of the R15-R18 and R25-R26 cluster of residential receivers. These receivers are close to the sand extraction operations at Lot 220 and the associated haul road. Compliance at Site 2 infers compliance at each residential receiver in this cluster and also residential receivers located further from operations.</p>
Site 4 (Road Traffic Noise only)	<p>Private residence, Lot 2, DP 818198, 1 Oakvale Drive, Salt Ash (situated on the corner of Oakvale Drive and Nelson Bay Road) MGA N = 6371455, MGA E = 398102</p> <p>Noise monitoring at Site 4 (i.e. 1 Oakvale Drive, Salt Ash) is undertaken in accordance with Schedule 3 Condition 7 of PA 08_0142, Traffic Noise Impact Assessment Criteria.</p> <p>Noise monitoring Site 4 is considered to be representative of the residential receivers R17 (i.e. 2645 Nelson Bay Road, Salt Ash). Site 4 is used to assess compliance with traffic noise generated from the project on Oakvale Drive and Nelson Bay Road. Compliance at Site 4 infers compliance at residential receivers located further along Nelson Bay Road (i.e. R16) and Oakvale Drive (i.e. R25), as they are setback further from the road.</p> <p>Mackas Sand has advised DPE that a noise agreement with residences listed in Table 1A of PA 08_0142 was reached in April 2015.</p>
Site 5 (Road Traffic Noise only)	<p>Private residence (2353 Nelson Bay Road, Williamtown) MGA N = 395687, MGA E = 6370072)</p> <p>Noise monitoring Site 5 (i.e. 2353 Nelson Bay Road, Salt Ash) is undertaken in accordance with Schedule 3 Condition 7 of PA 08_0142, Traffic Noise Impact Assessment Criteria.</p> <p>Site 5 is located opposite the intersection of the Alternate Haul road with Nelson Bay Road.</p> <p>Noise monitoring at Site 5 is also considered to be representative of the residential receivers:</p> <ul style="list-style-type: none"> <li>• R14 (i.e. 2368 Nelson Bay Road, Salt Ash),</li> <li>• 2344 Nelson Bay Road, Salt Ash</li> <li>• 2367 Nelson Bay Road, Salt Ash</li> <li>• All other residences, given their proximity to one another, and</li> </ul> <p>Mackas Sand has advised DPE that a noise agreement with residences listed in Table 1A of PA 08_0142 was reached in April 2015.</p>
Site 6	<p>Private residence (2344 Nelson Bay Road, Williamtown) MGA N = 395656, MGA E = 6370035)</p> <p>Noise monitoring Site 6 (i.e. 2344 Nelson Bay Road, Williamtown) is considered to be representative of noise the noise levels received at Site 5 due to the similar offset distances from Nelson Bay Road.</p> <p>Therefore if compliance at Site 5 is achieved, then by extrapolation it is assumed that compliance at Site 6, which is setback further from the road is achieved and therefore monitoring at the more distant monitoring locations is not required.</p>

\*Note Monitoring at Site 3 was discontinued following discussions with DPE during 2014.



Source: Department of Lands (2003)

0 0.5 1 2 km  
1:45 000

**Legend**

- Lot Boundaries (218 & 220)
- Approval Area
- Approved Site Access
- Alternate Access Route
- Noise Monitoring Location
- Dust Monitoring Location
- EPL Groundwater Monitoring Location
- Hunter Water Groundwater Monitoring Location
- Residential Receivers
- Alternative Access Road Noise Receiver Location

FIGURE 4.1

Mackas Sand Monitoring Locations

## 4.2.1 Attended Noise Monitoring

Attended noise monitoring will be conducted annually in accordance with EPL 13218 and **Section 11** of the INP (EPA, 2000) to assess compliance with the impact assessment criteria outlined in **Table 2.1** and the EPL criteria outlined in **Table 2.6**. The attended noise monitoring will take the form of one or more 15-minute monitoring period at each monitoring location for the day-time, evening and night-time periods per monitoring session. The following information will be recorded for each attended monitoring survey, which will last for one or more 15-minute monitoring periods per monitoring location:

