



DIXON SAND

## HAERSES ROAD QUARRY MODIFICATION 3

Submissions Report

**FINAL**

March 2020



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### Submissions Report

### FINAL

Prepared by  
**Umwelt (Australia) Pty Limited**  
on behalf of  
**Dixon Sand (No. 1) Pty Limited**

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# 1.0 Introduction

This Submissions Report has been prepared by Umwelt (Australia) Pty Limited (Umwelt) on behalf of Dixon Sand (No. 1) Pty Limited (the Applicant/Dixon Sand) to address the issues raised in the submissions received during the public exhibition period for an application to modify DA 165-7-2005 (the Proposed Modification). The exhibition period commenced on 29 January 2020 and concluded on 26 February 2020 with seven public and eight government agency submissions received. Following the conclusion of the exhibition period, a further three government agency submissions were received which have also been reviewed and considered as part of this Submissions Report.

## 1.1 Overview of the Project

Dixon Sand operates the Haerses Road Quarry (the Quarry) located on Haerses Road at Maroota, NSW (refer to **Figure 1.1**). Development consent (DA 165-7-2005), which provides for the extraction and processing of sand from the Tertiary Maroota Sand deposit at a rate of up to 250,000 tonnes per annum (tpa) for a period of 25 years, was originally granted by the Minister for Planning in 2006. DA 165-7-2005 has been modified twice since 2006, firstly in 2018 to extend the extraction area, to include extraction of friable Hawkesbury sandstone, and import Virgin Excavated Natural Material (VENM) and Excavated Natural Material (ENM) for backfill and selective processing, and again in 2019 to correct an inconsistency between the approved area of disturbance and identified buffers to this disturbance.

Due to the medium to long term increases in demand for medium to coarse grain and specialist sands in the Sydney market, Dixon Sand is seeking to modify DA 165-7-2005 to increase production limits, limits on the importation of VENM and ENM and allowable traffic movements.

The key components of the Proposed Modification, as outlined in the Statement of Environmental Effects (SEE) (Umwelt, 2019) submitted to the NSW Department of Planning, Industry and Environment (DPIE) are as follows.

- An increase in the rate of extraction and production from 250,000 to 495,000 tpa. The proposed extraction rate increase would better reflect the approved resource available for extraction which includes the additional 15 million tonnes (Mt) approved by Modification 1 (increasing the total resource to 20.8 Mt).
- An increase in the volume of VENM and ENM to be imported (up to 250,000 tpa), principally to backfill the Hawkesbury sandstone extraction area, with select materials processed and blended with the Quarry sand resources. The increased rate of importation reflects the increased rate of extraction and production (to avoid a significant lag time between completion of extraction and final landform construction and rehabilitation).
- An increase in the number of daily heavy vehicle movements from 56 trucks per day to 180 trucks per day. This will accommodate both the increased production and VENM/ENM importation, as well as the proposed increase in sales direct to market.
- A small extension to Stage 5 of the Tertiary Sand Extraction Area (refer to **Figure 1.2**), which is currently 80 m from Lot 3 DP111886 to the north (owned by Dixon Sand) (and 100 m to the private landholding on Lot 11 DP835992):
  - 30 m from Wisemans Ferry Road to the northwest
  - the boundary of Lot 3 DP111886
  - 10 m from Hitchcock Road.

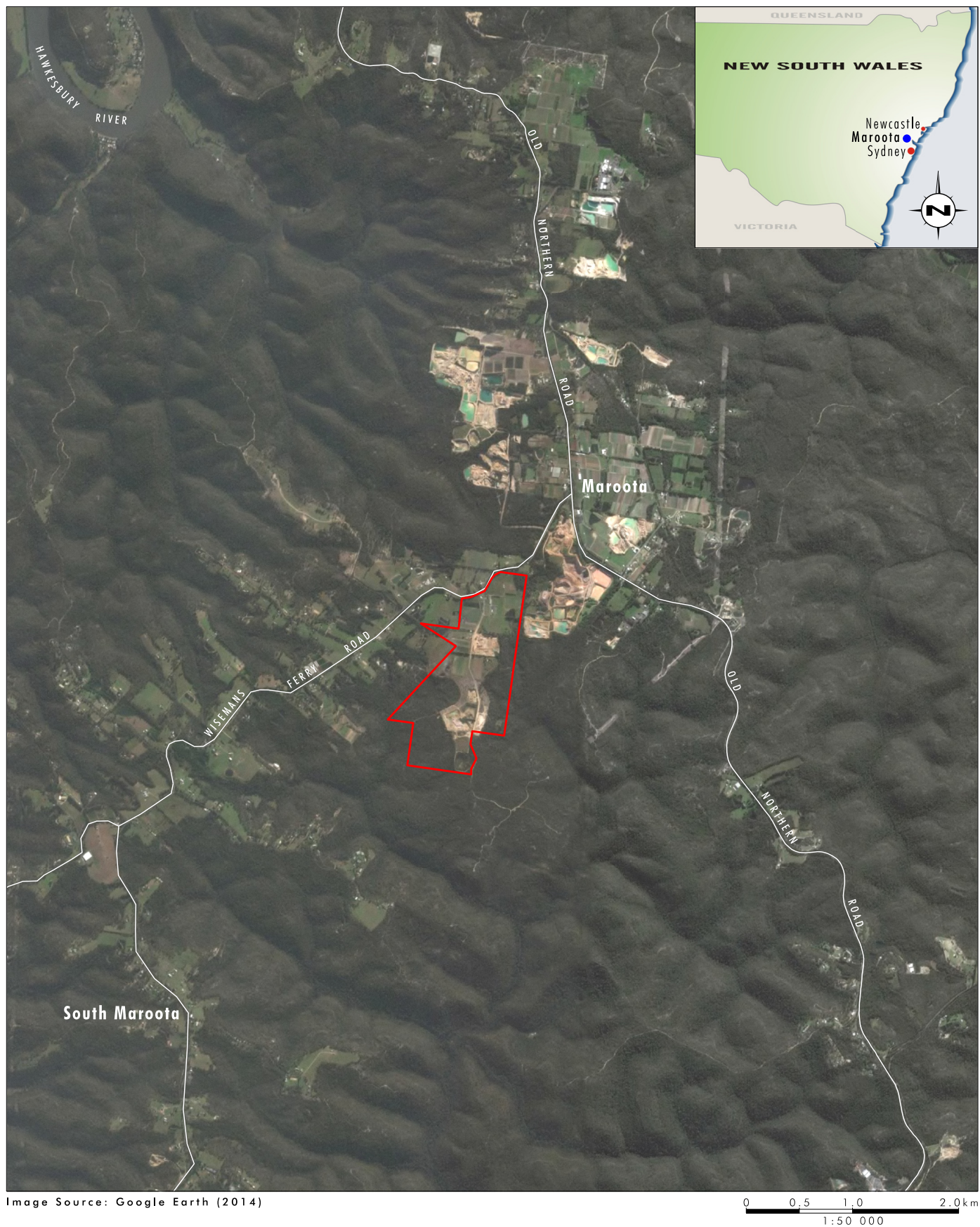
Approval for the Proposed Modification is being sought by the Applicant under Section 4.55(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

## 1.2 Report Structure

This Submissions Report includes:

- a brief summary of the Project to provide context for the submissions (**Section 1.1**)
- analysis of the issues raised in the submissions (**Section 2.0**)
- summary of the actions taken since the exhibition (**Section 3.0**)
- detailed response to the issues raised in the agency submissions (**Section 4.0**)
- detailed response to the issues raised in community submissions (**Section 5.0**)
- updated evaluation of the project merits (**Section 6.0**).





# Legend

Haerses Road Quarry Site

FIGURE 1.1  
Locality Map



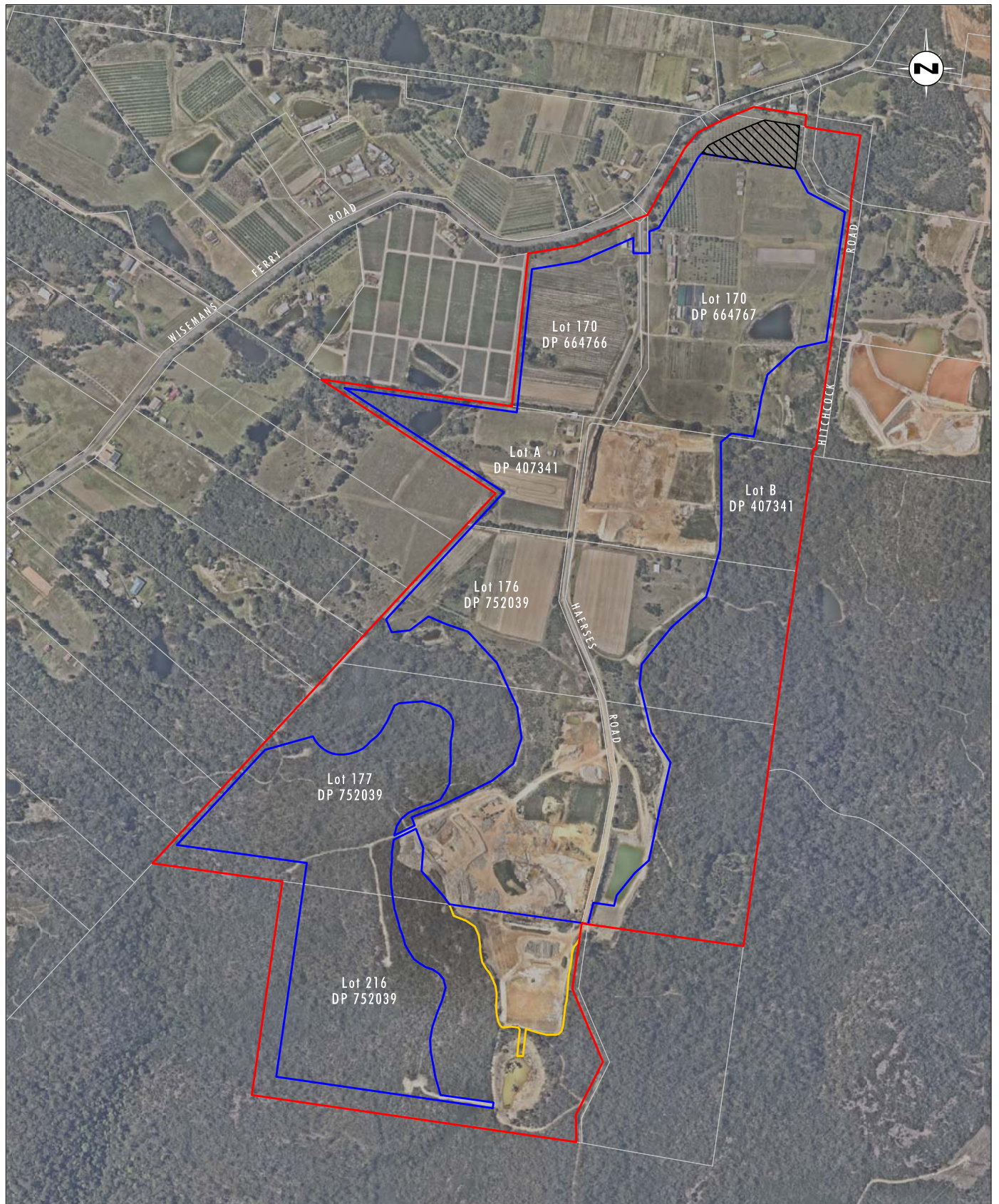


Image Source: Nearmap (Dec 2018)  
Data Source: Mc Kinlay Morgan & Associates Pty Ltd (2019)

0 100 250 500m  
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#### Legend

- Haerses Road Quarry Site
- Approved Extraction Area
- Processing and Stockpiling Area
- ▨ Proposed Extraction Area Extension

FIGURE 1.2

Site Plan

## 2.0 Submissions Analysis

### 2.1 Breakdown of Submissions

The SEE for the Proposed Modification was placed on public exhibition by DPIE from 29 January 2020 until 26 February 2020. During the exhibition period there were seven submissions received from the community. Submissions were also received from 10 government agencies, as well as The Hills Shire Council. **Table 2.1** provides a breakdown of the submissions received.

**Table 2.1 Breakdown of Submissions**

Category	Number of Submissions
Agency (State/Public Authorities)	10*
Council – The Hills Shire Council	1
Community and Interest Groups	0
Members of the Public	7
<b>Total</b>	<b>18*</b>

\* The submission from the Resource Regulator has been listed twice on <https://www.planningportal.nsw.gov.au/major-projects/project/25606>. Also, the DPIE Water and DPIE NRAR submissions were received as one joint submission.

**Appendix A** provides the Register of Submitters.

#### 2.1.1 Agency Submissions

As outlined in **Table 2.1**, ten agency submissions and one Council submission were received from the following entities:

- NSW Department of Planning, Industry & Environment – Division of Resources and Geoscience
- NSW Department of Planning, Industry & Environment – Resources Regulator
- NSW Department of Planning, Industry & Environment – Crown Lands
- NSW Department of Planning, Industry & Environment – Environment, Energy and Science Group
- NSW Department of Planning, Industry & Environment – Water
- NSW Department of Planning, Industry & Environment – Natural Resources Access Regulator
- NSW Environment Protection Authority
- Heritage Council of NSW
- Transport for NSW
- Department of Primary Industry – Agriculture
- The Hills Shire Council.

