



MODIFICATION TO MACKAS SAND EXTRACTION OPERATIONS RESPONSE TO SUBMISSIONS

Lot 218 DP 1044608, Salt Ash, NSW

October 2015



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Prepared by
Umwelt (Australia) Pty Limited
on behalf of
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Report No. 1646/R57/FINAL
Date: October 2015



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1.0 Introduction

This document provides a response to the issues raised in submissions made during the public exhibition of the Environmental Assessment (EA) for the proposed modification to hourly truck movements for sand extraction operations on Lot 218 DP 1044608, approved under Major Project Approval 08_0142 (PA08_0142). This response has been prepared on behalf of Mackas Sand Pty Ltd (Mackas Sand) in response to a request from the Secretary of the Department of Planning and Environment (DP&E).

The EA was exhibited from 6 August to 19 August 2015. This report outlines Mackas Sand's response to issues raised in the submissions.

1.1 The Proposed Modification

The modification proposal relates to the modification of maximum hourly truck movements (in and out) of Lot 218.

Mackas Sand is seeking approval for a further modification of PA08_0142 to allow 24 laden truck movements out per hour, plus 24 truck movements in per hour, from Lot 218 between 7.00 am and 10.00 pm Monday to Friday and 7.00 am and 4.00 pm Saturdays. Approval is also sought to allow an increase in the truck movements during the 5.00 am to 7.00 am shoulder period Monday to Friday (from 5 to 14 laden trucks) and during the 6.00 am to 7.00 am shoulder period on Saturdays (from 5 to 9 laden trucks). It is not proposed to alter truck movements on Sundays and Public Holidays or during the 5.00 am to 6.00 am shoulder period on Saturdays, or alter the truck movements from Lot 220 from those currently permitted. Further, no change is being sought to the maximum annual tonnage of sand that is allowed to be extracted from Lot 218 or Lot 220.

Table 1.1 Approved and Proposed Truck Movements from Lot 218

Transportation Period	Approved Truck Movements per hour (in plus out)	Proposed Truck Movements per hour (in plus out)
Monday to Friday Shoulder (5.00 am to 7.00 am)	10	28
Saturday Shoulder (5.00 am to 6.00 am)	10	No change
Saturday Shoulder (6.00 am to 7.00 am)	10	18
Monday to Friday 7.00 am to 10.00 pm)	16	48
Saturday (7.00 am to 4.00 pm)	16	48
Sundays and Public Holidays	10 ¹	No change

Note 1: Combined 10 truck movements (in plus out) from Lot 218 and Lot 220 (i.e. total of 10 truck movements (in plus out) per hour).

1.2 Submissions Received

DP&E advised that a total of 73 submissions were received during the EA exhibition period. Subsequent to the closure of the exhibition period on 19 August, Roads and Maritime Services (RMS) also lodged a submission regarding the proposed modifications.

In total, five of the submissions were from government agencies including:

- New South Wales (NSW) Environment Protection Authority (EPA)
- Port Stephens Council (PSC)
- Department of Primary Industries (DPI)
- Department of Industry (Resources and Energy) – Geological Survey NSW (DTI)
- Roads and Maritime Services (RMS).

Issues raised in these submissions are addressed in detail in **Section 2.0** of this report.

In addition to the above, 69 submissions were received from community interest groups and community members. These submissions are addressed in **Sections 3.0** and **4.0** of this report.

1.3 Report Structure

This response to submissions report has been prepared by Umwelt (Australia) Pty Limited (Umwelt) on behalf of Mackas Sand to address the key issues raised through submissions received on the EA through the public exhibition period. The report has been structured as follows:

- submissions from relevant Agencies and Authorities have been categorised and addressed in **Section 2.0**
- Community Interest Group submissions have been categorised and addressed in **Section 3.0**
- submissions for the general public have been categorised and addressed in **Section 4.0**
- **Section 5.0** provides an outline of the preferred project as modified in response to the submissions raised.

For each issue raised, the theme of the issue is noted in bold followed by a response in normal type.

2.0 Agency Submissions

2.1 NSW Environment Protection Authority

The EA does not appear to satisfactorily address the requirements of the NSW Road Noise Policy in one aspect. Existing road traffic noise levels, and predicted road traffic noise levels with the modification, exceed the RNP criteria at some receiver locations.

The RNP requires feasible and reasonable mitigation measures to be investigated. This assessment has not been done.

It is however recognised that the production level for the quarry was approved with the original consent. It is also recognised that identifying feasible and reasonable mitigation measures that could be implemented on a public arterial road may be difficult. This is especially the case in the context of a development proposal relating to an individual premise in a location where a number of activities contribute to traffic on the road.

Umwelt concurs with the EPA comments regarding the difficulty of implementing feasible and reasonable mitigation measures on a public road where a number of activities contribute to traffic on the road. Section 4.3 of the NSW Road Noise Policy provides guidance that for traffic generating developments on existing roads, there is limited potential for noise control as the development is not usually linked to road improvements. Section 4.3 further recommends that strategies to minimise noise from traffic associated with the development should be applied.

Mackas Sand has in place a Noise Management Plan and a Traffic Noise Management Plan (as required by Condition O4.3 of EPL 13218), which implements a number of strategies to minimise noise from traffic. As stated in the Mackas Sand Noise Management Plan (Umwelt, 2014), Mackas Sand is committed to implementing and maintaining the following controls to manage traffic noise generation:

- All trucks used to transport 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.
- All trucks transporting sand from Lot 218 and Lot 220 are regularly maintained.
- 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.
- Truck speed on the alternate access road to Lot 218 will be limited to 40 km/h, as is currently the case, and the use of exhaust brakes is prohibited by Mackas Sand Quarry Traffic Rules.
- 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 possible. A system of sanctions for non-compliance is in place if exceedances due to driver fault are a regular occurrence.

Noise impacts from the increase in vehicle movements on the private access road are stated as being modelled "for different vehicle speeds", but the actual vehicle speeds used in the modelling are not provided. The vehicle speeds used in the modelling need to be provided to know if they are realistic, allow independent verification of the noise predictions, and to develop consent noise conditions, if appropriate.

Truck noise impacts from trucks travelling on the private haul road is assessed as part of the noise emissions from the development and is assessed differently from noise from trucks using the public road system. Analysis of the impact of speed on noise emissions from trucks on the private haul road was undertaken for trucks travelling at speeds of 20 km/h through to 60 km/h. This analysis showed that the slower trucks travel the less instantaneous noise they emit with the noise being emitted for a longer period due to the longer travel times. Analysis indicates that overall noise levels at surrounding receivers per truck movement are lowest when trucks travel at 40 km/h which provides the optimum balance of emitted noise and duration of noise impact.