- operator's name
- locations of measurements
- height of the microphone above the ground and, if relevant, distances to building facades or property boundaries
- dates and times that monitoring began and ended at each location
- quantitative meteorological data (temperature, wind speed, wind direction and possibly humidity). All wind speed measurements need to state the height above ground at which the speed was measured. Because of the methodology of INP section 3.4, if any of the data in a 15-minute period are affected by rain or wind speeds in excess of 5 m/s then another entire 15-minute period of data unaffected by rain or excessive wind shall be undertaken
- qualitative meteorological information such as cloud cover, fog, rainfall or opinions as to the onset or breakup of temperature inversions should also be recorded
- statistical noise level descriptors over each 15-minute interval (Lmin, L90, L50, L10, L1, Lmax)
- the LAeq, 15 minute noise levels for each 15-minute period
- LA1, 1 minute noise levels (to allow comparison with the relevant sleep arousal criteria)
- notes identifying the noise source that could be heard for each peak (LA1 or LA, Max)
- notes identifying noise sources for periods of steady noise emissions when the LAeq level can be used to estimate the contribution from operations at the operations
- notes of operating conditions such as times of crib breaks or truck movements
- instrument calibration details before and after the monitoring period
- measurements in one-third octave bands from 25 Hz to 12 kHz inclusive (or a broader range of bands) for the 15-minute interval to assess if any of the noise sources exhibit tonal characteristics that require a modifying factor needs to be applied
- data suitable for assessing the relative contribution of Mackas Sand to the overall noise being measured by using a low-pass filter with a shoulder frequency of 630 or 1000 Hz.

## 4.2.2 Meteorological Monitoring

Meteorological information including prevailing wind direction, wind speed and frequency and occurrence of temperature inversions will be obtained from the BOM weather station at Williamstown Airport which is approximately 3 to 5 km west of the sand extraction areas on Lot 218 and Lot 220.

Local meteorological data will be collected during each of the attended monitoring periods using a weather monitor, positioned within 5 m and at a corresponding height of the noise monitoring microphone.

## 4.3 Noise Mitigation Measures

Plant and equipment to be used at Mackas Sand operations at Lot 218 and Lot 220 have been selected to ensure that they have low noise emission characteristics to minimise impacts on surrounding residences.

Where noise levels recorded at residences shown in PA 08\_142 (MOD2) and EPL 13218 exceed the required criteria or goals, the three main strategies for noise control to reduce the noise impact on offsite receivers will be explored. These include:

- controlling noise at the source – There are three approaches to controlling noise generated by the source: Source elimination; Best Management Practice (BMP) and BATEA
- controlling the transmission of noise – There are two approaches: the use of barriers and land-use controls which attenuate noise by increasing the distance between source and receiver
- controlling noise at the receiver – There are two approaches: negotiating an agreement with the landholder or acoustic treatment of dwellings to control noise.

### 4.3.1 Additional Noise Mitigation Measures

A range of measures to reduce noise levels at R27 when operations are within 250 m of this residence have been explored. These include construction of an acoustic bund between the extraction area and R27 and changing extraction operations to provide greater at source acoustic shielding and/or reduce the number of noise sources. Noise modelling indicates that construction of an acoustic bund alone is not effective as it would reduce noise levels at R27 by less than 0.5 dB(A). Modelling indicates that acceptable daytime noise levels can be achieved when operations are within 250 metres of R27 by either ensuring that extraction equipment is located within 25 m of the extraction face, with the mobile screen located within 5 m of the extraction face or shielded by a localised barrier, or by operating with only one front end loader/excavator.

Further appropriate measures to minimise potential for adverse noise impacts at R27 continue to be investigated, in consultation with the residents at R27. Appropriate management of potential noise impacts in consultation with the residents at R27 will be included within this NMP before the commencement of extraction within 250 m of R27.