A description of the content of each submission, along with relevant responses is provide in **Section 4.0**.

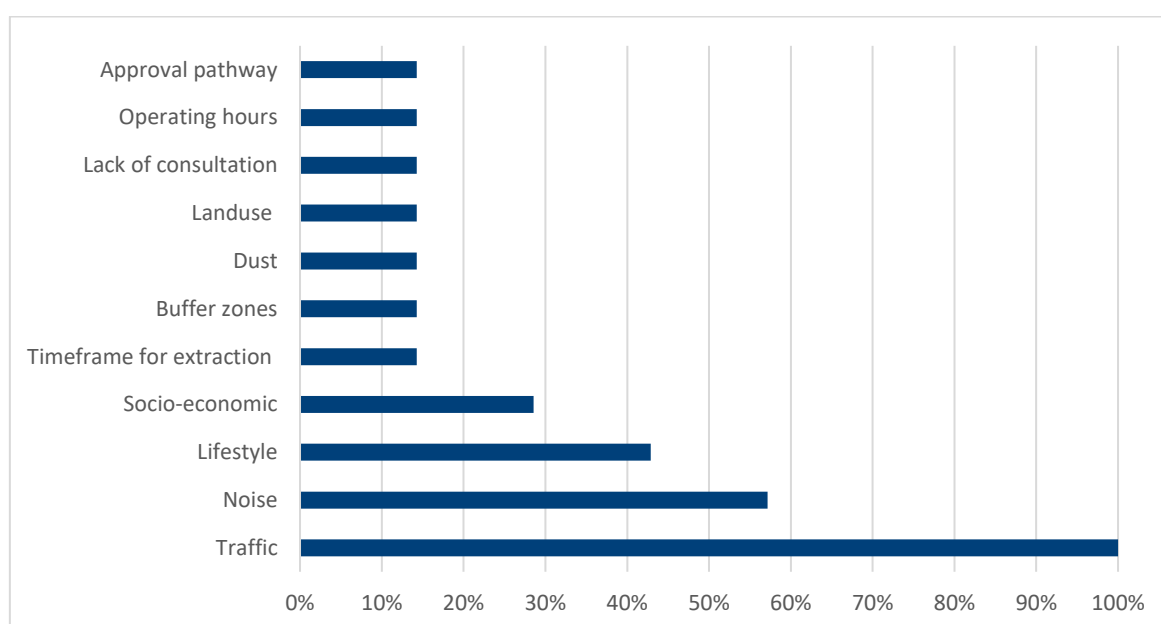
## 2.1.2 Community Submissions

Seven submissions were received from members of the community. No submissions were received from interest groups. All community submissions were objections to the Proposed Modification.

The submissions were analysed based on proximity to the Project Area to determine the level of local (within approximately 10 km), regional (between approximately 10 and 100 km) and broader community (>100 km) interest in the Proposed Modification. All seven community submissions were received from the local area, within 10 km of the Project, from residents of Maroota, South Maroota and Sackville North.

The key issue raised in all community submissions was traffic, particularly in relation to the capacity of the local road network, the proposed increase in vehicle movements and impacts on road safety. Other key issues raised were in relation to local amenity in terms of noise and lifestyle impacts.

A breakdown of the issues raised in community submissions is provided in **Figure 2.1** below.



**Figure 2.1** Key issues raised in community submissions

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The community submissions are addressed in **Section 5.0**.



## 3.0 Actions Taken Since Exhibition

Following submission of the Proposed Modification Dixon Sand has continued to engage with stakeholders throughout and beyond the exhibition period as follows.

- Holding an Extraordinary Meeting of the Community Consultative Committee (CCC) on 24 February 2020 to discuss with Community Representatives issues and concerns from the public and to answer any questions on the Proposed Modification.
- Renewing the negotiated agreement with the owner of residence R02 (Lot 11 DP 835992) to allow extraction of the 100 m buffer up to within 20 m of the boundary. Further details are provided in **Section 5.5** and **Appendix B**.
- Dixon Sand has continued to avail its personnel, most notably their Environmental Officer, to local residents to answer queries on current and proposed future operations.

## 4.0 Response to Agency Submissions

The issues raised in the agency submissions are identified in the following sections in text boxes, with the response provided following each text box.

### 4.1 DPIE Division of Resources and Geoscience

The Division has no concerns with the Modification however requests the proponent continue to provide annual production data for the subject site to the NSW Division of Resources and Geoscience as a condition of any new or amended development consent.

This requirement is noted, and the Applicant will continue to provide this information to the Division as requested.

### 4.2 DPIE Resources Regulator

#### Environment and Rehabilitation

The proposed development is not a mining operation and does not involve the extraction of material classified as a mineral under Schedule 1 of the *Mining Regulation 2016*.

In addition, the land comprising the proposed development is not the subject of a mining lease granted pursuant to the *Mining Act 1992*.

The Resources Regulator has not identified any matter that would require further comment.

#### Mine Safety

Mine Safety Operations within the Resource Regulator is responsible for ensuring mine operators manage the risk to worker health and safety through compliance with the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* and the subordinate mining legislation. In particular the effective management of risk associated with the principal hazards as specified in the *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014*.

Mine Safety Operations have not identified any risk that would require comment in relation to this matter.

This submission is noted.

### 4.3 DPIE Crown Lands

DPIE Crown Lands submission noted contained no comments for this proposal.

### 4.4 DPIE Environment, Energy and Science Group

EES Group notes from the Statement of Environmental Effects (SEE) that the Planning and Assessment Group 'recommended that a BDAR (*Biodiversity Development Assessment Report*) was not required as long as the potential indirect impacts to the biodiversity values of the adjacent areas as a result of the Proposed Modification were shown to be appropriately managed'. However, as advised on 22 July 2019, it is EES Group's understanding of section 7.17 of the *Biodiversity Conservation Act 2016* that a BDAR is required unless the decision maker considers there will not be an increase in the impact (direct or indirect) on biodiversity values.

The Applicant recognises the EES Group's advice of 22 July 2019 and acknowledges that, in accordance with section 7.17 of the *Biodiversity Conservation Act 2016* (BC Act) a BDAR is required unless the decision maker considers there will not be an increase in the impact (direct or indirect) on biodiversity values. To allow for this decision to be made by the consent authority, detailed information on the direct impact of the Proposed Modification on biodiversity values was provided in Appendix 10 of the SEE in the form of a BDAR Waiver Request (submitted to DPIE on 18 June 2019). Further information on the indirect impacts on biodiversity values, in response to a request by the EES Group of 22 July 2019 for additional information on potential indirect impacts to the biodiversity values of adjacent areas, is provided in Section 7.10 of the SEE. This information demonstrates the Proposed Modification is not expected to result in any significant direct impact on the biodiversity values of the site nor indirect impacts on the biodiversity values of the surrounding lands greater than that of currently approved operations. This satisfies the requirement of section 7.17 of the BC Act for BDAR waiver.

In relation to the existing consent mitigation measures to address edge effects, noise, dust, light spill and other indirect impacts to the biodiversity values of adjacent areas, it is recommended these be applied to the extended extraction area. It is unclear from the SEE whether this is proposed.

The SEE clearly states, in a number of locations throughout the biodiversity assessment (Section 7.10 of the SEE), that existing mitigation measures applied to the approved operations will also be applied to the extended extraction area, as illustrated in the extracts below.

From SEE Section 7.10.2:

*Several mitigation measures to reduce the likelihood of edge effects occurring within the surrounding landscape have been identified as part of the broader approved Quarry during construction and operation, and these can be applied to the proposed extraction area extension.*

From SEE Section 7.10.3:

*... mitigation measures to minimise the potential for adverse noise, dust and light spill impacts have been incorporated into the design of the approved extraction area and these will also be applied in the proposed extraction area extension.*

From SEE Section 7.10.4:

*Existing weed management controls for the approved Quarry will be applied to the Proposed Modification.*

From SEE Section 7.10.5.1:

*The following mitigation measures for the approved Quarry will apply to the Proposed Modification for reducing any indirect surface water impacts to surrounding areas.*

And from Section 7.10.5.2:

*... Notwithstanding, the following mitigation measures that apply to the approved extraction area will be implemented for the Proposed Modification.*



## 4.5 DPIE Water and DPIE Natural Resources Access Regulator

### Post Approval

Additional Water Access Licences must be obtained should the project exceed its current limits.

This requirement is noted, and the Applicant will continue to operate within the requirements of all Water Access Licences.

It is noted Dixon Sand holds water access licenses (WALs) 25956 and 25941 which have allocations of 132 and 50 ML respectively from the Sydney Central Basin Groundwater Source. In addition, Dixon Sand has recently obtained additional entitlement in the form of WAL 42325 of 80 ML and a further 150 ML through a controlled allocation (ROI3-19-065) with WAL application made and pending from the Sydney Central Basin Groundwater Source. These WALs are to provide sufficient allocation in the event of unexpected interception of perched aquifers during extraction process (of Haerses Road or Old Northern Road Quarries).

## 4.6 NSW Environment Protection Authority

### 4.6.1 Air

The AQIA included a modelling scenario based on the assumption that all activities specified in the emissions inventory occur simultaneously. Although the report states that this approach is conservative and could be considered as a worst-case scenario (due to equipment limitations all these activities cannot be undertaken at the same time), modelling predictions do not include the impact from expected maximum truck movements.

Proposed activities include an increment in truck movements from 56 to up to 180 movements per day (total in and out). Based on the information provided in the emissions inventory, the number of expected trucks movements are based on an annual average and do not account for peak operations. A screening review shows that the average number of truck movements included in the assessment account for up to 125 movements a day.

Given modelling results predict increments as high as 16  $\mu\text{g}/\text{m}^3$  for 24-hour PM<sub>10</sub> and 13  $\mu\text{g}/\text{m}^3$  for PM<sub>2.5</sub>, and the number of truck movements (in and out) are independent to the stated equipment limitations, the inclusion of a modelling scenario based on maximum daily peak operation including expected peak truck movements is likely to result in higher project-related increments and additional predicted exceedances.

#### Recommendation:

a) The applicant should revise the AQIA to include a worst-case scenario representative of expected maximum daily operations, including maximum peak daily truck movements.

ERM has provided clarification and further documentation to address the comments and recommendations of the EPA (refer to **Appendix B**).

Modelling predictions for 24-hour PM<sub>10</sub> and PM<sub>2.5</sub> are presented in Table 7-2 and Table 7-3 respectively. Whilst the maximum increment concentrations at each receptor and the maximum cumulative concentration are presented in these tables, no information is provided to assess expected cumulative impacts at each receptor.

In addition, it is noted that there are discrepancies between 24-hour PM<sub>10</sub> and PM<sub>2.5</sub> modelling results. It is unclear, why 24-hour PM<sub>2.5</sub> maximum project-only concentrations are the same or higher than 24-hour PM<sub>10</sub> maximum project-only concentrations. Predicted increments at receptors R8, R11, R17, R18 and R20 are the same for both pollutants. Furthermore, 24-hour PM<sub>2.5</sub> maximum project-only concentrations at receptors R4, R5, R7, R8, R9, R14, R16 and R19 are higher than the project only maximum predicted 24-hour PM<sub>10</sub> concentrations.

**Recommendation:**

- a) The AQIA be revised to include 24-hour PM<sub>10</sub> and PM<sub>2.5</sub> cumulative concentrations at each receptor. That is, results should include the corresponding background levels on the same day the maximum increment is predicted.
- b) The AQIA be revised to clarify discrepancies in the results presented in Table 7-2 and Table 7-3. In addition, all results and contour plots for all pollutants and averaging periods must be revised to confirm the predicted impacts.
- c) The applicant should present a contemporaneous assessment for the three most impacted receptors.

ERM has provided clarification and further documentation to address the comments and recommendations of the EPA (refer to **Appendix B**).

#### 4.6.2 Water

**Recommendation**

If the development is approved, it is recommended that as a condition of consent the applicant is required to provide an updated water balance to confirm that the site will continue as a nil discharge site.

The proposed EPA condition of consent is noted and is accepted by the Applicant.

#### 4.6.3 Noise

The EPA's recommended noise conditions are attached at Attachment C. These conditions are recommended to replace the previous noise conditions on the current licence. The conditions have been provided so that if the modification is approved, consent conditions don't conflict with the recommended licence conditions.

The proposed EPA conditions of consent are noted and is accepted by the Applicant.

### 4.7 Heritage Council of NSW

...there are no archaeological resources anticipated within the study area. Therefore, no further heritage comments are required.

The Department does not need to refer subsequent stages of this proposal to Heritage Council of NSW.

This submission is noted.

## 4.8 Transport for NSW

TfNSW raises no objection to the proposed modification 3 at Haerses Road Quarry including increase in the daily truck movements to/from the site subject to the following condition:

- The proponent should monitor the trucks queue within the right turn bay on Wisemans Ferry Road, and should there be queueing out of the right turn bay onto Wisemans Ferry Road through lane, the right turn bay is to be extended by proponent at no cost to TfNSW.

The proposed TfNSW condition of consent is noted and is accepted by the Applicant.