2.2 Port Stephens Council

Modification 2 has not assessed the potential impact of increased truck movements on fauna crossing the access road. As both the current State and Commonwealth approvals identify the need to minimise the truck movements at night, particularly dawn and dusk, it is considered that this issue must be addressed by the current modification.

A number of threatened fauna species have potential to be injured or killed as a result of traffic on the access route. Locally-occurring threatened species such as the koala (*Phascolarctos cinereus*), brush-tailed phascogale (*Phascogale tapoatafa tapoatafa*) and the eastern pygmy possum (*Cercartetus nanus*) have potential to cross the access route. Other non-threatened fauna species such as kangaroos, wallabies and possums also have potential to be injured crossing this road. An Assessment of Significance under the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was undertaken as part of Modification 1 and concluded that there was no potential for there to be a significant impact on any known or potentially occurring threatened fauna species as a result of establishing and operating the access route.

However, due to the potential risk of injury/death to fauna crossing the access route, the following road usage rules were incorporated into the approved Landscape Management Plan (Umwelt, 2013) for the site:

- *a speed limit of 40 km/h will apply for all vehicles using the alternate haul route. This will include placement of speed limit signs along the approved haul route; and*
- *night time traffic will be limited to the hours of operations as detailed in Umwelt, 2012 as well as hours of operation in Mackas Sand statutory approvals.*

The proposed Modification 2 relates to an increase in vehicle movements along the access track, including during the early morning when fauna species tend to be most active. These amendments will increase the potential of local fauna to vehicle strike and an associated increase in mortality along the access road. Modification 2 however, does not propose to remove or fragment any threatened species habitat and it is unlikely that any threatened species would be significantly impacted by the increase in vehicle movements. Truck movements are restricted to a maximum speed of 40 km/h providing adequate time to avoid any local fauna should they be crossing the access track when vehicles are using the track. In addition the access track predominantly traverses cleared agricultural land, where habitat features are isolated, visibility is high and speed limits are restricted and therefore the likelihood of fauna mortality is low.

Mitigation measures relating to the sensitive use of this road by vehicles have been developed for the site, as outlined above, in the Landscape Management Plan (Umwelt, 2013). In acknowledgement of the increased vehicle movements along this road, Mackas Sand proposes to implement the following additional measures to minimise the impacts to the local fauna species that may be susceptible to vehicle strike along the road:

- wildlife warning signs will be erected in known areas of high fauna activity or adjacent woodland vegetation to alert truck drivers
- the risk of road kill will be communicated during site inductions
- any injured animals as a result of vehicle strike will be taken to the nearest veterinary clinic or wildlife carer for assessment and treatment
- incidents of road kill of threatened species will be reported in the Annual Environmental Management Report (AEMR) and the need for further prevention measures will be assessed.

2.3 Department of Industry (Resources and Energy) – Geological Survey of NSW

The Department of Industry has confirmed in its submission that it has no issues to raise in response to the proposed modification to increase truck movements.

2.4 Department of Primary Industries

DPI has confirmed in its submission that it has no comments regarding the proposed modification to increase truck movements.

2.5 Roads and Maritime Services

RMS concurs with the increases proposed between 5 am and 6 am and after 9am but objects to any increased truck movements during the AM peak traffic period of 6am to 9am due to the volume of southbound traffic in Nelson Bay Road during this period. RMS recommends that an additional transportation period be adopted as set out in Table 2.1 to minimise impacts to road safety and traffic efficiency.

Table 2.1 RMS recommendation for Truck Movements

Transport Period	RMS Proposed Truck Movements
Monday to Friday	
5 am to 6 am	28 (14 in and 14 out)
6 am to 9 am	16 (8 in and 8 out)
9am to 10 pm	48 (24 in and 24 out)
Saturday	
5 am to 6 am	No change requested

Transport Period	RMS Proposed Truck Movements
6 am to 7 am	18 (9 in and 9 out)
7am to 4 pm	48 (24 in and 24 out)

Response:

As part of Modification 2, GHD (2015) completed an analysis of the operation of the existing road network to assess the proposed peak hour operating performance of Nelson Bay Road, Richardson Road and Salt Ash Avenue roundabout and the site access; using the criteria for evaluating the operational performance of intersections provided by the RTA Guide to Traffic Generating Developments (RTA, 2002). The criteria for evaluating the operation performance of intersections is based on a qualitative measure (i.e. Level of Service)(LOS), which is applied to each band of average vehicle delay.

As indicated in **Table 2.2**, the traffic analysis indicates that the existing roundabout of Nelson Bay Road, Richardson Road and Salt Ash Avenue currently operate with spare capacity at LoS B (good, with acceptable delays and spare capacity) and would continue to operate at this level should the proposed modification be approved. The existing intersection of Nelson Bay Road and Site Access Road currently operate with spare capacity at LoS A (good operation) and would continue to, should the proposed modification be approved.

Table 2.2 2015 Existing and Future Performance

Intersection	Existing		Modification Sought	
	AM peak LoS	PM peak LoS	AM peak LoS	PM peak LoS
Nelson Bay Road/Richardson Road – Roundabout	B	B	B	B
Nelson Bay Road/Site Access – Give Way	A	A	A	A

As indicated in **Table 2.3**, the traffic analysis indicates that with 20% traffic growth to 2035 the existing roundabout of Nelson Bay Road, Richardson Road and Salt Ash Avenue currently operate with spare capacity at LOS B (good, with acceptable delays and spare capacity) and would continue to should the proposed modification be approved. The existing intersection of Nelson Bay Road and Site Access Road currently operate with spare capacity at LOS A (good operation) and would continue to, should the proposed modification be approved.

Table 2.3 2035 Existing and Future Performance

Intersection	Existing		Modification Sought	
	AM peak LoS	PM peak LoS	AM peak LoS	PM peak LoS
Nelson Bay Road/Richardson Road – Roundabout	B	B	B	B
Nelson Bay Road/Site Access – Give Way	A	A	A	A

Mackas Sand notes RMS concerns regarding traffic safety and efficiency and the proposed restriction on truck movements between 6 am and 9 am Monday to Friday. The demand for sand products to meet the needs of construction industry is typically highest in the morning. Mackas Sand will continue to work with RMS to explore the ability to meet this demand in a manner that is safe and does not impact on traffic efficiency.