## 4.4 Noise Impact Assessment and Land Acquisition Criteria

The methodology for assessing compliance with both the noise impact assessment criteria and land acquisition criteria is the same. The LAeq, 15 minute noise assessment criteria (including traffic noise impact assessment criteria) provided in **Table 1.1** represent the allowable noise contribution from quarrying activities at Mackas Sand at each of the respective monitoring locations. Should noise levels exceed the allowable noise level criteria, Mackas Sand will be required to implement appropriate noise mitigation measures or, in some circumstances, could be required to acquire the relevant property upon written request of the landowner.

## 4.5 Independent Review and Land Acquisition Process

In the event that a landowner considers that Mackas Sand is exceeding noise criteria at his or her property, the landowner may request an independent review of the noise impacts at the property. The independent review will be conducted in accordance with the procedure described in Schedule 4, Conditions 3 to 8 of the Project Approval. A copy of the Conditions has been provided below:

### INDEPENDENT REVIEW

3. *If a landowner of privately-owned land considers the project to be exceeding the impact assessment criteria in schedule 3, then he/she may ask the Secretary in writing for an independent review of the impacts of the project on his/her land.*
4. *If the Secretary is satisfied that an independent review is warranted, the Proponent shall within 2 months of the Secretary's decision:*
  - (a) consult with the landowner to determine his/her concerns;*
  - (b) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Secretary, to conduct monitoring on the land, to:*
    - *determine whether the project is complying with the relevant impact assessment criteria in schedule 3; and*
    - *identify the source(s) and scale of any impact on the land, and the project's contribution to this impact; and*
  - (c) give the Secretary and landowner a copy of the independent review.*
5. *If the independent review determines that the project is complying with the relevant impact assessment criteria in schedule 3, then the Proponent may discontinue the independent review with the approval of the Secretary.*

*If the independent review determines that the project is not complying with the relevant impact assessment criteria in schedule 3, then the Proponent shall:*

  - (a) implement all reasonable and feasible measures, in consultation with the landowner, to ensure that the project complies with the relevant criteria, and conduct further monitoring to determine whether these measures ensure compliance; or*
  - (b) secure a written agreement with the landowner to allow exceedances of the relevant impact assessment criteria, to the satisfaction of the Secretary.*

*If the further monitoring referred to under paragraph (a) above determines that the project is complying with the relevant impact assessment criteria, then the Proponent may discontinue the independent review with the approval of the Secretary.*

### LAND ACQUISITION

6. *Within 3 months of receiving a written request from a landowner with acquisition rights, the Proponent shall make a binding written offer to the landowner based on:*
  - (a) 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 project the subject of the project application, 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 the 'additional noise mitigation measures' in condition 8 of schedule 3;*

*(b) the reasonable costs associated with:*

- *relocating within the Port Stephens local government area, or to any other local government area determined by the 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*

*(c) reasonable compensation for any disturbance caused by the land acquisition process.*

*However, if following this period, the Proponent 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 Secretary for resolution.*

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

*(a) consider submissions from both parties;*

*(b) 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 (a)-(c) above;*

*(c) prepare a detailed report setting out the reasons for any determination; and*

*(d) provide a copy of the report to both parties.*

*Within 14 days of receiving the independent valuer's report, the Proponent 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 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 Secretary shall determine a fair and reasonable acquisition price for the land, having regard to the matters referred to in paragraphs (a)-(c) above and the independent valuer's report. Within 14 days of this determination, the Proponent shall make a binding written offer to the landowner to purchase the land at a price not less than the Secretary's determination.*

*If the landowner refuses to accept the Proponent's binding written offer under this condition within 6 months of the offer being made, then the Proponent's obligations to acquire the land shall cease, unless the Secretary determines otherwise.*

*7. The Proponent shall pay all reasonable costs associated with the land acquisition process described in condition 6 above.*

*8. If the Proponent and landowner agree that only part of the land shall be acquired, then the Proponent 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.*

## 5.0 Reporting and Review

### 5.1 Reporting

Mackas Sand will annually assess noise emissions from quarry operations and will keep a log of any incidents that have the potential to adversely impact on the noise of surrounding privately owned land. The Mackas Sand Quarry Manager will record and investigate any complaints regarding noise emissions from the premises. Noise compliance monitoring results will be reviewed and any exceedances of the noise impact assessment criteria will be investigated.