## 4.9 Department of Primary Industry – Agriculture

DPI Agriculture has no comments for this proposal.

## 4.10 The Hills Shire Council

The modified proposal, from its original approval, proposes an increase in production from 250,000 tonnes per annum to 495,000 tonnes per annum and an increase in truck movements from 56 truck movements per day (as modified in 2018) to 180 truck movements per day. An increase of this nature indicates that the proposal is not substantially the same development as was originally proposed. It is also noted that the modification application approved in January 2018 did not increase production. As such, it is considered that a new Development Application is required to substantiate the proposed increase.

As noted in Section 1.3 of the SEE, the Quarry was originally approved under the former Part 3A of the EP&A Act and then modified under the former Section 75W of Part 3A. Modifications to Part 3A approvals are governed by Clause 3BA of Schedule 2 to the *Environmental Planning and Assessment (Savings, Transitional and Other Provisions) Regulation 2017* (EP&A Reg). In essence clause 3BA provides that section 4.55 will apply to a modification of a former Part 3A Approval if the consent authority is satisfied that “the development to which the consent as modified relates is substantially the same development as the development authorised by the consent (as last modified under section 75W)”. In this case, DA 165-7-2005 was last modified under Section 75W (under the transitional provisions of the former Clause 8J(8)(c) of the EP&A Reg) on 22 January 2018 to approve an increase in the extraction area (to include the friable Hawkesbury sandstone extraction stages, importation and either reprocessing or application to land of VENM and ENM, and wet processing).

With respect to the Proposed Modification, no additional development type or activity is proposed. The site would continue to be operated as an extractive industry (sand quarry) targeting the same resource, undertaking the same processing operations and importing VENM/ENM for selective processing and final landform construction. Quantitatively there are some differences between the development as currently approved and the Proposed Modification. However, increases in extraction and production rates are to be balanced by the implementation of operational and environmental controls which would ensure that these modifications do not to impact on “material and essential” elements of the current development.

On the basis of their being no additional activities proposed, with increases to extraction, production and transportation limits managed to minimise impacts, it is concluded that the modified development will be substantially the same as the current operations, as last modified, for the purpose of section 4.55 of the EP&A Act. It is noted that this conclusion is supported by a legal opinion obtained from Hickson’s Lawyers on 17 May 2019 and supplied to the DPIE on 5 June 2019.

The proposal also refers to the modification to the buffers/setbacks to the northern boundary. Any reduction in buffers/setback would need to ensure that impacts such as acoustic and visual impacts are appropriately managed.

Acoustic impacts were assessed in Section 7.4 of the SEE and visual impacts were assessed in Section 7.9 of the SEE. Both sections separately addressed changes to buffers and setbacks as a result of the northern extension to the extraction area.

With respect to acoustic impacts, Section 7.4.5 of the SEE stated:

*The scenario for the northerly extension of Stage 5 (of the Tertiary Sand extraction area) provided for the relocation of the 5 m bund to the northern perimeter of the Stage 5 Extension.*

In a footnote to this statement, the SEE explained that:

*Based on feedback received from the landowners and residents of properties directly north of the Quarry, the bund would only be constructed and retained for as long as required to maintain the noise levels received at residential receivers to the north below Quarry noise limits (unless requested to be retained by these residents). Dixon Sand will liaise with the landowners and residents to the north of the Quarry Site prior to extraction in Stage 5 for which this bund provides for noise impact mitigation. Subject to agreement with these landowners and residents (who may be different towards the end of the Quarry life when the bund is required), or demonstration of compliance with noise criteria by alternative methods, the bund may not be constructed.*

With respect to visual impacts, Section 7.9.4 of the SEE stated:

*In addition to the existing mitigation of potential views provided by existing intervening topography and vegetation, the principal management measure to be implemented to reduce the impact of this extraction area extension would be the relocation of the 5 m high earth bund to the revised northern perimeter of the extraction area (refer to Figure 7.12). The bund would be vegetated with stabilising groundcover and fast-growing shrub and tree species prior to the commencement of extraction within the extension area.*

In a similar vein to the approach with respect to noise described above, Section 7.9.3 further explains:

*The timing of bund construction will be negotiated with the landowners to the north of the Quarry Site noting that currently these stakeholders value the views from their properties which are unaffected by constructed bunds. Similarly, depending on the preference of these landowners/residents at the time (development of the extraction area extension is unlikely for at least 15 to 20 years), the bund may be retained or removed as part of final landform construction and rehabilitation.*

Dixon Sand will continue to liaise with landowners to the north to ensure appropriate management and mitigation of impacts, particularly related to the change in buffers/setbacks on the northern boundary.

## 5.0 Response to Community Submissions

Responses to the issues raised in community submissions are included in the following sections, grouped by key issues. The issues raised by the community are identified in text boxes in the following sections, with the response provided following each text box.

Many of the community submissions raised similar or consistent issues and therefore, in order to prevent repetition, a combined response has been provided in these instances. For each common issue some examples of specific quotes from the community submissions have been provided in the text boxes.

### 5.1 Traffic

#### 5.1.1 Increase in truck movements

'The project will significantly increase the truck traffic along Wisemans Ferry Road.'

'I am writing to make a submission to object to the increase of truck movements, which seems excessive from 56 to 180 movement per day.'

'A 70% increase in this questionable vehicle type is absolute madness ...'

'I am greatly concerned about this proposed increase of trucks on the road and feel that the number of movements per day should not be increased by such a high volume. To jump from 56 per day to 180 per day is too much.'

'A trebling of the overall truck movements from the Haerses Rd Quarry has to be considered against the already high background current number of truck movements daily to/from all the Maroota quarries.'

Dixon Sand has seen a rise in demand in recent years for its quarry products and especially speciality sands from the Haerses Road Quarry. Closures of other regional extractive operations together with increasing demand for materials by the infrastructure and residential sectors has placed Dixon Sand as one of the key suppliers of sand products in the Sydney metro region.

Prior to approval of Modification 1 to DA 165-7-2005 in 2018, raw product from Haerses Road Quarry (coarse sand) was transported to Dixon Sand's Old Northern Rd Quarry (fine sand) for blending purposes. The approved maximum 28 one-way movements (56 two-way movements) represented the truck movements required for transport of Haerses Road Quarry raw product to the Old Northern Rd Quarry operations plant for blending of specialty sands. Notably, under this operating scenario, the volume of sand transported from the Quarry could be undertaken in larger capacity trucks (of Dixon Sand) and kept at a consistent level. With the approval of the first modification to DA 165-7-2005 which enabled the Haerses Road Quarry to operate independently of the Old Northern Rd Quarry, and the corresponding rising demand for Haerses Road Quarry specialty products, a justification has arisen to increase movements correspondingly (refer to **Section 1.1**).

The proposed increase in truck movements to a maximum of 180 per day (an increase of 124 movements per day) is consistent with a quarry of this size (21 million tonnes of approved resource) and the anticipated demand for product and speciality sands from the Quarry. It is important to note that this number presents the maximum value to accommodate periods of higher demand or demand from customers using smaller capacity trucks.

It is also relevant to the assessment of impact that of the increase in maximum daily truck movements from 56 to 180 (an increase of 124 trucks, not 180 trucks), these will be split (approximately) evenly between those travelling east and west from the Quarry. This represents an increase in the order of 2.7% over the existing average daily traffic flows on these roads. The *Traffic Impact Assessment* (Seca Solution, 2019) contained in Appendix 5 of the SEE confirmed that these increases in traffic volumes would see the roads and intersections operating well within their capacity with no impact to the existing level of service and safety.

It is reiterated that Dixon Sand proposes to increase truck movements to a *maximum* of 180 per day. This number represents the ceiling value whilst daily truck movements are market dependent and based on demand rather than the supply capability of the Quarry.

### 5.1.2 Road and intersection capacities

‘Dixon Sands should not be granted approval as sought because the Wisemans Ferry Road cannot sustain the huge increase in trucks with dog trailers that will be using it on a daily basis.’

‘Cattai Bridge needs significant upgrading as it is too narrow and too low.’

‘I object the the project as Wisemans Ferry Road and Old Northern Road have never been built to accommodate the current traffic nor will the roads cope with future traffic increase in this area due cluster development and developments as this.’

‘Wisemans Ferry Road and Old Northern Road are already very busy at peak times of the day ...’

The Proposed Modification would increase the total traffic movements for the Quarry by a maximum of 62 truck movements per day along both Wisemans Ferry Road and Old Northern Road (based on the anticipated 50:50 split in the direction of vehicle travel).

The RMS *Guide to Traffic Generating Developments* (2002) provides performance standards for assessing the capacity of a rural road, which is based on Level of Service (LoS) criteria with respect to the traffic volumes during the peak periods. There are six different LoS classifications, with the capacity of a rural road typically accepted as having an upper limit of LoS D. For Wisemans Ferry Road and Old Northern Road, which provide a rolling road alignment with more than 15% heavy vehicles, the RMS *Guide to Traffic Generating Developments* nominates an hourly capacity in the order of 600 vph (based on a design speed of 80 km/hr) (refer to **Table 5.1**).

**Table 5.1 Level of Service Classifications**

Level of Service	Peak Hour Flow (two way)
B	270
C	490
D	600
E	1,290

Source: interpolated from Table 4.5 of RMS Guide to Traffic Generating Developments, 2002

Current traffic volumes on Wisemans Ferry Road and Old Northern Road are less than 270 vph, and therefore both roads operate well within their capacity, providing an overall LoS B throughout the day and during peak periods (Seca Solution, 2019).



The *Traffic Impact Assessment* (Seca Solution, 2019) assessed both the existing (background) and future capacity of both Wisemans Ferry Road and Old Northern Road for the proposed increase in traffic volumes from the Quarry. Notably, Seca Solution (2019) considered the performance of the roads and intersections during peak hour traffic times. Based on this assessment both Wisemans Ferry Road and Old Northern Road would continue to operate well within their capacity under the proposed traffic increase, with no impact to the existing LoS B (Seca Solution, 2019).

The impacts of other developments, including the potential for future expansion of nearby quarry operations has been allowed for through the provision of suitable background growth on both Wisemans Ferry Road and Old Northern Road, via the application of recent historical growth rates for both roads (Seca Solution, 2019).

The intersection to Haerses Road and Wisemans Ferry Road is currently being upgraded to provide an extended channelised right turn lane into the Haerses Road quarry providing improved safety and reducing the potential for rear-end and overtaking crashes. This intersection has been assessed by RMS to cater for the additional traffic movements generated by the quarry and has been deemed to be acceptable. The intersection is currently under construction and planned for commissioning in June 2020.

Cattai Bridge, located on Wisemans Ferry Road, is approximately 19 km from the Haerses Road Quarry. In utilising Wisemans Ferry Road as a principal transport route, it is noted that this road, including Cattai Bridge, forms part of the state road network and is an approved B-Double route, i.e. there is an existing approval by the road authority for use of this road by higher mass limit vehicles. Dixon Sand will continue to rely on the gazettal of Wisemans Ferry Road as a B-Double route and maintenance of this by the road authority for the purpose of Quarry transport. Should restrictions on the use of Wisemans Ferry Road or Cattai Bridge be implemented by the road authority, Dixon Sand will abide by and comply with these restrictions. While Dixon Sand has no control over the maintenance or upgrade of the Cattai Bridge, Dixon Sand is signatory to the *Maroota Local Traffic Management Policy* which requires all drivers to adhere to high standards of vehicle operation and behaviour. Drivers identified as contravening this policy will be warned, disciplined and ultimately prevented from accessing the Quarry Site if identified as repeat offenders (three times).

### 5.1.3 Road safety and driver behaviour

'The road is dangerous and the trucks speed without any regard for local residents. School children are standing on the side of the road with no designated bus shelters and these trucks do not slow down even when fully laden. There have been multiple roll overs and accidents just over the last several years involving quarry trucks.'

'... the proposed increase in the number of trucks accessing the site raises concerns around the affect this will have on vehicle noise and road safety and how this will be managed to minimise any affect on the community.'

'During our conversations with Dixon Sands we were advised of the agreement between local quarries to monitor driver behaviour and the advice to the local community to report dangerous driving. We note however, that unless you are able to provide a vehicle registration number which is not always possible it is very had then to report and trace.'

'We all know these truck are not the best on the road and have only one agenda, to get from A to B as quickly as possible, no matter what the cost. Yes, I have heard the argument that they are satellite tracked but that system is flawed as it only covers a fraction of the trucks and does not take into account traffic conditions or dangerous bends/road conditions (allegedly limited to 80 km/hr).'

'Facing a 'tipper-truck' coming the other way, too fast and normally not concentrating on the driving side of the job, is a hazard which should not be allowed, and is an unacceptable risk.'

Road safety is a significant and high priority issue for Dixon Sand. All of Dixon Sand's staff, families and friends utilise the same roads as the residents. A large number of Dixon Sand's staff are local residents of Maroota and surrounding areas. Dixon Sand is undertaking all reasonable and feasible measures to ensure public road safety for local road users.

Driver behaviours are monitored and managed through the *Haerses Road Quarry Traffic Management Plan* and the *Maroota Local Traffic Management Policy* (inter-pit policy). As well as number plate verification, most trucks have clear company or marking identification on the truck body to enable community reporting. Dixon Sand will continue to monitor driver behaviour and ban any drivers who continually drive dangerously within the vicinity of the Quarry operation. This is strictly enforced.