3.0 Community Interest Group Submissions

3.1 Salt Ash Public School P & C (Road Safety Committee)

3.1.1 Socio-Economic – Road Safety

1. **The current speed limit of 80km per hour is too fast for current traffic conditions.**

Lowering the speed limit from Pauls Corner roundabout (including a distance before entering) to Lemontree Passage roundabout, from 80 to 60 will make this a safer road with an increase in truck numbers.

If there is an increase in truck numbers, it is only a matter of time before there is a serious accident.

As part of Modification 1, Mackas Sand commissioned a traffic audit of Nelsons Bay Road addressing the then proposed new intersection which has subsequently been constructed. The traffic audit (Lyle Marshall and Associates & McLaren Traffic Engineering, October 2013) reviewed the safety of Nelson Bay Road and made the following recommendations in regard to traffic speed limit:

There are some 50 driveways in the 2 lane section of Nelson Bay Road from Medowie Road to the start of the duplication (divided carriageway) 400 metres west of Richardson Road roundabout. The suggested treatments are:

- 1) *Lowering the sign posted speed limit to 70 km/hr.*
- 2) *Duplication of Nelson Bay Road.*

Mackas Sand supports both of these recommendations.

3.2 Port Stephens Greens

3.2.1 Project Description/Design

1. **The approval authority should maintain an overall cap on the number of movements per day, which would not be inconsistent with the applicant's public statements of intent.**

Mackas Sand under Condition 6 of Project Approval 08_142 is limited to not transporting more than 1 million tonnes of product in a calendar year from Lot 218 and Lot 220 respectively. Mackas Sand is not seeking any change to annual production limits from Lot 218 or Lot 220.

3.2.2 Socio-Economic

2. **Any increase in truck movements, either in absolute numbers or numbers per hour, will pose an unacceptable increased safety risk, and will have much more than the 'minimal negative impacts' asserted in the EA (4.3).**

As part of Modification 2, GHD (2015) completed an analysis of the operation of the existing road network to assess the proposed peak hour operating performance of Nelson Bay Road, Richardson Road and Salt Ash Avenue roundabout and the site access. This was undertaken using the criteria for evaluating the operational performance of intersections provided by the RTA Guide to Traffic Generating Developments (RTA, 2002). The criteria for evaluating the operation performance of intersections is based on a qualitative measure (i.e. Level of Service), which is applied to each band of average vehicle delay.

As indicated in **Table 3.1**, the traffic analysis indicates that the existing roundabout of Nelson Bay Road, Richardson Road and Salt Ash Avenue currently operate with spare capacity at LoS B (good, with acceptable delays and spare capacity) and would continue to should the proposed modification be approved. The existing intersection of Nelson Bay Road and Site Access Road currently operate with spare capacity at LOS A (good operation) and would continue to, should the proposed modification be approved.

Table 3.1 2015 Existing and Future Performance

Intersection	Existing		Modification Approved	
	AM peak LoS	PM peak LoS	AM peak LoS	PM peak LoS
Nelson Bay Road/Richardson Road – Roundabout	B	B	B	B
Nelson Bay Road/Site Access – Give Way	A	A	A	A

As indicated in **Table 3.2**, the traffic analysis indicates that with 20% traffic growth to 2035 the existing roundabout of Nelson Bay Road, Richardson Road and Salt Ash Avenue currently operate with spare capacity at LOS B (good, with acceptable delays and spare capacity). Analysis also indicates that the roundabout would continue to have spare capacity should the proposed modification be approved.

Table 3.2 2035 Existing and Future Performance

Intersection	Existing		Modification Sought	
	AM peak LoS	PM peak LoS	AM peak LoS	PM peak LoS
Nelson Bay Road/Richardson Road – Roundabout	B	B	B	B
Nelson Bay Road/Site Access – Give Way	A	A	A	A

GHD analysis indicates that the existing intersection of Nelson Bay Road and Site Access Road currently operate with spare capacity at LOS A (good operation) and would continue to, should the proposed modification be approved.

RMS has undertaken its own assessment of the intersection of Lot 218 access road and Nelson Bay Road based on modelling and site inspection. RMS is of the opinion that truck movements should be restricted between 6 am and 9 am as set out in **Table 2.1**.

Mackas Sand notes RMS concerns regarding traffic safety and efficiency and the proposed restriction on truck movements between 6 am and 9 am Monday to Friday. The demand for sand products to meet the needs of construction industry is typically highest in the morning. Mackas Sand will continue to work with RMS to explore the ability to meet this demand in a manner that is safe and does not impact on traffic efficiency.

3.2.3 Project Justification and Alternatives

3. There are alternative ways of managing truck loading and movements, such as introduction of a booking system.

As discussed in Section 2.0 of the EA for Modification 2, the current restrictions on truck movements imposed on the operation by Condition 4B of Schedule 3 of PA 08_0142, does not allow the approved annual tonnage of sand product to be transported from Lot 218 without operating at the maximum permitted truck movements per hour for extended hours of every day of operation. This is not practically achievable and greatly restricts the ability of quarry operations to meet the growing demand for sand product.

In order to meet construction industry demand for sand from site, it is necessary to have the flexibility to increase truck movements particularly during the Shoulder period (i.e. the period from 5 am to 7 am Monday to Friday) prescribed by PA 08_0142. While a booking system would enable Mackas Sand to schedule the arrival of client's trucks, it would not solve the existing need to provide greater quantities of sand during these periods or to be able to feasibly achieve maximum permitted annual production of 1 million tonnes from Lot 218 without operating at maximum permitted truck movements per hour up until 10 pm when there is limited demand.

The proposed modification to Condition 4B will enable Mackas Sand to transport the sand extracted from Lot 218 in a way that better meets demand and enables maximum annual production to be feasibly achieved.

4. It is unnecessary given the applicant's existing approval to use Lavis Lane as well as the new access road.

Modification 1 to PA 08_0142 was for the construction of the Nelson Bay Road intersection and the associated haul route to Lot 218. This effectively removed the need for quarry traffic from Lot 218 to travel along Lavis Lane by providing direct access to Nelson Bay Road. At this time, Mackas Sand does not hold the necessary landholder agreements or approvals to be able to transport sand from Lot 218 to Lavis Lane. The currently approved site access road is preferred to Lavis Lane as the use of the existing site access and intersection on Nelson Bay Road enables quarry traffic from operations on Lot 218 to not need to travel on a local street (Lavis Lane) but to instead directly access a State Road, which is designed to carry higher traffic loads.