Noise monitoring results will be discussed at the Mackas Sand Community Consultative Committee (CCC) meetings which are held annually or as agreed by the CCC. Performance monitoring, which includes an assessment of the effectiveness of controls and compliance with the relevant Project Approval and EPL conditions, may be discussed at CCC meetings where noise related complaints occur.

An Annual Review will be prepared and submitted to the Secretary and relevant agencies in accordance with the requirements of Condition 4 of Schedule 5 of PA 08\_0142 (MOD 2). The Annual Review will include an assessment of the noise monitoring results against the air quality impact assessment criteria, any trends in monitored noise levels over the period and any additional noise management controls that have been implemented since the previous report. In addition, any complaints relating to noise emissions from Mackas Sand, and the response actions taken, will be reported in the Annual Review. Results from the yearly monitoring will also be provided to the EPA, as relevant under EPL conditions.

The Annual Review and noise monitoring results will be made publicly available on the Mackas Sand website ([www.mackassand.com.au](http://www.mackassand.com.au)) in accordance with Condition 9 of Schedule 5 of the Project Approval.

### 5.2 Complaints Handling

In accordance development consent and EPL requirements, Mackas Sand has established a 24 hour complaints line. The number is **0408 490 911** and will be listed on the Mackas Sand website ([www.mackassand.com.au](http://www.mackassand.com.au)).

Complaints received on the number will be directed to the Quarry Manager who will respond to the complainant within 24 hours if the complainant is contactable. A record of all complaints will be kept on-site and published on the Mackas Sand website.

All complaints and information in regard to responses will be provided to the CCC. One of the functions of the CCC is to review complaints or disputes between Mackas Sand and members of the community.

### 5.3 Noise Compliance Protocol

In accordance with the INP (EPA, 2000), compliance will be determined by attended monitoring surveys. Mackas Sand will be deemed to have recorded an exceedance of the Project Approval noise impact assessment criteria (refer to **Table 1.1**) if attended monitoring identifies that the noise impact assessment criteria are exceeded. Mackas Sand will be deemed to be in breach of EPL 13218 if continued and sustained exceedances of the noise criteria from the development are recorded.

The process to be utilised by Mackas Sand to determine if an exceedance/non-compliance/breach of the Project Approval noise impact assessment criteria has occurred is detailed below:

- following analysis of noise monitoring results, if noise levels above noise impact assessment criteria attributable to Mackas Sand are measured, Mackas Sand will notify DPE and EPA

- during noise monitoring, if noise levels at least 2 dB above noise impact assessment criteria attributable to Mackas Sand are observed, additional noise mitigation strategies are to be implemented by Mackas Sand. These measures may include the relocation or shutdown of equipment
- following the implementation of the controls, attended monitoring will be conducted as soon as practicable to record noise levels attributable to Mackas Sand. Following the completion of attended noise monitoring, a report will be prepared detailing the attended noise monitoring results (refer **Section 4.2.2**), including the identification of any noise mitigation measures implemented by Mackas Sand during the attended monitoring period
- if noise levels above noise impact assessment criteria attributable to Mackas Sand are observed, the incident will be reported by Mackas Sand in accordance with EPL 13218. Additional attended monitoring will be undertaken by a noise consultant within eight weeks of the initial attended monitoring to determine if the noise impact assessment criteria is being met by Mackas Sand.

## 5.4 Incident Reporting Protocol

Following the reporting of an exceedance or incident to the DPE and other relevant agencies, Condition 3 of Schedule 5 of PA 08\_0142 (MOD2) requires the proponent to prepare a written report of the exceedance within six days of the exceedance being reported. The written report must contain:

- a description of the date, time and nature of the exceedance
- identification of the cause (or likely cause) of the exceedance
- a description of actions taken to date
- a description of the proposed measures to address the exceedance.

In the event of any exceedances or incidents which cause or may cause material harm to the environment, Mackas Sand will report in accordance with the requirements of Conditions 2 and 3 of Schedule 5. The Quarry Manager will be responsible for ensuring these reporting requirements are complied with.