With respect to school bus services, Dixon Sand note that several school bus services operate along Old Northern Road and Wisemans Ferry Road. While noting that the Proposed Modification will not result in any additional heavy vehicle movements passing Maroota Public School, the main school pick-up/drop-off point of the locality, Dixon Sand will ensure that drivers are aware of local school bus services and implement appropriate caution during the operating times of these services through adherence to the *Haerses Road Quarry Traffic Management Plan* (Quarry TMP) and the *Maroota Local Traffic Management Policy*. Dixon Sand is committed to reviewing and updating the Quarry TMP following approval of the Proposed Modification to ensure appropriate controls are implemented and enforced.

No public bus services operate along Wisemans Ferry Road or Old Northern Road. As such, there are no impacts to public transport associated with the proposed modifications.

Dixon Sand contributes to road safety in the area and immediate vicinity of the Maroota area through Section 94 road upgrade contributions. As discussed in **Section 5.1.2**, Dixon Sand is currently upgrading the intersection of Haerses Road and Wisemans Ferry Road to improve safety by reducing the potential for rear-end and overtaking crashes.

Both Wisemans Ferry Road and Old Northern Road carry a high percentage of heavy vehicles, with heavy vehicle representing approximately 20% of daytime traffic on Old Northern Road and 21% of daytime traffic on Wisemans Ferry Road (Seca Solution, 2019). Most of these heavy vehicles are associated with quarry and agricultural activity in the surrounding area. Both Wisemans Ferry Road and Old Northern Road are approved routes for B-Double combinations.

A review of crash data provided by RMS indicates that there were six crashes recorded on the roads in the general locality of the Haerses Road Quarry over the five-year period between October 2013 and September 2018 (Seca Solution, 2019). Of these, four accidents occurred on Wisemans Ferry Road including one fatality to the south of Haerses Road associated with a vehicle losing control on a bend and another involving a vehicle losing control in the vicinity of Haerses Road. For both of these crashes, speed was a factor. The other two accidents occurred further west involving a vehicle completing a U-turn and a head on collision. Two crashes occurred at the intersection of Wisemans Ferry Road and Old Northern Road involving opposing right turns and a rear end collision. Neither accident resulted in serious injury or fatality. None of the accidents were associated with quarry activities in this location.

Dixon Sand acknowledges the concerns raised by some of those in the local community over the impact of the Proposed Modification on road safety. However, as assessed by Seca Solution (2019), discussed in the SEE and reviewed above, the Proposed Modification should not result in any significant increase in road safety risk on the basis that:

- heavy vehicle use of local roads is an established feature and the proposed Modification does not seek to increase this significantly (2.7%),
- crash data confirms that the roads used for Quarry transport do not indicate these are particular dangerous roads and that all recorded accidents occurred independent of local quarry operations,

- the proposed increase in traffic would not change the level of service of these roads which would continue to operate well within capacity,
- Dixon Sand will continue to enforce the driver performance and behaviour standards of the *Maroota Local Traffic Management Policy*,
- Dixon Sand is committed to reviewing and updating the Quarry TMP to include additional controls as relevant to transport operations, and
- Dixon Sand contributes to local road maintenance through Section 94 contributions to The Hills Shire Council.

#### 5.1.4 Speed limit changes

'... were advised that Dixon Sands would be liaising with the Road and Maritime Services as part of the development application requesting a reduction in the speed limit on the section of Wisemans Ferry Road surrounding the Dixon Sands site. We are unsure if this has been requested.'

The resident has requested that Dixon Sand approach the RMS to lobby for a reduction in speed limit in the vicinity of the intersection of Wisemans Ferry Road and Haerses Road.

The intersection between Haerses Road and Wisemans Ferry Road is currently being upgraded to provide an extended channelised right turn lane providing improved safety and reducing the potential for rear-end and overtaking crashes. This intersection has been assessed by RMS to cater for the additional traffic generated from the Quarry and has been deemed to be acceptable.

Dixon Sand supports the community's proposal of the speed reduction at the location adjacent to the resident. This issue was discussed extensively at the Community Consultative Committee (CCC) meeting on 24 February 2020 with community and school representatives on board with the speed reduction proposal. Dixon Sand will support any formal submission to RMS by the community or otherwise provide a separate submission to RMS. However, Wisemans Ferry Road is a state-owned road and ultimately all design considerations, including speed limit changes, will be made by the RMS.

## 5.2 Noise

### 5.2.1 Operational noise

'In terms of noise pollution the noise that is coming from the multiple quarry sites currently is ridiculous with it often starting at 4am in the morning. I can only see this increasing.'

'We note our property is already in close proximity to the Dixon Sand's Heares Road site and two other PF Formation sites both on Wisemans Ferry Road. Noise can already be heard from both PF Formation sites depending on wind direction. Our property is already exposed to noise of all three quarries at close range and moving the boundary line of Stage 5 of the Heares Road site will only increase our exposure and ambience.'

'We understand from Dixon comments that bund walls will be constructed in accordance to Council DCP and noise modelling but can a guarantee be provided that our family will not be affected by any noise from the site. We are concerned that bringing the extraction boundary closer to our property will affect our current peaceful ambience and result in unwanted noise from excavation machinery and associated works.'

The EPA's Noise Technical Advice Unit has reviewed the *Noise Impact Assessment* (NIA) (Umwelt, 2019) provided as Appendix 6 of the SEE and confirmed that the assessment has been done in accordance with the guidance in the *Noise Policy for Industry* (NPfI) (EPA, 2017).

Based on the results of the NIA, Dixon Sand is confident that noise emissions can be managed to maintain compliance with the Project Noise Trigger Levels throughout the Quarry's life. Dixon Sand will implement on-site noise management strategies including:

- the construction of strategically located noise bunds
- developing the extraction such that the excavator works behind a 6 to 7 m advancing face
- application of noise-reducing modifications to haul trucks (of up to 6 dB(A)) as required as extraction progresses to Stage 4 and 5.

It should be noted that there are no proposed changes to the current hours of quarry operation. Section 7.4.3.2 of the SEE discussed the permitted quarry operations during the 'night-time' period as identified in the NPfI (EPA, 2017). The NPfI defines 'night-time' period as 10pm to 7am. Current hours of operation approved by the Development Consent permit truck arrival, loading and dispatch during the period of 6am to 7am Mondays to Saturdays. Dixon Sand confirms that all its quarries operate strictly under the operating hours permitted by development consents. Dixon Sand's quarries do not commence operations at 4am and there is a 'no queuing' policy in place at Dixon Sand which is strictly enforced.

## 5.2.2 Road traffic noise

'When Wisemans Ferry Road was cut by floods recently, the serenity of hearing no truck noise reminded us of why we chose to live here many years ago. Over the years we seen a substantial loss of amenity and ambience of the area from truck road noise.'

'The project will significantly increase the truck traffic along Wisemans Ferry Road which will have an extremely negative effect on lifestyle (noise of the trucks) ...'

Increases in road traffic noise levels as a result of the Proposed Modification were predicted in the NIA (Umwelt, 2019) using the Calculation of Road Traffic Noise (CoRTN) algorithms. As shown in Table 6.3 of the NIA, the estimated traffic noise levels either already exceed or are within 2 dB(A) of NSW *Road Noise Policy* (DECC, 2011) noise criteria for the day period for receivers within 30 m of Old Northern Road and within 50 m of Wisemans Ferry Road.

As shown in Table 6.5 of the NIA, the relative increase in road traffic noise levels due to the Proposed Modification is predicted to be 1 dB(A) or less at all receivers. An increase of 1 dB(A) in road traffic noise levels would not typically be noticeable by receivers.

## 5.3 Lifestyle and land use

‘People have bought Maroota property to enjoy a quite country life style and this project will completely change that.’

‘We are concerned that this could make living on our property very uncomfortable and affect our lifestyle.’

‘... at the end 2019 we were also made aware of a further application that has been earmarked with the Department for the land holding on north boundary of our property. This has deeply concerned us and has been a cause of great anxiety as it emphasises the issues we had raised with Dixon Sands about their Application. If other applications were to be approved and Dixon Sands boundary was to be moved closer this will leave us completely surrounded at close range

The Maroota area is located within the *Sydney Regional Environmental Plan No 9 - Extractive Industry* (SREP No 9) application area. This area has been designated by the NSW Government as a significant resource for supply of Sydney’s growing demand for construction sands. SREP No 9 has been in force since 1995 and aims to facilitate the development of extractive resources in proximity to the population of the Sydney Metropolitan Area by identifying land which contains extractive material of regional significance. The SREP No 9 also aims to ensure consideration is given to the impact of encroaching development (i.e. residential development) on the ability of extractive industries to realise their full potential.

With the closure of large suppliers such as Penrith Lakes Quarry in Castlereagh, there is now more reliance on local and regional quarries in the Maroota area to maintain supply. With an approved resource of 21 million tonnes in close proximity to the metropolitan Sydney area and north and south-west sectors close, the Quarry is and will continue to be a key supplier of construction materials in accordance with the aims and objectives of SREP No 9.

The regional significance of the Maroota locality for the supply of sand, clay and shale notwithstanding, Dixon Sand has committed to various controls to reduce the additional impact on the local setting related to noise, air quality, visual impacts and social amenity associated with the Proposed Modification. Notably, the assessments of noise and air quality have demonstrated impacts will remain compliant with relevant criteria.

With respect to visual amenity, the Proposed Modification does not involve any significant change to proposed operations with a vegetated bund wall to be established in key locations to screen views of the Quarry and reduce noise levels. As discussed in Sections 7.4.5 and 7.9.4 of the SEE, Dixon Sand is happy to review the requirement for and/or timing of construction, vegetation and retention of the bund wall with the most affected neighbours. As noted in the footnote of SEE Section 7.4.5, “..., *the bund would only be constructed and retained for as long as required to maintain the noise levels received at residential receivers to the north .... Dixon Sand will liaise with the landowners and residents to the north of the Quarry Site prior to extraction in Stage 5 for which this bund provides for noise impact mitigation. Subject to agreement with these landowners and residents (who may be different towards the end of the Quarry life when the bund is required), or demonstration of compliance with noise criteria by alternative methods, the bund may not be constructed.*”

## 5.4 Timeframe for extraction

‘... it was communicated to us on numerous occasions by both Mr Dixon and Ms Churcher that the any works in relation to the Stage 5 Extraction Area would not occur for at least 30 years ... we note that the timeframes communicated to us in our meetings are considerably different to the “15-20 years” stated at point 7.9.3, page 95 of the Application.’

It is noted that the 15-20 years described in Section 7.9.3 of the SEE was referenced to describe the extended timeframe until this will occur. Noting DA165-7-2005 permits extraction until 14 February 2046, no change is proposed by the Proposed Modification, and the extension to Stage 5 of the Tertiary Sand Extraction Area will be the last area of tertiary sand extraction, activities within this extension area are unlikely to occur until the last few years of the current consented period (if not beyond and subject to a further modification).

While strictly speaking, this is less than the 30 years quoted by the submission, it still represents a significant period prior to commencement. It is also noted that Dixon Sand has committed to liaising with the landowners and residents to the north of the Quarry Site prior to extraction in Stage 5 to ensure that landform and amenity-related controls are to the satisfaction (as far as reasonably possible) of the landowners.

## 5.5 Buffer zones

‘As communicated with Dixon Sands, when we purchased our property in 2013 we were aware of the Dixon Sands existing approved DA and made the decision to buy our property fully understanding the current approved buffer zones and how this would affect our property and our lifestyle. Therefore, we cannot support the boundaries being brought closer to our property and it is our preference that they remain as previously approved.

We are very concerned that shortening buffer zones and moving bund walls and extraction areas closer to our house could result in effected views or increased noise. We have advised Dixon Sands and it is included in their Application that we would like to maintain our current view’s from the front of our property and that we would favour any bund walls that are constructed to provide us with a natural view and only be erected when necessary.’

The original approval for Haerses Road Quarry (2006) included the provision for a 100 m buffer to resident R12 (refer to Figure 2.5 of the SEE (Umwelt, 2019)) described as Lot 11 in DP 835992. Dixon Sand has since signed an agreement with the owner of Lot 11 to permit extraction of the 100 m buffer up to within 20 m of the boundary of Lot 11 (refer to **Appendix C**).

Dixon Sand has proposed to maintain a buffer zone of 100 m from the edge of the new extraction area extension to the two existing residences (R1 and R13) on the northern side of Wisemans Ferry Road. This is consistent with The Hills Council *Development Control Plan* (2012). This is a conservative approach as the 100 m buffer is dissected by Wisemans Ferry Road and has significant acoustic and visual shielding due to topographic and vegetative screening respectively. Other potential impacts to these residences in relation to noise, dust and visual impacts were investigated in the SEE and reasonable and feasible mitigation measures incorporated into the design of the Proposed Modification.