Modification 1 to PA 08_0142 also reduced the potential for truck traffic noise impacts on private residences along Lavis Lane and increased the distance between trucks and the nearest residence by adopting the alternate haul route. The nearest affected resident on Lavis Lane was approximately 20 metres from the Lavis Lane haul route. The nearest residences with the approved site access road and intersection to Nelson Bay Road are in excess of 50 metres away.

This use of the Nelson Bay Road access rather than Lavis Lane removes potential heavy vehicle impacts on Lavis Lane residents and recreational users of Lavis Lane.

3.3 Tomaree Ratepayers and Residents Association

3.3.1 Socio-Economic

3.3.1.1 Community Consultation

1. The applicant has secured letters from nearby owners confirming they have no objection...these are only those most directly affected by noise etc...consultation with these owners, and their consent, while important, is insufficient. There are dozens of neighbouring residents and thousands more on the Tomaree peninsula, who are also directly affected by the heavy vehicle movements.

It would be unconscionable for a determination on this application to be made without multiple site visits and interviews with affected local residents, whether or not there are formal objectors.

As noted above, Mackas Sand has actively engaged with residents in the immediate vicinity of the alternative access road to/from Lot 218 and has agreements with four potentially affected residents adjacent to the intersection of the approved access road and Nelson Bay Road (as identified in Condition 9(b) of Schedule 3 of PA 08_0142). These residents have confirmed in writing that they have no objection to Mackas Sand having unrestricted hourly truck movements along the access road.

Mackas Sand has also actively engaged with the Worimi Local Aboriginal Land Council (Worimi LALC) and NSW Aboriginal Land Council (NSW ALC) regarding the proposed modification, with this matter discussed with the Worimi LALC board and raised at the NSW ALC meeting on 18 June 2015 and land owners consent being granted for the proposed modification to be submitted to DPE (refer to Appendix 2 of the modification EA).

Furthermore, as outlined in **Section 4.3.1.3**, Mackas Sand has established a Community Consultative Committee in accordance Condition 7 of Schedule 5 of PA 08_1042 which is held on a regular basis and allows any community concerns to be raised and discussed in detail.

3.3.1.2 Economic

2. The EA makes a case, in section 5.3, for a range of economic benefits. No evidence is provided however for why these benefits would not be achieved by/from alternative suppliers, if Mackas Sand continued to have to operate under the constraint of the truck movement conditions.

Sydney's demand for construction grade sand is currently approximately 8 million tonnes per year with many of the historical sources such as Penrith Lakes Scheme and Kurnell now depleted. Available sand supply for the Sydney market is limited with Stockton Bight representing one of the most significant sand resources for Sydney and Newcastle markets.

Extraction of sand from Lot 218 occurs without the need to clear land or undertake significant processing. The sand extracted from Lot 218 is windblown sand. Historically this sand has been moved landward (north) by prevailing winds at a rate of approximately 4 metres per year with the windblown sand encroaching and smothering the vegetation that exists along the vegetated boundary of the mobile dune system.

As a result extraction of sand from Lot 218 has significant environmental and economic advantages over alternate sand deposits.

If Mackas Sand was to continue to operate up to the currently approved level of truck movements, sand is and will continue to be sourced from other sites that require similar number of truck movements on the local and State road system but do not provide the same efficiency and environmental benefits that are associated with operations on Lot 218.

3.3.2 Project Description/Design

3. The access road is on a curve/blind bend and the merging lane is far too short for heavy vehicles to safely join the traffic flow. Acceleration and deceleration lanes are inadequate. This danger would be exacerbated by an increase in heavy vehicle movements.

As outlined above, Mackas Sand commissioned a Road Safety Audit for the design of the existing site access road intersection to Nelson Bay Road (Lyle Marshall and Associates & McLaren Traffic Engineering, 2013) in accordance with Condition 31A of Schedule 3 of PA 08_0142. This audit was conducted prior to construction of the site access road and to the satisfaction of RMS.

The audit made a series of suggested treatments, with responsible authorities being RMS and PSC. These recommendations have since been addressed by Mackas Sand and approval to use the intersection was received from RMS on 16 December 2014.

4. The applicant has sought to confuse the public by asserting publicly that any increase in truck movements to and from Lot 218 (if their application is approved) will be balanced by reduced movements from their other quarry at Lot 220, which join Nelson Bay Road at the Lemon Tree Passage Road roundabout.

Mackas Sand is not proposing to change truck movements from Lot 220. As discussed in Section 1.1.3 of the modification EA, Mackas Sand is seeking approval for the modification of Condition 4B of Schedule 3 of PA 08_0142 to alter the maximum number of truck movements per hour permitted from Lot 218. The proposed modification of these movements is detailed in Table 1.1 of the modification EA. The modification does not propose a change to truck movements from Lot 220 or change to the maximum annual amount of sand extraction from the approved extraction areas located within Lot 218 and Lot 220 with approval granted to transport 1 million tonnes of sand from each site.

While no change is being sought to the maximum annual tonnage of sand that is allowed to be extracted from Lot 218, the increase in truck movements is being sought to enable the existing operation to better service construction industry demands and to be able to achieve the annual limits on sand extraction approved under PA 08_0142.

As indicated in Section 5.4 of the modification EA, it is not proposed to increase or decrease approved truck movements from Lot 220. Sand from Lot 218 is windblown. It does not exhibit a developed soil profile and is predominantly used in the construction industry and has different uses to sand from Lot 220. Sand from Lot 220 includes sand that has been bleached (i.e. the outer coating of iron removed) by organic acid leaching through the soil profile over thousands of years. This bleached sand from Lot 220 is better suited for industrial uses and is of higher value than sand from Lot 218.

3.3.3 Project Justification and Description

5. The applicant needs to explain why it cannot manage truck movements to and from Lot 218 by using both approved access routes, thereby avoiding any need for any increase in movements via the Salt Ash access point.

Mackas Sand does not have landholder agreements that would be required to be able to transport sand from Lot 218 via Lavis Lane and therefore it is not possible for the operation to use both accesses. In addition, significant construction work would be requested to establish an access to the western edge of Lot 218 and connect with the established extraction area. Lavis Lane would need to be upgraded and a second weighbridge would be needed. A significant amount of sand would need to be removed to enable extraction to occur as one operation on Lot 218. It is considered that the proposed modification to truck movements is overall a more efficient and preferable option.

6. The applicant provides no convincing justification for a major increase in the permitted rate of heavy vehicle movements (from 16 to 48 per hour (8 to 24 vehicles) during most operating hours).