## 5.5 Corrective Action

**Table 5.1** summarises the potential noise related issues that may arise and the appropriate corrective action to be taken.

**Table 5.1 Corrective/Preventative Actions**

Issue	Corrective Action
Exceedance of EPL or Project Approval Noise Conditions	Investigation of exceedance, undertaking noise mitigation measures for future operations where applicable. Report exceedance to EPA, DPE and other stakeholders, if/as required.
Exceedance of Project Approval Noise Land Acquisition Criteria	Investigation of exceedance, undertaking noise mitigation measures for future operations where applicable. Report exceedance to EPA, DPE other stakeholders, if/as required. Initiation of land acquisition process if required, as detailed in <b>Section 4.5</b> .
Community complaints	Investigation of complaint, undertake noise monitoring in accordance with <b>Section 5.2</b> , and if required, undertake mitigating measures where applicable (see <b>Section 5.3</b> ) and provide feedback to the complainant. Report complaint to relevant stakeholders as required. Provide feedback to site personnel, where relevant.



## 5.6 Review

The NMP is to be reviewed in accordance with Condition 4A and Condition 7 of Schedule 5 in PA 08\_0142, or as directed by the Secretary of DPE. The review will reflect changes in environmental requirements, technology and operational procedures

## 6.0 References

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

NSW Environment Protection Authority, 1994. *Environmental Noise Control Manual*.

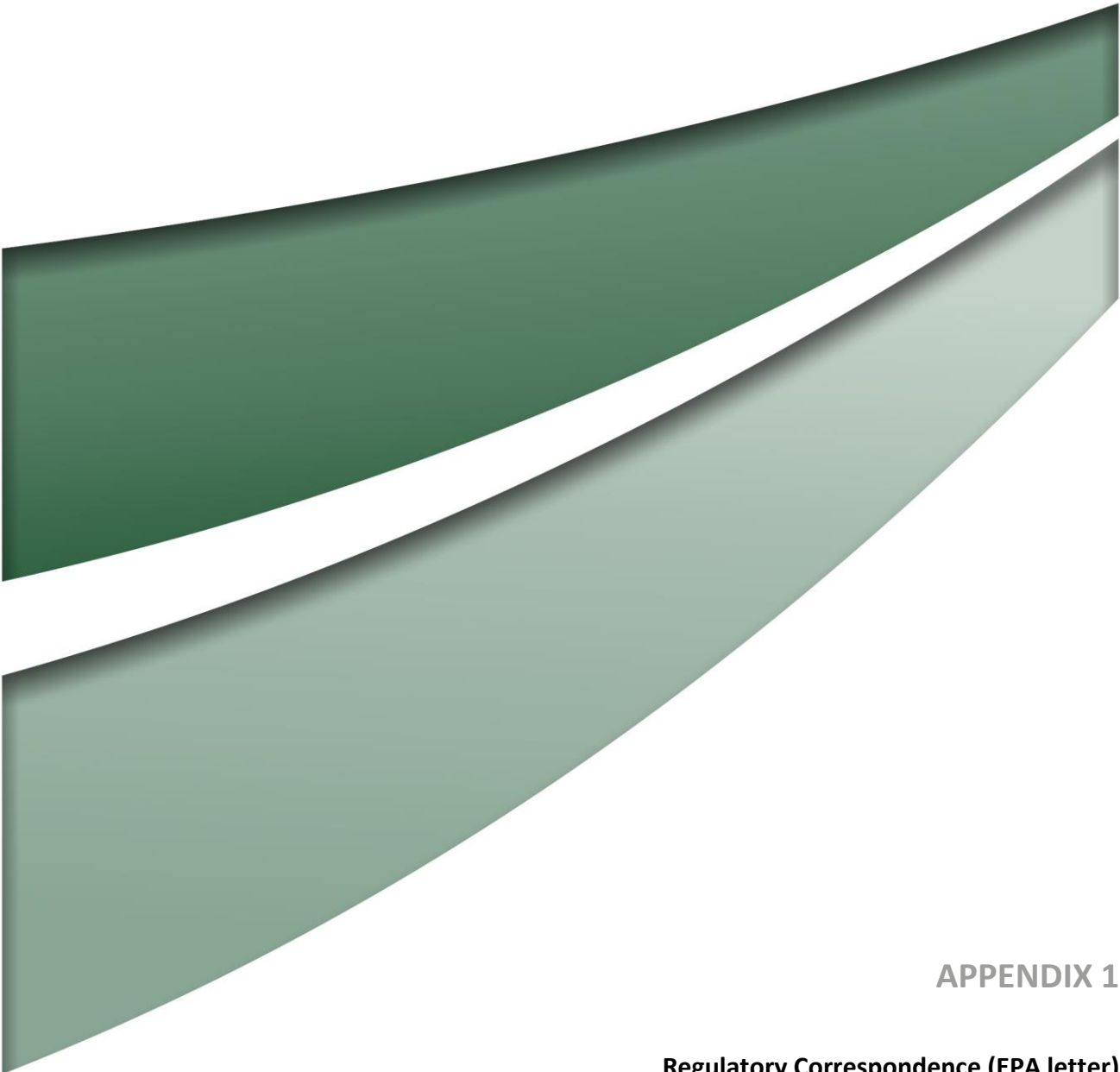
NSW Environment Protection Authority, 2000. *New South Wales Industrial Noise Policy*.