Of note, the Proposed Modification provides for a 5 m high acoustic bund, which is currently approved for construction along the northern perimeter of Stage 5, is to be relocated to the modified northern perimeter of Stage 5 (remaining beyond, not within, the nominated buffer zone). In order to minimise the impact of this bund on visual amenity for properties directly north of the Quarry, this bund would be revegetated with grass and fast-establishing native shrubs as soon as constructed. Based on feedback received from the landowners and residents of properties directly north of the Quarry, the bund would only be constructed and retained for as long as required to maintain the noise levels received at residential receivers to the north below Quarry noise limits (unless requested to be retained by these residents). Dixon Sand will continue to liaise with the landowners and residents to the north of the Quarry Site for which this bund provides for noise and visual impact mitigation. Subject to agreement with these landowners and residents (who may be different towards the end of the Quarry life when the bund is required), or demonstration of compliance with noise criteria by alternative methods, the bund may not be constructed.

## 5.6 Dust

'... on 5 May 2019 we had emailed Mr Dixon and Ms Churcher expressing all of our concerns including the issue of dust and any possible impacts on health yet no mention was made of any health risks in Ms Churcher's reply email to us dated 6 May 2019.'

'The fact sheet "Mine Dust and You" clearly states "infants, children and adolescents" as people who may be more susceptible to risk factors. This is of great concern to us as we have young children who will be living in close proximity to the extraction site and we are concerned about any increased risk to their health.'

Section 4.2 of the *Air Quality Assessment* undertaken for the Proposed Modification (ERM, 2019) states the following:

*Whilst dust generated from the Proposed Modification may contain silica dust, and long-term inhalation of silica dust may lead to the formation of scar tissue in the lungs, which can result in silicosis, a serious lung disease, silicosis is a work place issue associated with long-term exposure to high levels of respirable crystalline silica (RCS).*

*The World Health Organization's Concise International Chemical Assessment Document on Crystalline Silica, Quartz (CICAD, 2000) states that "there are no known adverse health effects associated with the non-occupational exposure to quartz". In addition, an Australian Government Senate Committee (2005) report identified that there are no reports in the international literature of individuals developing silicosis as a result of exposure to non-occupational levels (i.e. levels outside the work place) of silica dust, and an expert appearing before the committee confirmed the potential for such an occurrence as being very remote.*

This information has been reiterated to concerned residents since submission of the Proposed Modification.

## 5.7 Property values and socio-economics

'We also feel this extension of the buffer zone will adversely affect the value of our property in future. We were happy to purchase our property knowing the buffer was reasonable. We are concerned that the extension of the extraction boundary will affect our resale as it is sustainably closer and may not be favourable to any potential buyers.'

'If this project is approved the profit will be privatised (the mine owners increase their profit) and the cost socialised (the community pays the real cost through reduced property value and a negative impact on life style).'

As described in **Section 5.3** above, the Maroota area is located within the *Sydney Regional Environmental Plan No 9 - Extractive Industry* (SREP No 9) application area. This area has been designated by the NSW Government as a significant resource for supply of Sydney's growing demand for construction sands. The existing Haerses Road Quarry was previously owned by CSR Minerals prior to 1992 and since by Dixon Sand. Extraction commenced at the Quarry in 2006.

As described in **Section 5.5** above, the extension of the extraction area to within 100m of residences R1 and R13 will maintain buffer distances as recommended in the DCP guidelines.

The air and noise assessments undertaken for the Proposed Modification and contained within the SEE compared predicted results with the NSW Government's *Voluntary Land Acquisition and Mitigation Policy for State Significant Mining, Petroleum and Extractive Industry Developments* (VLAMP) (2018). The VLAMP recognises that some air and noise impacts from these types of developments are unavoidable and provides protection to affected landholders to manage the impacts of State Significant Development. In both the air and noise assessments, none of the VLAMP criteria were exceeded at any stage of the Quarry life at any receivers, with the exception of receiver R02 with respect to noise. The Quarry currently has an Agreement with Receiver R02 which has recently been updated consistent with the Proposed Modification.

The SEE concluded that:

*'On the basis that the Proposed Modification does not propose any new activity, any further increase in disturbance and is unlikely to result in significant changes to the environmental impacts associated with the Quarry, it is concluded that the modified quarry would remain substantially the same development to that originally approved ...'*

Dixon Sand has contributed to the community and schools throughout its operating history via on-going donations, school projects and Council's section 94 contributions which support road infrastructure upgrades on both Wisemans Ferry Road and Old Northern Road. Dixon Sand also provides both direct and indirect employment to many people in the local community.

## 5.8 Lack of consultation

*'The consultation process for the proposal has been inadequate, even though I live locally, I heard nothing about the proposal until I received a letter forwarded from my mothers former address in Mosman in January.'*

*'I wonder if the many people living on Wisemans Ferry Road or Old Northern Road all the way from Maroota to McGraths Hill and Pennant Hills respectively, daily impacted by the noise, dust, speed, danger and sheer volume of trucks, have been consulted about the proposal to increase truck movements?'*

As discussed in Section 6.2 of the SEE, Dixon Sand undertook the following engagement activities in relation to community consultation regarding the Proposed Modification:

- Community Information Sheet (CIS) 1 – Approximately 75 copies of this flyer were distributed to residents along Wisemans Ferry Road and Old Northern Road as well as Maroota Public School on 11 April 2019. The flyer was also provided electronically to members of the Dixon Sand Community Consultative Committee (CCC) and made publicly available on the Dixon Sand website. The flyer provided details about the proposal and the environmental assessment process to be undertaken.

- CCC meeting – Held on 14 May 2019 this meeting was held to discuss community feedback and methods for addressing community concerns. At this meeting the CCC members recommended the preparation and distribution of a general Questions and Answers (Q&A) document to address common community concerns.
- Q&A document – In June 2019 Dixon Sand prepared and uploaded to their website a general Q&A document to provide additional information on the Proposed Modification in relation to the main community concerns related to traffic, dust, noise, visual impacts and groundwater. The document was also emailed to key community stakeholders for further distribution to local residents.
- Follow-up on responses – Dixon Sand followed up on all written and/or verbal responses to the CIS, Q&A document or other communication via either email, phone or face-to-face meetings and consultation continued until the respondents were satisfied with the level of information and feedback provided.
- CIS 2 – In August 2019 a second CIS was distributed to the local community to outline the results of the key environmental assessments undertaken for the Proposed Modification.
- Extraordinary Meeting of the Community Consultative Committee (CCC) held on 24 February 2020 to discuss with Community Representatives issues and concerns from the public and to respond and answer any questions on the Proposed Modification.

The *Social Impact Assessment* (provided in Appendix 9 of the SEE) provides further detail on community consultation.

Further actions undertaken since submission of the Proposed Modification application are detailed in **Section 3.0**.

## 6.0 Updated Evaluation of Project Merits

Following consideration of the submissions received, this Submissions Report has been prepared to address the issues raised in agency and community submissions. This process has included undertaking some additional works, providing clarifications and, where relevant, explaining the findings of the technical studies that have been completed as part of the SEE in order to address each of the issues raised. The outcomes of this response to submissions process have not changed the overall assessment of the merits of the Proposed Modification, as outlined in the SEE.

The Proposed Modification seeks to increase the extraction area, extraction rate and amount of imported VENM and ENM for rehabilitation and reprocessing. The ongoing implementation of the Environmental Management System (EMS) is the most efficient and effective way to manage the changes associated with the Proposed Modification. Consequently, pending approval of the Proposed Modification, the EMS will be updated to reflect these changes to ensure effective management of ongoing operations.

As outlined in the SEE, the Proposed Modification has been assessed against the principles of Ecologically Sustainable Development (ESD) as required by the EP&A Act and EP&A Regulation. This assessment has indicated that while the Proposed Modification will have impacts, these impacts can be effectively managed and mitigated and the development will result in economic benefits. The assessment therefore concluded that the Proposed Modification is consistent with the principles of ESD and after consideration of the submissions made and the responses provided in this report, there is no change to that conclusion.

On this basis, it would be reasonable to consider that with the implementation of the management and mitigation measures proposed by Dixon Sand, the Proposed Modification to DA-165-7-2005 will result in a net benefit to the NSW community.

## 7.0 References

Australian Senate Committee, 2005. *Workplace exposure to toxic dust*. Community Affairs References Committee, May 2006.

CICAD, 2000. *Concise International Chemical Assessment Document 24. Crystalline Silica, Quartz* published by the World Health Organization, Geneva, 2000.

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

Department of Planning and Environment (DPE), 2018. *Voluntary Land Acquisition and Mitigation Policy for State Significant Mining, Petroleum and Extractive Industry Developments*, September 2018.

Dixon Sand, 2019. *Haerses Road Quarry Traffic Management Plan*.

Environment Protection Authority (EPA), 2017. *NSW Noise Policy for Industry*, October 2017.

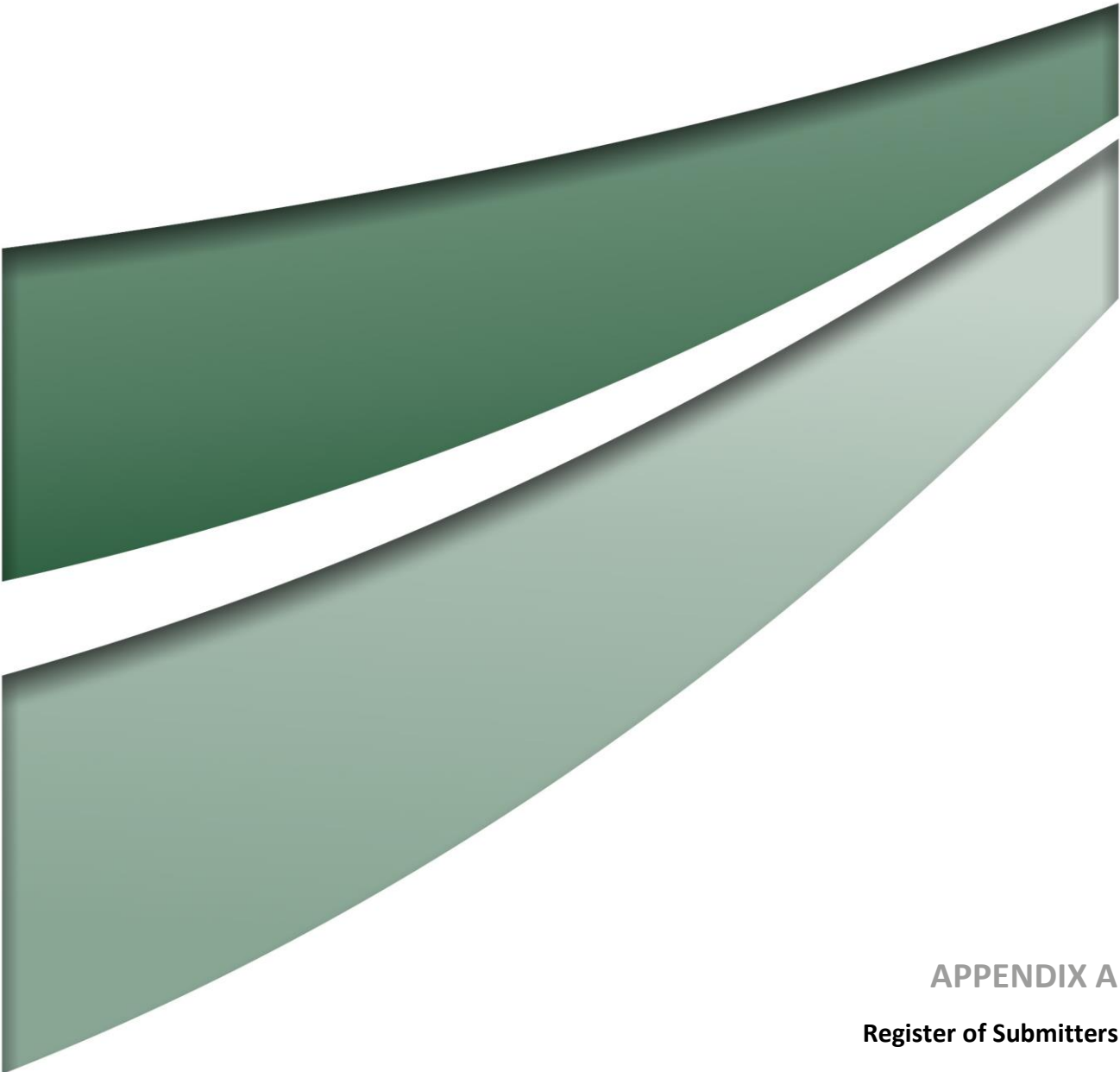
ERM Australia Pacific Pty Ltd (ERM), 2019. *Dixon Sand Haerses Road Quarry Modification – Air Quality Assessment*.

Roads and Maritime Services, 2002. *Guide to Traffic Generating Developments*.

Seca Solution, 2019. Letter Report for the Proposed Modification to Quarry Extraction Rates - Haerses Road Quarry, Maroota, NSW. 21 August 2019.

Umwelt, 2019. *Haerses Road Quarry Modification 3, Statement of Environmental Effects*.

Umwelt, 2019. *Haerses Road Quarry Modification 3, Noise Impact Assessment*.