As discussed in Section 2.0 of the EA for Modification 2, the current restrictions on truck movements imposed on the operation by Condition 4B of Schedule 3 of PA 08_0142, does not allow the approved annual tonnage of sand product to be transported from Lot 218 without operating at the maximum permitted truck movements per hour for extended hours of every day of operation. This is not practically achievable and greatly restricts the ability of quarry operations to meet the growing demand for sand product.

In order to meet construction industry demand for sand from site, it is necessary to have the flexibility to increase truck movements particularly during the Shoulder period (i.e. the period from 5 am to 7 am Monday to Friday) prescribed by PA 08_0142. While a booking system would enable Mackas Sand to schedule the arrival of client's trucks, it would not solve the existing need to provide greater quantities of sand during these periods or to be able to feasibly achieve maximum permitted annual production of 1 million tonnes from Lot 218 without operating at maximum permitted truck movements per hour up until 10 pm when there is limited demand.

The proposed modification to Condition 4B will enable Mackas Sand to transport the sand extracted from Lot 218 in a way that better meets demand and enables maximum annual production to be feasibly achieved.

7. If customers do not wish to remove sand at some of the approved hours, the truck movement conditions may well prevent the applicant from ever being able to reach approved production levels.

As discussed in response to Item 3 in **Section 3.2.3**, the proposed modification is proposed to ensure Mackas Sand has the flexibility to be able to better meet the demands of the construction industry. It will also enable Mackas Sand to more efficiently achieve approved annual tonnage of sand product to be transported from Lot 218 without operating at the maximum permitted truck movements per hour for extended hours of every day of operation (including the Shoulder period, Sundays and Public Holidays).

3.3.4 General

8. If the applicant is genuine in its stated intention not to increase production, there is no reason why the applicant should not be willing to accept an overall cap on the number of movements each day.

Refer to response to Item 1 provided in **Section 3.2.1**.

9. Our members are directly affected by this sand quarry operation since Nelson Bay Road is the main route between Newcastle and the Tomaree Peninsula.

Refer to response to Item 1 in **Section 3.1.1**.

3.3.5 Air Quality

10. We acknowledge that local residents also have legitimate air quality.

Schedule 5 Condition 4 of PA 08_0142 (as modified) requires the preparation of an annual review, providing a comprehensive review of the monitoring results of the Project over the past calendar year and identify any non-compliance during that period. As reported in Section 4.2 of Mackas Sand's 2014 and 2015 annual reviews, monitoring completed during these periods did not detect any exceedance of statutory requirements in relation to air quality impacts as a result of Mackas Sand operations.

In regard to additional air quality impacts as a result of the proposed modification, as noted in Table 4.1 of the modification EA, the proposed modification is related to increased truck movements only and will not result in any change to approved impacts on air quality.

4.0 Community Submissions

4.1 Traffic and Transport

1. **Increase risk of an accident at the new intersection accessing Macka's Sand site and Nelson Bay Road**

The existing intersection has adequate sight distance for approaching and entering traffic providing for safe integration of trucks into Nelson Bay Road. Traffic assessment undertaken by GHD found that the additional truck movements could be accommodated at the intersection on Nelson Bay Road whilst providing an acceptable level of service.

2. **Adequacy of traffic survey undertaken by GHD**

The traffic study undertaken by GHD was undertaken in accordance with relevant industry standards.

4.2 Noise

1. **Local residents also have legitimate noise, air quality and amenity concerns**

Mackas Sand has undertaken a comprehensive Environmental Assessment including specialist investigations relating to noise, air quality and amenity issues that may affect local residents in accordance with all relevant statutory requirements.

2. **Noise from trucks can be heard all day and affect resident's lifestyle**

The NSW Industrial Noise Policy (INP) (EPA, 2000) and NSW Road Noise Policy RNP (DECCW, 2011) provide a framework to assess the noise impacts from development in NSW and provide protection to communities while providing a pathway for development and associated social worth. The noise impact assessment for the proposed modification was undertaken in accordance with the INP and RNP and therefore should subsequently provide the level of protection of noise amenity provided by these policies. These policies do not seek to limit the audibility of a noise source at a receiver but instead use internationally recognised standards of noise level criteria that seek to minimise annoyance for the majority of the population.

3. **There are specific regulations as to noise and the associated noise causing activities. General development consents do not permit, allow or to cause noise to be made before 7am to 7pm (general), the increased truck movements will not decrease in noise after 7pm to 10pm, therefore it could be considered that the proposed modification times as reflected in Mackas Sand Quarry application be contrary to existing law and unable to be permissible even at a local government level.**

The noise impact assessment for the proposed modification was undertaken in accordance with the NSW Industrial Noise Policy (INP) (EPA, 2000) and NSW Road Noise Policy (RNP) (DECCW, 2011). The proposed modification is predicted to meet the requirements of the INP and RNP and therefore meet all relevant

statutory requirements for noise impacts. The number of heavy vehicle movements has been restricted to the numbers proposed in the EA to comply with road traffic noise criteria while operational noise from the private access road is subject to the existing noise criteria in Mackas Sand's Environmental Protection Licence 13218.

4. Noise only took into account in the vicinity of the mine site, people further from the site (including Cabbage Tree Road) are adversely affected by the noise of sand trucks driving by and no noise monitoring was completed here.

Road traffic noise level predications were undertaken for the length of Nelson Bay Road between the Medowie Road and Richardson Road intersections. At these points it is considered that the road traffic noise generated by the development becomes part of the wider traffic network. Notwithstanding this, the road traffic noise level predictions were undertaken for a variety of road setback distances which can be used to provide an indication of road traffic noise impacts at other locations. As the road traffic noise levels are predicted to meet the requirements of the NSW Road Noise Policy at the setback distances modelled on Nelson Bay Road, it is anticipated that the development would meet the requirements of the NSW Road Policy at all other locations.

5. Noise measurements were also taken in an area where the trucks are at low speed and emitting less noise

Noise logging was used to assess the background noise levels from traffic travelling along Nelson Bay Road in the vicinity of the Mackas Sand private access road. The speed limit along this section of Nelson Bay Road is 80 km/h.

Initial background noise logging measurements were undertaken in 2009 with supplementary noise logging measurements undertaken in 2015 to verify the results of the 2009 study. The results from the 2009 study were utilised in the noise impact assessment as they provided a more conservative approach (i.e. didn't take into account increased noise levels due to traffic growth since 2009). This approach provided for a greater level of protection for the community. The noise logging locations presented in the Environmental Assessment are located on straight stretches of Nelson Bay Road, where vehicles typically travel at or near the posted speed limit of 80 km/h.