Umwelt (Australia) Pty Limited, 2009. *Environmental Assessment of Sand Extraction Operations from Lot 218 DP 1044608 and Lot 220 DP 1049608, Salt Ash*.

Umwelt (Australia) Pty Limited, 2009. *Environmental Assessment for Modifications to Mackas Sand Extraction Operations from Lot 218 and Lot 220, Salt Ash*.

Umwelt (Australia) Pty Limited, 2011. *Mackas Sand Annual Environmental Management Report 2010-2011*.

Umwelt (Australia) Pty Limited, 2014. *Environmental Management Strategy*.



## APPENDIX 1

**Regulatory Correspondence (EPA letter)**



DOC17/536515, EF13/4236

Macka's Sand Pty Ltd  
2684 Nelson Bay Road  
Salt Ash 2318

Attention: Mr Robert Mackenzie

Dear Mr MacKenzie

**MACCA'S SAND PTY LTD – ENVIRONMENT PROTECTION LICENCE 13218  
MANAGEMENT PLANS – NOISE, SOIL AND WATER**

Thank you for forwarding the subject plans for our records received by the Environment Protection Authority (EPA) on 22 September 2017.

The Environment Protection Authority (EPA) encourages the development of such plans to ensure that proponents have determined how they will meet their statutory obligations and designated environmental objectives. However, the EPA does not review these documents as our role is to set environmental objectives for environmental management, not to be directly involved in the development of strategies to achieve those objectives.