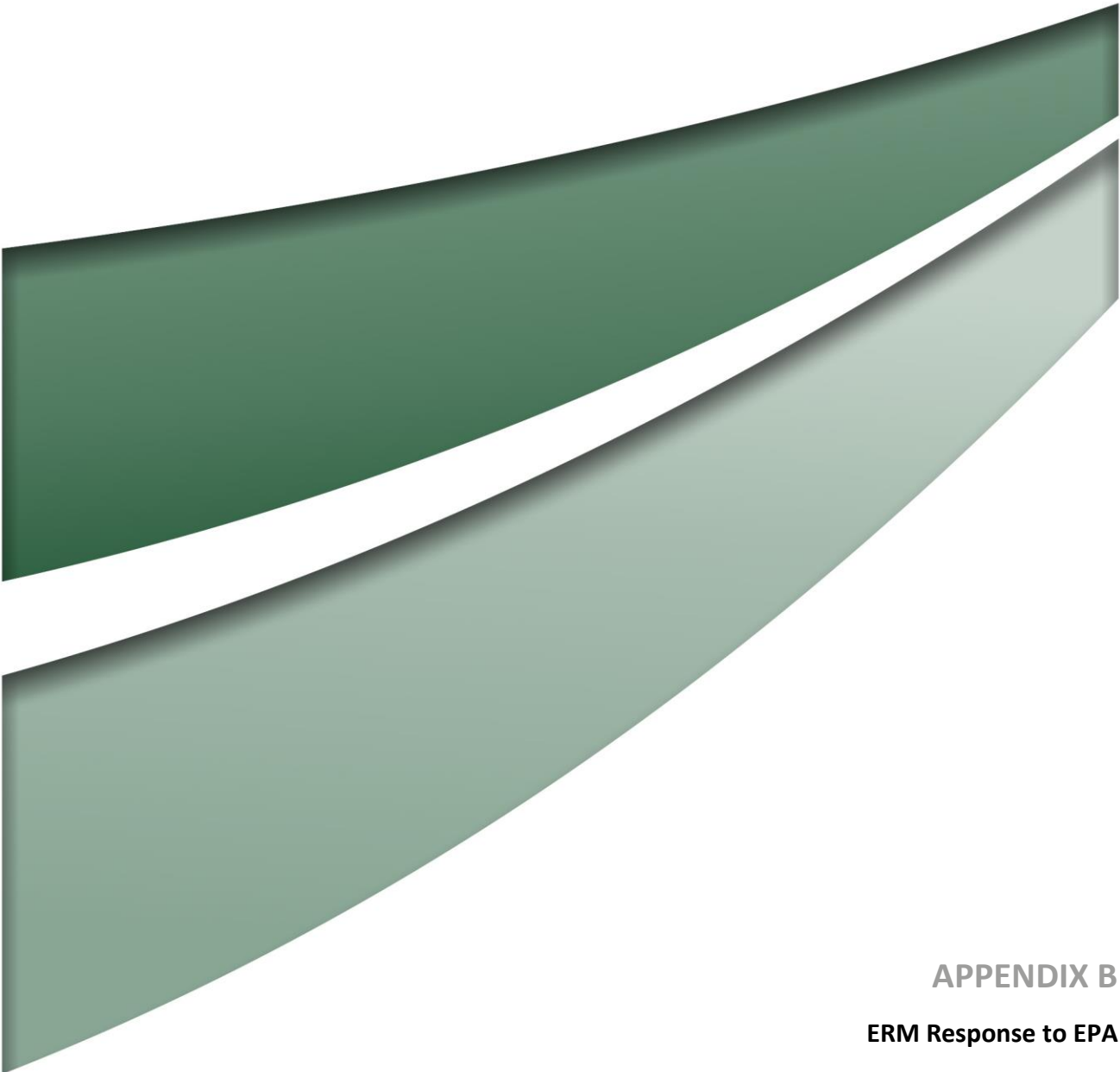


**APPENDIX A**  
**Register of Submitters**

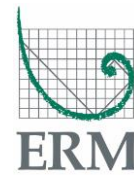


**Table A1 – Register of Submitters**

Stakeholder type	Reference Number	Name	Section where issues are addressed
Agencies		DPIE Division of Resources and Geoscience	Section 4.1
		DPIE Resources Regulator	Section 4.2
		DPIE Crown Lands	Section 4.3
		DPIE Environment, Energy and Science Group	Section 4.4
		DPIE Water	Section 4.5
		DPIE Natural Resources Access Regulator	Section 4.5
		NSW Environment Protection Authority	Sections 4.6.1, 4.6.2 and 4.6.3
		Heritage Council of NSW	Section 4.7
		Transport for NSW	Section 4.8
		Department of Primary Industry – Agriculture	Section 4.9
Councils		The Hills Shire Council	Section 4.10
Special interest groups	-	-	-
Individuals		Name withheld	Section 5
		Name withheld	Section 5
		Name withheld	Section 5
		Name withheld	Section 5
		Name withheld	Section 5
		Name withheld	Section 5
		Name withheld	Section 5
Elected representatives	-	-	-



**APPENDIX B**  
**ERM Response to EPA**



30 March 2020

## Responses to EPA comments on Haerses Road Quarry Mod 3 Air Quality

ERM prepared an Air Quality Impact Assessment to support a Modification Report (prepared by Umwelt (Australia) Pty Ltd) for an application by Dixon Sand Pty Ltd to modify DA 165-7-2005 for Haerses Road Quarry (Modification 3). The public exhibition of the Modification Report concluded on Wednesday 26 February 2020. The NSW Environment Protection Authority (EPA) lodged a submission (dated 25 February 2020) requesting clarification and recommending further information be provided in relation to the AQIA prior to determination. The following identifies each recommendation made by the EPA in their letter along with additional information prepared by ERM to address each.

### 1. Uncertainty if selected modelling scenario is representative of a worst-case operational scenario

#### **Recommendation:**

- a) *The applicant should revise the AQIA to include a worst-case scenario representative of expected maximum daily operations, including maximum peak daily truck movements***

The modelling in the original 2019 air quality assessment accounted for approximately 125 truck movements per day. This number is based on the amount of material required to be moved and the load capacity of the trucks required to move it. That is,

$$\text{Truck movements (per year)} = \frac{\text{Material moved (tonnes per year)}}{\text{Truck capacity (tonnes per year)}}$$

Total emissions are calculated for the year and relate to annual production rates. To calculate the emissions that may occur on a single day when truck movements are at their peak, the annual production rates need to be increased, pro-rata, for those haulage activities. For dispersion modelling purposes, this is not a sensible representation of annual emissions and is therefore overly conservative in any estimation of annual concentrations.

To understand the difference in total emissions likely when including this additional haulage, we have prepared a table (Table 1), with the original 2019 assessment emissions compared to those

recalculated with increased truck movements from 125 to 180. It is also noted that the original assessment of emissions was overly conservative as it assumed a portion of the haul road between Wisemans Ferry Road south to the processing area remained unsealed. Dixon Sand Pty Ltd have since advised that the entire length of the haulage route from Wisemans Ferry Road south to the processing area will be sealed and the emissions have been amended accordingly. This additional length of sealed road reduced the amount of wheel generated dust considerably (refer to Table 1).

**Table 1 – Total emissions for each scenario**

Production scenario	TSP (kg/y)	PM <sub>10</sub> (kg/y)	PM <sub>2.5</sub> (kg/y)
Original 2019 assessment emissions Annual average production Unsealed roads to processing area	60,252	18,265	6,783
Re-calculated emissions Maximum daily production Sealed roads to processing area	50,593	15,433	6,744

It is reiterated that the re-calculated emissions account for the maximum daily production of 180 truck movements per day. This would be equivalent of 712,800 t/y of material hauled from the Quarry and 360,000 t/y of VENM/ENM imported to the Quarry each year. Clearly this is well above the annual rate of production for which approval is sought, however, has been applied to allow for the maximum daily emission rate (which is calculated on a pro rata basis of annual emissions) to be assessed.

The comparison in Table 1 shows that even with this increase in truck movements, the total emissions for TSP, PM<sub>10</sub> and PM<sub>2.5</sub> are lower than those modelled in 2019 assessment. This is because some of the largest contributors to the total emissions are due to haulage on unsealed roads. With the reduction in the amount of unsealed road this reduces total emissions, even though truck movements have increased.

On this basis, it is not necessary to re-model and revise the AQIA. With the addition of sealed roads and the subsequent reduction in total emissions (even with increased truck movements) the predicted concentrations will not be greater than those estimated in the AQIA.

## 2. Uncertainty in results

### **Recommendation:**

- a) The AQIA be revised to include 24-hour PM<sub>10</sub> and PM<sub>2.5</sub> results cumulative concentrations at each receptor. That is, results should include the corresponding background levels on the same day the maximum increment is predicted.**

Table 2 presents the 24-hour PM<sub>10</sub> and PM<sub>2.5</sub> cumulative concentrations for each discrete receptor, where the predicted increment<sup>1</sup> was added to the corresponding background level. There are no predicted exceedances of the relative 24-hour PM<sub>10</sub> and PM<sub>2.5</sub> criteria.

<sup>1</sup> The increments listed in the table have been remodelled with “depletion off” as explained in Section 2(b).

**Table 2 – Cumulative 24-hour average concentrations on day of maximum increment**

ID	Background concentration on day of maximum 24-hour average increment ( $\mu\text{g}/\text{m}^3$ )		Maximum 24-hour average increment ( $\mu\text{g}/\text{m}^3$ )		Cumulative 24-hour concentration ( $\mu\text{g}/\text{m}^3$ )	
	PM <sub>10</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
R1	16	6	18	7	34	13
R2	16	6	11	4	27	10
R3	14	6	14	5	28	11
R4	8	3	15	6	23	11
R5	9	4	24	11	33	15
R6	11	3	24	10	35	13
R7	11	5	22	12	33	17
R8	11	6	19	9	30	15
R9	11	4	19	10	30	14
R10	6	4	17	5	23	9
R11	6	2	17	8	23	10
R12	6	3	16	3	22	6
R13	11	6	11	2	22	8
R14	14	6	22	10	36	16
R15	8	3	9	3	17	6
R16	8	3	16	7	24	10
R17	12	5	11	3	23	8
R18	8	3	13	3	21	6
R19	14	6	16	6	30	12
R20	6	2	7	3	13	5
R21	9	3	24	7	33	10
D1	11	3	17	3	28	6
PF1	11	3	4	1	15	4
PF2	16	4	6	3	22	7
PF3	16	4	21	6	37	10

**b) The AQIA be revised to clarify discrepancies in the results presented in Table 7-2 and 7-3. In addition, all results and contour plots for all pollutants an averaging periods must be revised to confirm the predicted impacts.**

It was noted in the EPA comments that there were some maximum 24-hour average predicted concentrations of PM<sub>2.5</sub> that were higher than PM<sub>10</sub>. This cannot happen in reality as PM<sub>2.5</sub> is a subset of PM<sub>10</sub> and must therefore be either equal to or smaller than PM<sub>10</sub>.

Within the dispersion model there is an option to turn on the “depletion” function. That is, the model will estimate, based on the particle density and size, how much mass will fall out of the airborne material. This is known as depletion. Larger, heavier particles fall out more quickly and deposit closer to the source, while finer, lighter particles can remain airborne for longer and travel further. This artefact of the model can sometimes result in estimated values of smaller particle size groups being higher in the amount remaining airborne (concentration), particularly when receptors are close to the source such as in this case.

To counteract this, and for the purposes of this response, the model was re-run turning “depletion off” and assuming that all the mass remains airborne from source to receptor. This is highly conservative of course, especially for receptors further removed from the sources as there will in

reality be fallout, but it provides results that are at least in proportion. It also leads to maximum values at different receptors (further away) to those previously identified in the 2019 assessment. Table 3 presents the re-modelled results for maximum 24-hour average PM<sub>10</sub> and PM<sub>2.5</sub>. The three most impacted receptors for the maximum 24-hour average PM<sub>10</sub> results are R5, R6 and R21, which are further removed from the site (shown in Figure 1), for the reasons discussed above.