6. Recently I decided to check the times the trucks were travelling and the noise output from those trucks
I purchased a "digit each micro sound meter" model Qmaster-1591 with a frequency range of 31.5hz-8khz with an accuracy of +- 3.5 db

Some examples are as follows (I have a log of data)

Lets just do the "night time" 11 pm to 7 am

Most nights there are twenty odd movements with the very disturbing issue the noise levels ranging from 81.2 db to 87.1 db

Environmental noise level measurements are required to be undertaken in accordance with the procedures set out in Australia Standard (AS) 1055 with a meter that is calibrated in accordance with AS1259 and capable of complying with AS 1259. AS 1055 specifically states that if the instrumentation system registers a discrepancy between field calibration checks equal to or greater than 1dB (i.e ± 1 dB) then any measurements between checks is to be considered invalid.

An increase or decrease of 3 dB is generally considered to be equivalent to a doubling or halving of a sound source (i.e. 2 trucks to 4 trucks).

A meter with an accuracy of ± 3.5 dB may be used to indicate noise level in a qualitative sense, however is not accurate enough to provide noise level measurements in a quantitative sense.

7. Request for suitable noise reduction measures at private residences

Section 4.3 of the NSW Road Noise Policy notes that there is limited potential for traffic generating developments to implement noise control on existing road networks as development is not usually linked to road improvements. Section 4.3 further recommends that strategies to minimise noise from traffic associated with the development should be applied.

Mackas Sand has in place a Noise Management Plan and a Traffic Noise Management Plan (as required by Condition O4.3 of EPL 13218), which implements a number of strategies to minimise noise from traffic. As stated in the Mackas Sand Noise Management Plan (Umwelt, 2014), Mackas Sand is committed to implementing and maintaining the following controls to manage traffic noise generation:

- All trucks used to remove sand extracted 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.
- The haul road providing access to Lot 220 is sealed adjacent to residences minimising the potential for noise generation as a result of rough road surfaces (i.e. as generated by potholes and corrugation on the road surface).
- The unsealed 500 metre section of the Lot 220 haul road will be regularly graded and maintained to repair any potholes or bumps that may occur.
- Truck speed on the private haul road off Oakvale Drive is limited to 20 km/h and the use of exhaust brakes is prohibited by Mackas Sand Quarry Traffic Rules.
- Truck speed on the alternate access road to Lot 218 will be limited to 40 km/h.
- The 200 metres of the alternate access road closest to Nelson Bay will be sealed. The remaining unsealed section of the Lot 218 alternate access road will be regularly graded and maintained to repair any potholes or bumps that may occur.
- All trucks transporting sand from Lot 218 and Lot 220 are to be regularly maintained.
- 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 possible. A system of sanctions for non-compliance is in place if exceedances due to driver fault are a regular occurrence.

4.3 Socio-Economic

4.3.1 Social Impact/Opportunities

4.3.1.1 General

1. **The hours being sought will impact on those people residing in the area and the increase in truck numbers shows no interest in the local residents.**

The rural amenity will be destroyed for all residents and commuters on Nelson Bay Road and impacts on the quality of life due to the noise of trucks.

Mackas Sand is not seeking any change to the hours of operation for Lot 218 sand extraction and transportation. As discussed in Section 1.3.2 of the modification EA, in the lead up to the preparation of the modification application Mackas Sand actively engaged with residents in the immediate vicinity of the private alternative access road to/from Lot 218 which forms part of the development. Condition 9(b) of PA 08_0142 identifies four potentially affected residents adjacent to the intersection of the approved access road and Nelson Bay Road. All of these residents confirmed in writing that they have no objection to Mackas Sand having unrestricted hourly truck movements along the access road between the hours of 5 am and 10 pm Monday to Saturday, or between the hours of 8 am to 12 pm on Sundays and public holidays.

Nelson Bay Road is a State road and the use of it by quarry trucks has been assessed in accordance with relevant traffic assessment criteria.

As discussed in Section 4.2 of the modification EA, the proposed modification will not create any significant adverse socio-economic impacts, including demographic impacts, quality of life impacts, local housing market impacts, impacts to existing businesses in the area nor is it expected to adversely impact on employment and income opportunities in the local area.

4.3.1.2 Public Safety

2. **The increase in traffic movements will result in loss of resident (pedestrian and commuter) safety, with a higher risk of incidents and accidents occurring at intersections and roundabouts.**

The speed limits on Nelson Bay Road are too high and make it impossible to cross the road safely; this will be exacerbated by the increased heavy truck movements.

Refer to response in Item 1 provided in **Section 3.1.1**. Mackas Sand would support a reduction in speed limit on the single carriage section of Nelson Bay Road between Richardson Road intersection and Medowie Road intersection.

4.3.1.3 Community Consultation

3. Lack of community consultation with residents of Cabbage Tree Road.

Unaware of any consultation whatsoever with the local community during the operation of the existing site. The proponent should be requested to provide evidence of such consultations.

Cabbage Tree Road is part of the main road network which has been constructed for the use of vehicles including trucks. Refer to response to Item 1 provided in **Section 3.3.1.1**. As outlined below, Mackas Sand has established a Community Consultative Committee in accordance Condition 7 of Schedule 5 of PA 08_1042 which is held on a regular basis and allows any community concerns to be raised and discussed in detail.

4. Unaware of any meetings of the Community Consultative Committee (CCC) and evidence of the dissemination of any information by this Committee.

No details of the CCC's composition or meetings are provided, and many local residents appear unaware of this committee.

Details in regard to the Community Consultative Committee (CCC) are provided on the Mackas Sand website (<http://www.mackassand.com.au/compliance/contact.html#CCC>). CCC meeting minutes are provided at this location and detail the Chairperson, minute taker and attendees at each meeting; with the minutes detailing the agenda for each CCC meeting and the topics of discussion, including any actions to be undertaken and the proposed date of the next CCC meeting.

4.3.1.4 Economic

5. Proposed modification may do damage to the reputation of Port Stephens as a tourist attraction with holiday makers experiencing delays and congestion on this busy road.

The proposed modification involves traffic using a State road and will not create any significant adverse social-economic impacts, including demographic impacts, quality of life impacts, local housing market impacts, impacts to existing businesses in the area nor is it expected to adversely impact on employment and income opportunities in the local area.

Furthermore, as discussed above, the Nelson Bay Road, Richardson Road and Salt Ash Avenue roundabout and the Nelson Bay Roads and Site Access Road intersection currently operate at a LoS B and LoS A respectively. As indicated by the traffic analysis, these intersections will continue to operate at these levels should the proposed modification be approved.