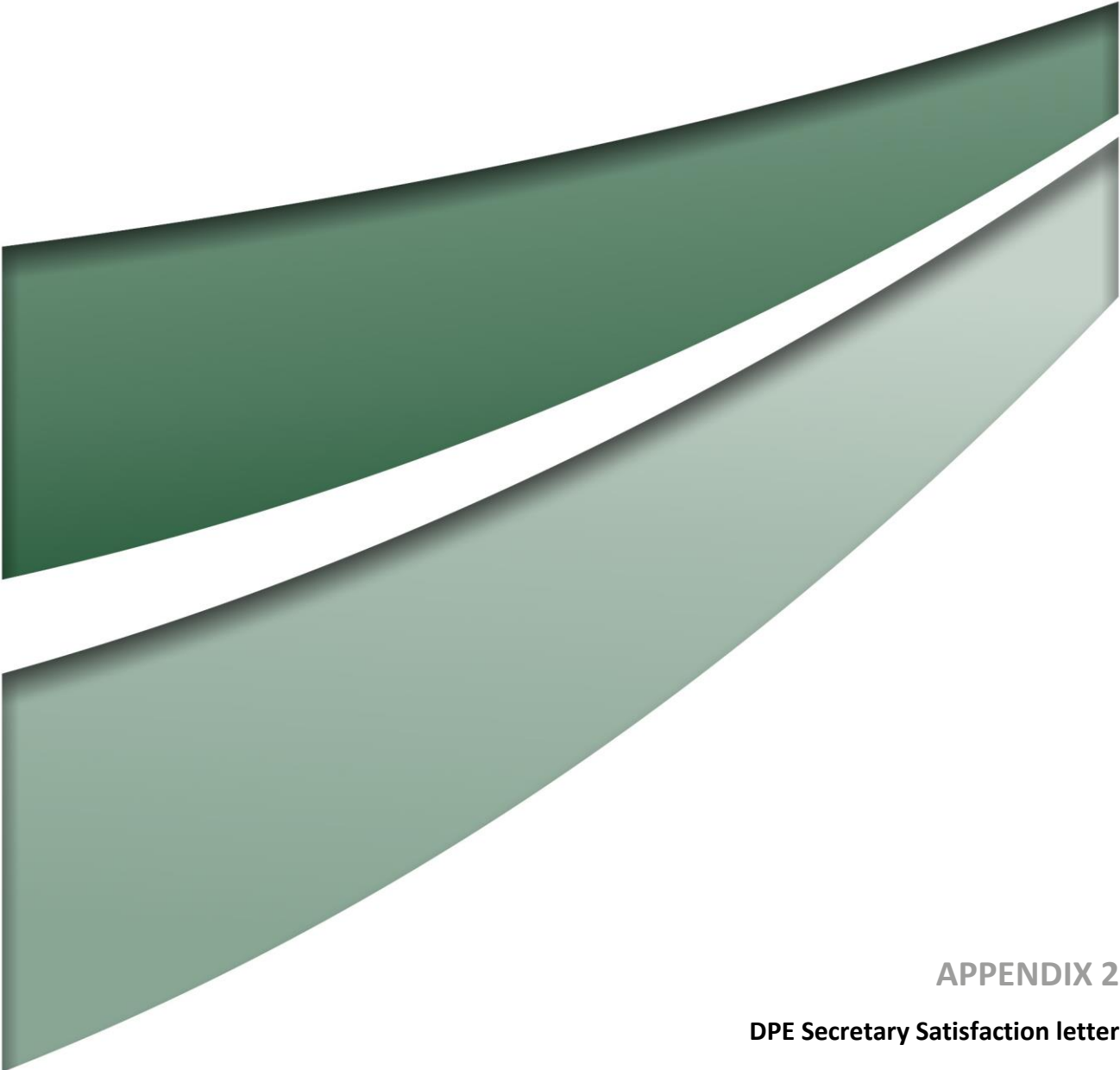
Should you have any questions please phone me on 02 4908 6850.

Yours sincerely

*Steve Clair 31-10-2017*

**STEVE CLAIR**  
**Operations Officer**  
**ENVIRONMENT PROTECTION AUTHORITY**

Contact officer: STEVE CLAIR  
02 4908 6850



## APPENDIX 2

**DPE Secretary Satisfaction letter**



Mr Rod Williams  
Senior Environmental Scientist  
Umwelt (Australia) Pty Limited  
75 York Street  
Teralba NSW 2284

Email: [rwilliams@umwelt.com.au](mailto:rwilliams@umwelt.com.au)

Dear Mr Williams,

**Mackas Sand (MP 08\_0142)  
Noise Management Plan**

I refer to your email dated 12 November 2018 submitting the Noise Management Plan for approval.

The Department has reviewed this plan and considers that it meets the requirements of condition 10 of Schedule 3 of MP 08\_0142. Consequently, the Secretary has approved this plan.

Please ensure a finalised copy of this plan is made available on the company's website.

Should you have any enquiries in relation to this matter, please contact Jack Murphy at the details above.

Yours sincerely,

*J Evans* 13.11.18

Jessie Evans

**A/Director**

**Resource Assessments**

As nominee of the Secretary



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