**Table 3 – Remodelled results for maximum 24-hour average PM<sub>10</sub> and PM<sub>2.5</sub> concentrations**

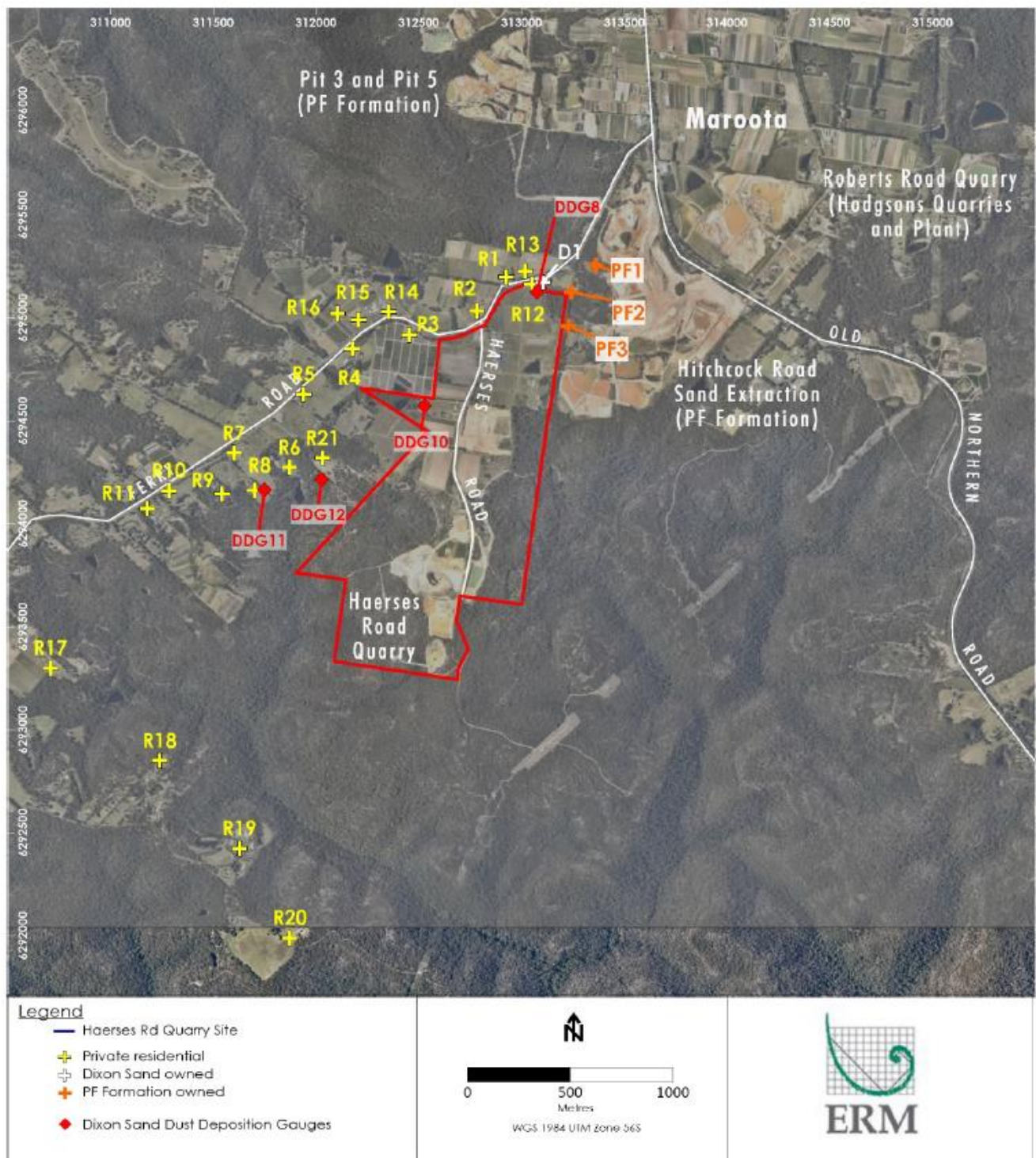
ID	Type	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )
R1	Residential	18	7
R2	Residential	11	4
R3	Residential	14	5
R4	Residential	15	6
R5	Residential	24	11
R6	Residential	24	10
R7	Residential	22	12
R8	Residential	19	9
R9	Residential	19	10
R10	Residential	17	5
R11	Residential	17	8
R12	Residential	16	3
R13	Residential	11	2
R14	Residential	22	10
R15	Residential	9	3
R16	Residential	16	7
R17	Residential	11	3
R18	Residential	13	3
R19	Residential	16	6
R20	Residential	7	3
R21	Residential	24	7
D1	Dixon Sand	17	3
PF1	PF Formation	4	1
PF2	PF Formation	6	3
PF3	PF Formation	21	6

**c) The applicant should present a contemporaneous assessment for the three most impacts receptors.**

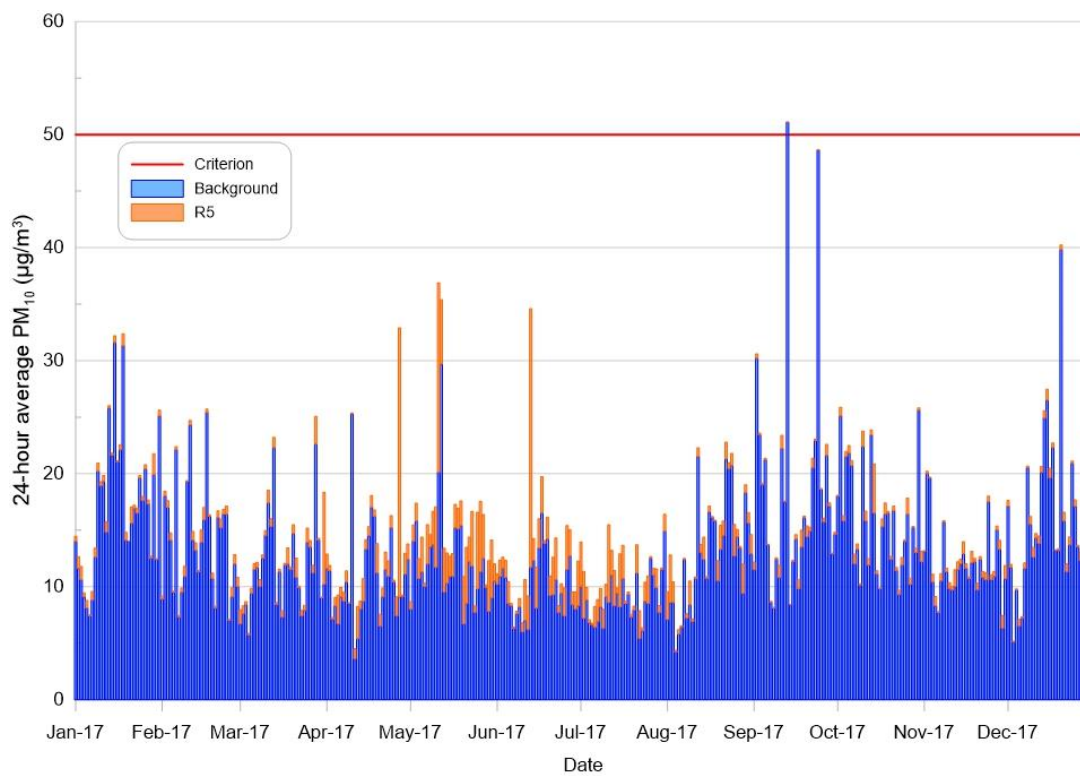
A time series plot for 24-hour average PM<sub>10</sub> concentrations showing modelled results combined with background values is shown for each of these three locations (R5, R6 and R21) in Figures 2, 3 and 4. Even with this conservative assumption of no depletion there are not predicted to be any additional exceedances of the EPA criterion of 50 µg/m<sup>3</sup> at the three most impacted receptors. Figure 5 presents the re-modelled data for PF3 (also presented in the 2019 assessment) and shows no change to the outcomes, that is, a single exceedance of the criterion over the year.

A time series plot for 24-hour average PM<sub>2.5</sub> concentrations showing modelled results combined with background values is shown for each of these three locations (R5, R6 and R7) in Figures 6, 7 and 8. Again, there are not predicted to be any additional exceedances of the EPA criterion of 25 µg/m<sup>3</sup> at these receptors.

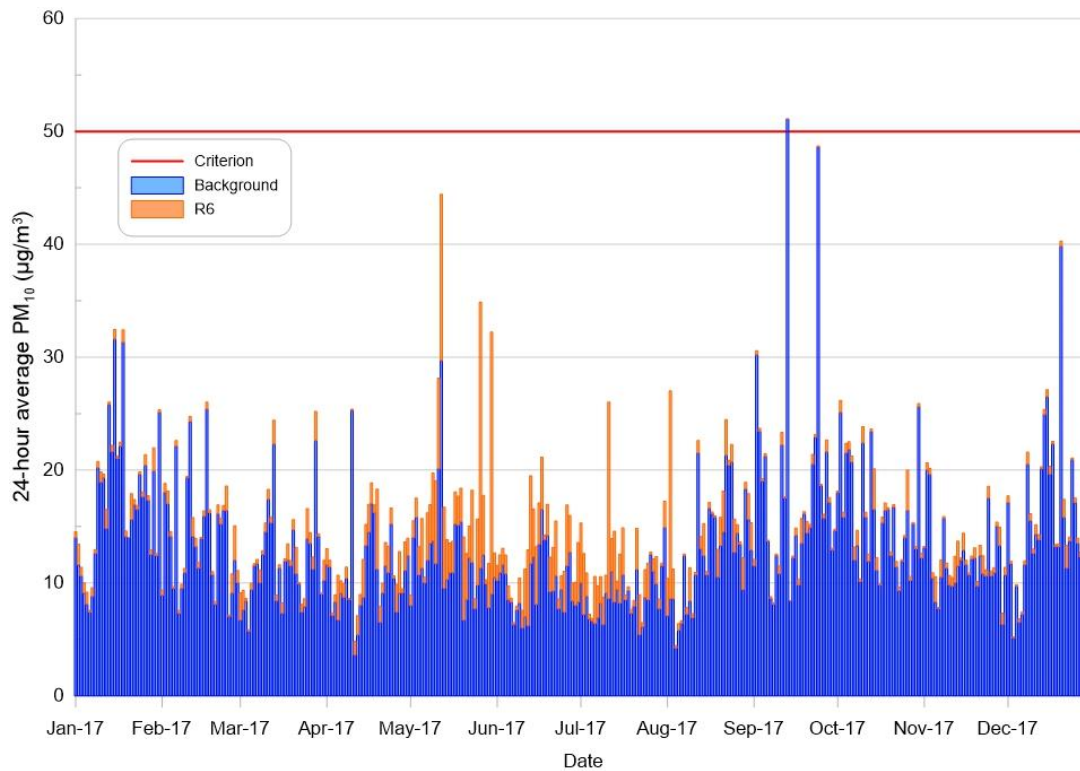




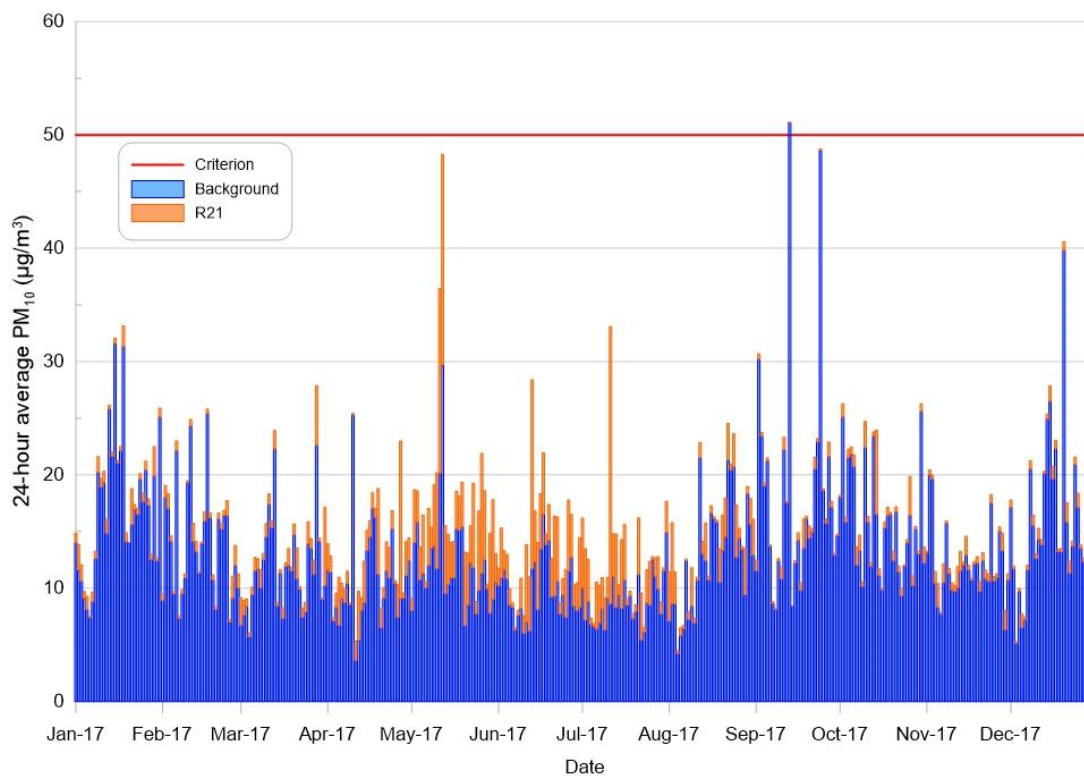
**Figure 1 – Locations of modelled receptors**