4.3.1.5 General

4.3.1.6 Development Contributions and Road Maintenance

- 6. Mackas Sand should be responsible for rectifying the issue of access to Banksia Grove Village by:**
- **Installing traffic lights, for vehicles entering and leaving Nelson Bay Road and a pedestrian crossing;**
 - **A pedestrian refuge, with a pedestrian button at the centre of the road to control one lane at a time;**
 - **Installation of signage in vicinity of Banksia Grove Village to indicate it is an area with elderly residents**
 - **Construction of a footpath to bus shelters on both sides of Nelson Bay Road, off Banksia Grove Village; and**
 - **Reduction of speed limit from 80km/hr to 60/70km/hr, including along all major roads leading to both roundabouts in Salt Ash.**

Nelson Bay Road is a State controlled road. Any proposals requesting the installation of traffic lights, pedestrian crossings or speed reductions in proximity to the Banksia Grove development is the responsibility of RMS.

4.4 Project Justification and Alternatives

- 1. The use of a booking system for the trucks would overcome the requirement stated by the applicant to overcome the need to be able to load as many trucks whenever they arrive. This simply doesn't make sense as they would also need to have enough staff and equipment to meet this need.**

As discussed in the response in **Section 3.2.3**, the proposed modification is sought to enable Mackas Sand to be able to:

- better respond to construction industry demands
- improve the efficiency of extraction operations through being able to better utilise the two loaders within the extraction area
- allow the approved annual tonnage of sand product to be transported from Lot 218; as the current approval requires the site to operate at the maximum permitted truck movements per hour for extended hours of every day of operation. This is not practically achievable and would require the site to operate during the Shoulder period (i.e. the period from 5 am to 7 am Monday to Friday) prescribed by PA 08_0142 and on Sundays and Public Holidays; with these times being the most likely to potentially affect nearby residents.

While a booking system could under very controlled circumstances which included predictability of travel times, enable Mackas Sand to schedule the arrival of client's trucks, a booking system would not solve the existing need to operate at the maximum permitted truck movement per hour for all hours of every day of operation.

The proposed modification to Condition 4B will enable Mackas Sand to better meet construction industry demands for sand extracted from Lot 218 and more readily achieve annual production of up to 1 million tonnes as approved whilst reducing the need for significant truck movements between 5 pm and 10 pm on weekdays.

2. There is no reason why the site cannot operate for 15 to 20 years rather than 10 to 15 years

As discussed above, demand in Sydney for construction sand continues to grow and this demand continues to be met from available suppliers. Sand extracted from Lot 218 can be extracted more efficiently and with lower environmental impact than sand extracted at areas that require clearing of vegetation of significant processing of the sand before it can be used for construction purposes.

The approved annual tonnage of sand product to be transported from Lot 218 cannot be achieved without operating at the maximum permitted truck movements per hour for extended hours of every day of operation; which is not practically achievable without undertaking movements during the Shoulder period (i.e. the period from 5 am to 7 am Monday to Friday) prescribed by PA 08_0142 and on Sundays and Public Holidays.

Condition 5 of Schedule 2 of PA 08_0142 currently allows for quarrying operations to take place on site for a further approximate 14 years (until 31 December 2029) after which time a modification of the approval will be required.

3. Development at Williamstown RAAF Base has commenced and shouldn't be used as a justification

While redevelopment works at the Williamstown RAAF Base have commenced, the works are not expected to be completed until mid-2021. So while works have commenced at the Williamstown RAAF Base, the proposed modification provides the opportunity to support the upgrade works to be undertaken over the next 6 years, in preparation for the Joint Strike Force fighters.

4. This proposal is requesting an increase in truck movements to two sand quarry sites even though the operator has stated at a public meeting that there will be no increase in trucks.

The modification sought is in relation to truck movements from Lot 218 only. Refer to response to Item 4 provided in **Section 3.3.2**.

5. Richardson Road would be a better option, with few houses from the roundabout at Pauls Corner to the Medowie roundabout.

Access to Lot 218 through Lavis Lane would be a far safer option.

Richardson Road

The existing site access road intersection to Nelson Bay Road from Lot 218 is located approximately 2.5 kilometres south-west of the Pauls Corner roundabout which intersects with Richardson Road. Trucks travelling from Lot 218 to Raymond Terrace and destinations north currently use Richardson Road. Richardson Road also passes several residences and through a built up residential area at the eastern edge of Raymond Terrace.

Lavis Lane

Lot 218 is not physically connected with Lavis Lane and Mackas Sand does not have agreements with relevant landholders that would enable access from Lot 218 to Lavis Lane.

Refer to response to Item 4 provided in **Section 3.2.3**.

6. There is no need for a 5am start, the airport doesn't start until 6am.

No change to hours of operation is sought as part of Modification 2 application.

7. If the mine owners claim that there will be no further increase in movements, can the approval be modified to support a maximum number of movements per day rather than 48 per hour as it currently proposes.

Setting a daily maximum for truck movements from the quarry would not provide appropriate level of control for trucks accessing Nelson Bay Road. Refer to response to Item 1 provided in **Section 3.2.1**.

8. With such an approval, the proponent can suggest that his new truck movements are, down the track, underutilized and thereby apply for an increase in the approved tonnages from 1m tonnes to 2m, 3m or even 4m tonnes.

Should Mackas Sand propose modifications to its current approval in the future, it will be subject to further environmental assessment and approval by DP&E.

4.5 Project Description/Design

1. Project is lacking in details and should be rejected. Details include:

- **No figures of current extraction rates or the expected demand in the future;**

Extraction Rates

No change is sought to extraction rates as part of Modification 2.

Expected Demand

No change is sought as part of Modification 2 to the 1 million tonnes of sand that is currently permitted to be extracted and transported from Lot 218.

While definitive supply numbers are difficult to verify, it is clear that the annual demand of approximately 8 Mt of construction grade sand in Sydney will increasingly rely on sand sourced from the Stockton Bight area and Lot 218 is ideally placed to contribute supply to satisfy this demand.

4.6 Air Quality

- 1. Dust is apparent from existing operations and will be exacerbated by the proposed increase to heavy vehicle numbers.**

Refer to response to Item 10 provided in **Section 3.3.5**.

- 2. Risk of Silicosis for Drivers and Residents**

The proposed modification to the maximum number of truck movements per hour will not increase annual production or the volume of sand loaded onto trucks or transported by trucks and will therefore not increase the risk of Silicosis for drivers or residents.

- 3. Heavy vehicles not covered properly and causing dust issues.**

Project Approval Condition 33 requires:

The Project shall ensure that:

- (a) all loaded vehicles entering or leaving the site are covered; and*
- (b) all loaded vehicles leaving the site are cleaned of materials that may fall on the road before they leave the site.*

Mackas Sand includes this requirement as part of their Site Safety Rules for all employees, contractors and customers and will continue to ensure loaded vehicles leaving site are compliant with this requirement.

The Independent Environmental Audit (IEA) Report completed by Australian Quality Assurance and Superintendence Pty Ltd (AQUAS) found the site to be compliant with this condition and noted that loads sighted during the site visit were covered.

4.7 General

- 1. The Council should be acting to preserve this unique NSW coastal environment, not commercialise it**

In 2009, the State government approved sand extraction operations on Lot 218. The extent of sand extraction from the site will not change as part of the proposed modification to increase truck movements.

- 2. The precedents being set by a 'leader' of Port Stephens in developing sand mines when and where he wants which certainly has sparked a few imitators. I also would request an investigation into possible conflict of interest in terms of the proposal & the relation to the Mayor.**

This issue is not considered relevant to the proposed modification.

- 3. The proposal has been incorrectly advertised in the local news paper the Port Stephens Examiner in as much as it says Maccas Sands only wants to increase the movements leaving the quarry-- obviously very confusing**

The proposal was exhibited by DP&E in accordance with its statutory obligations under the *Environmental Planning and Assessment Act 1979*.

- 4. The proponent lodged the original application and accepted the terms and conditions as imposed. He must have been aware of the limitations but was happy to proceed on that basis.**

The proponent is entitled to seek approval from DP&E to modify the existing Major Project approval in accordance with the relevant provisions under the *Environmental Planning and Assessment Act 1979*.

4.8 Hazard

- 1. The diesel used in the trucks leaves a residue on the road and makes the road excessively slippery during wet weather.
Fear of health risks associated with the constant exposure to diesel fuel.**

Mackas Sand is not seeking to increase the total number of trucks on the road from that currently approved with maximum annual production remaining at 1 million tonnes. Mackas Sand is seeking to increase the maximum number of truck movements allowed per hour to enable it to better service the construction industry and more efficiently extract sand from Lot 218.

4.9 Aboriginal Archaeology

- 1. The proposed modification will result in the loss of Aboriginal relics.**

As noted in Table 4.1 of the modification EA, the proposed modification will not result in any change to approved impacts on Aboriginal archaeology and cultural heritage.

4.10 Management/Monitoring Measures

- 1. Mackas Sand should be required to produce monthly tonnage reports to the Department of Planning, that these be published on the Departments website and that the operation is audited on a random basis to ensure compliance.**

Mackas Sand currently provides a summary of its sand extraction operations from both Lot 218 and Lot 220 as part of its Annual Review in accordance with PA 08_0142. This summary includes monthly sand production tonnes for each lot and includes a figure providing an overview of where extraction has occurred.

Copies of Annual Reviews can be found online on the Mackas Sand website.

In regard to auditing, DP&E conduct random audits of extraction operations. In addition, Condition 4 of Schedule 3 of PA 08_0142 includes the requirement for independent environmental auditing of the operation to be undertaken within 2 years of the date of the commencement of quarrying operations and every 3 years thereafter; with a requirement of this audit being that it:

- (a) *be conducted by a suitably qualified, experienced, and independent team of experts whose appointment has been approved by the Director-General;*
- (b) *assess the environmental performance of the project, and its effects on the surrounding environment;*
- (c) *assess whether the project is complying with the relevant standards, performance measures and statutory requirements;*
- (d) *review the adequacy of any strategy/plan/program required under this approval; and, if necessary;*
- (e) *recommend measures or actions to improve the environmental performance of the project, and/or any strategy/plan/program required under this approval.*

2. The proponent should be required to detail specifically what their monitoring and auditing processes are and reveal exactly what they show in writing since the commencement date in February 2015 to date.

Copies of Mackas Sand's Environmental Management Strategy (EMS) and associated management plans pertaining to operations at Lot 218, and as required by PA 08_0142, are provided on the Mackas Sand website. These management plans detail the applicable management controls, mitigation measures and monitoring programs pertaining to the issue. Each management plan also includes reporting requirements in relation to complaints, incidents and corrective actions; as well as review requirements in relation to PA 08_0142 and changes in environmental requirements, technology and operational procedures.

In addition, the Independent Environmental Audits required by PA 08_0142 provide the opportunity to verify the operation's compliance and offer recommendations for the improvement of the environmental performance of the operation.

4.11 Cumulative Impact

1. No consideration of other proposals for future mines in assessing this application.

The Traffic Impact Assessment completed for the proposed modification (Appendix 3 of the modification EA) utilised traffic counts which included existing truck movements from other operating quarries in the area. The assessment also analysed potential future growth in traffic based on long term trends in traffic growth.

No specific assessment of potential future quarries was undertaken other than analysis using long term trends in traffic growth as discussed above. Truck movement from potential future quarries remain unknown at this time and will be taken into consideration as part of the assessment process for future developments.

5.0 Changes to Proposed Modifications

Mackas Sand has reviewed the submissions received during the public exhibition period and proposes no further changes from those sought as part of Modification 2.

6.0 References

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GHD (2015). Mackas Sand Traffic Study – Development Traffic Assessment.

Holmes Air Sciences (2008). Air Quality Assessment: Proposed Concrete Batching Plant at Carrington, NSW.

Lyle Marshall & Associates Pty Ltd, and McLaren Traffic Engineering (2013). *Road Safety Audit Stage 2 Preliminary Design of Channelised Intersection of Access Road to Proposed Sand Mining Development Lot 218, D.P. 1044608, Williamtown and Nelson Bay Road.*

RTA (2002). Guide to Traffic Generating Developments.

Umwelt (Australia) Pty Limited (Umwelt) (2015). *Mackas Sand Annual Review January 2014 – December 2014.*

Umwelt (Australia) Pty Limited (2014). *Noise Management Plan for Sand Extraction Operations, Lot 218 and Lot 220 Nelson Bay Road, Salt Ash.*

Umwelt (Australia) Pty Limited (2013). *Mackas Sand Pty Limited Alternate Haul Route, Landscape Management Plan for Lot 218.*

US Department of Transportation (2004). *US Federal Highway Administration (FHWA) Traffic Noise Model (TNM) Version 2.5 Look-Up Tables.*



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