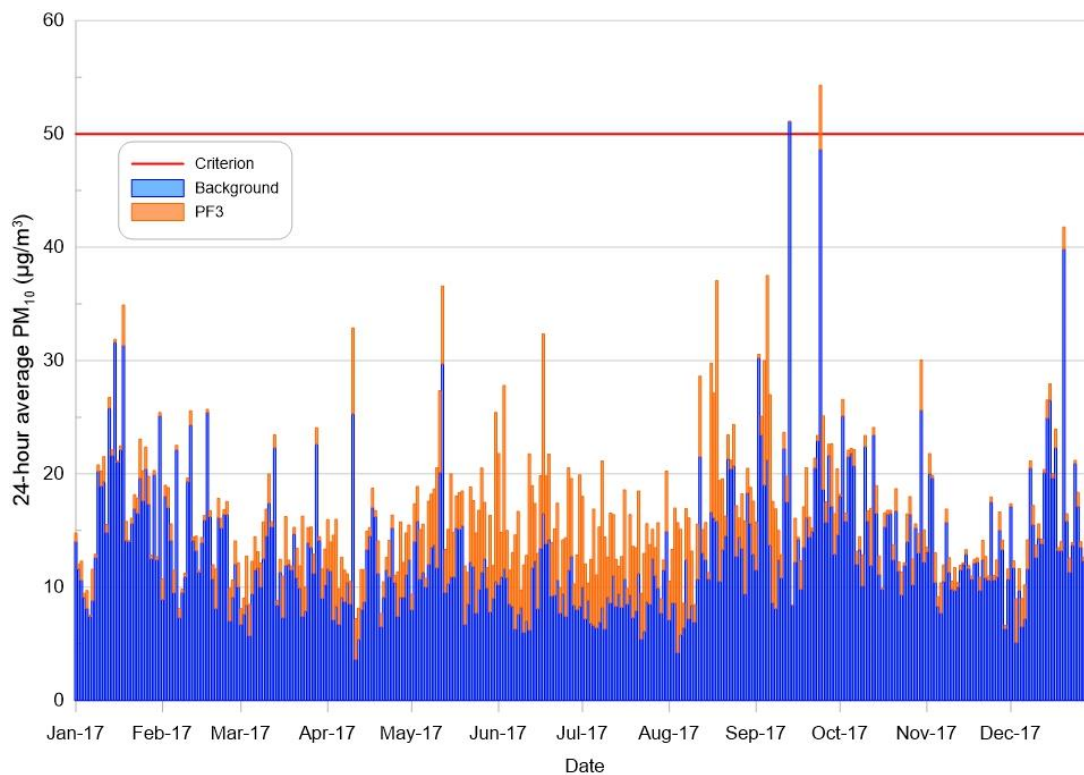
**Figure 2 – Time series of contemporaneous modelling and background values for R5 (PM<sub>10</sub>)**



**Figure 3 – Time series of contemporaneous modelling and background values for R6 (PM<sub>10</sub>)**

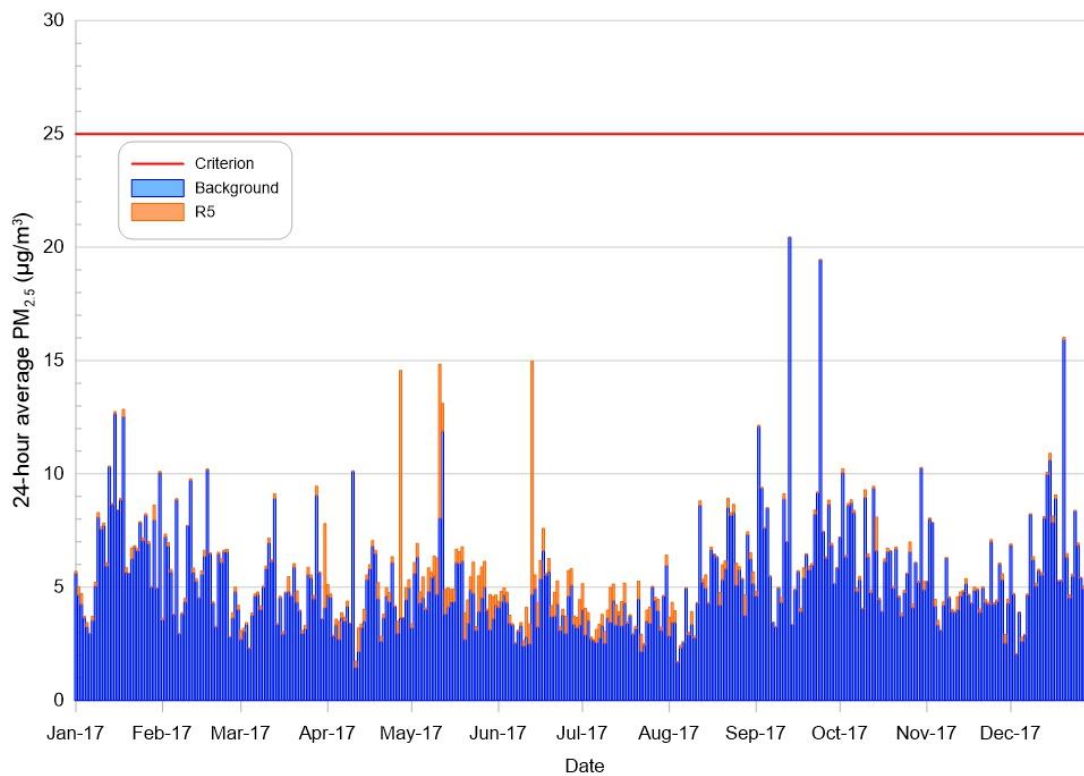


**Figure 4 – Time series of contemporaneous modelling and background values for R21 (PM<sub>10</sub>)**

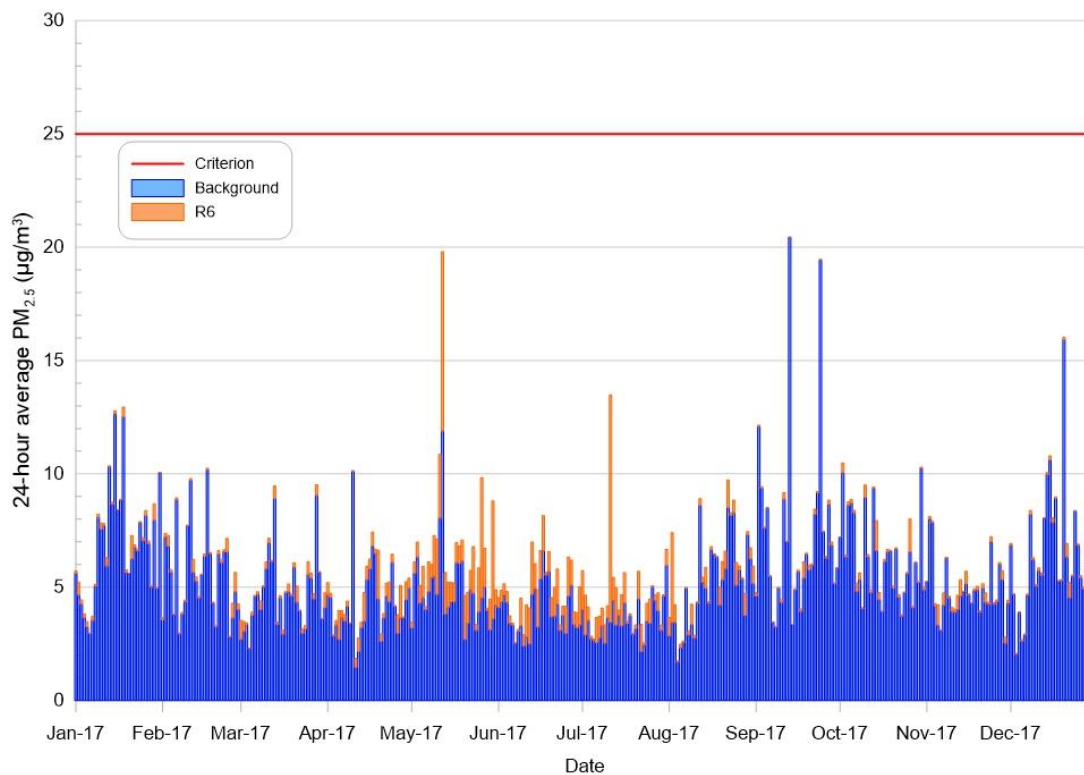


**Figure 5 – Time series of contemporaneous modelling and background values for PF3 (PM<sub>10</sub>)**

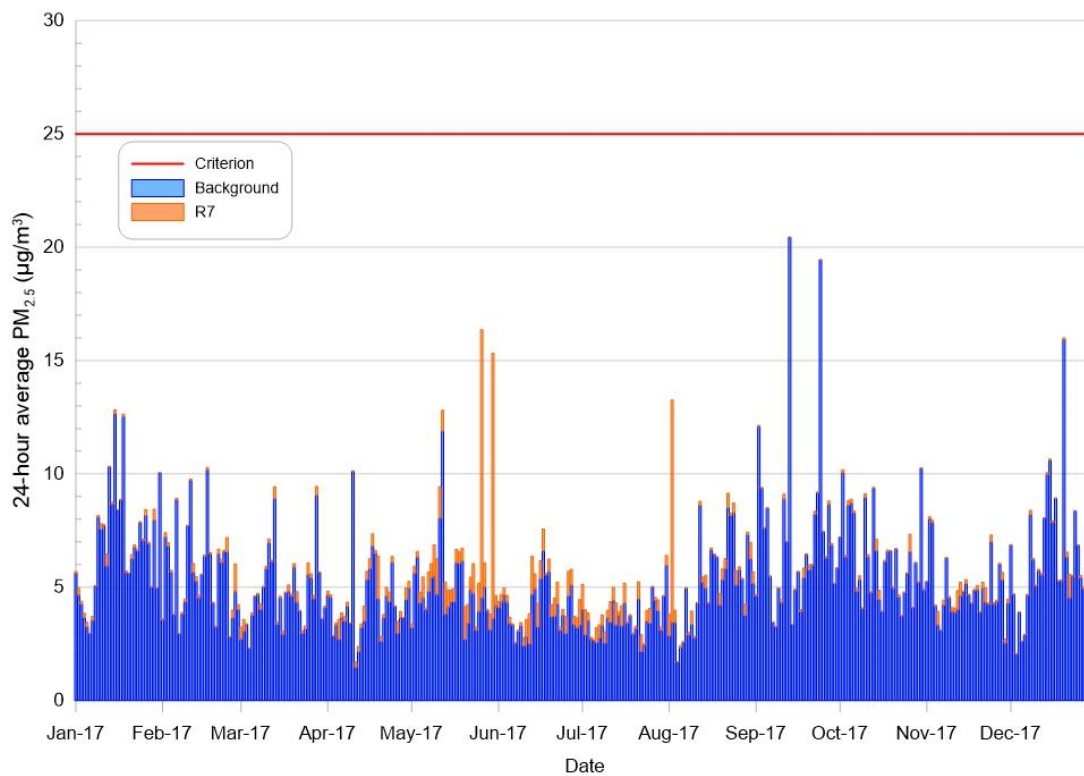




**Figure 6 – Time series of contemporaneous modelling and background values for R5 (PM<sub>2.5</sub>)**



**Figure 7 – Time series of contemporaneous modelling and background values for R6 (PM<sub>2.5</sub>)**



**Figure 8 – Time series of contemporaneous modelling and background values for R7 (PM<sub>2.5</sub>)**

As a conclusion to this review of the AQIA, it is noted that the modelling undertaken to predict and assess impacts has taken into consideration significant conservatism in the number of activities occurring simultaneously. As requested, an added level of conservatism has been included by recalculating emissions, incorporating the maximum allowable daily truck movements for every day of operation. When calculated, after reviewing and updating to account for the restriction of these movements to sealed roads, it is shown that total emissions will be less than those originally modelled. The predicted concentrations of particulate matter will be correspondingly lower.

Combining the maximum 24-hour predicted concentrations to the background value on the same day which those predictions occur, has also showed the project complies with the relevant criteria.

In addition, PM<sub>10</sub> and PM<sub>2.5</sub> time series of combined background and predictions show no additional exceedances of 24-hour average criteria.

We trust this provides sufficient clarification and additional information to address the comments and recommendations made by the EPA. As noted, this information demonstrates that there is no need for further modelling to demonstrate the predicted compliance of the proposed modification to operations at Haerses Road Quarry.

Yours sincerely



Jane Barnett  
Partner

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## APPENDIX C

**Agreement with Lot 11 DP835992**

## Letter of Agreement between the landowner of Portion 11 in DP 835992 and Dixon Sand (No.1) Pty Ltd

Dixon Sand (No.1) Pty Ltd own and operate the Haerses Road Quarry site located, along Wisemans Ferry Road, Maroota within Lot 170 DP 664766, Lot 170 DP 664767, Lots A and B DP 407341, Lots 176, 177 and 216 DP 752039.

Mr Farley and Mrs Jennifer Roberts are the registered proprietors of Portion 11 in DP 835992 (the land), which is situated on the northernmost extent of the quarry site adjacent to Wisemans Ferry Road to the north and Lot 3 DP 111886 directly to the south.

Dixon Sand (No.1) Pty Ltd has submitted an application for modification of the existing approval to the Department of Planning, Industry and Environment to include:

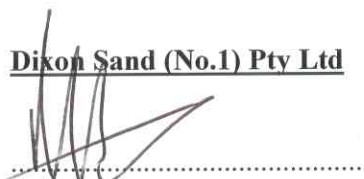
- an increase in production rates from 250,000 tonnes per annum (tpa) to 495,000 tpa, and an increase in importation of VENM/ENM from 100,000 tpa to 250,000 tpa for the site;
- an increase in truck movements from 56 per day to 180 per day;
- an increase in the area of extraction to include a 1ha area in northernmost part of the quarry adjacent to Lot 3 DP 111886

We, Mr and Mrs Roberts being the registered proprietor of the land, understand that extraction and rehabilitation will occur up to the boundary of Lot 3 DP 111886 (owned by Dixon Sand) which is approximately 20m from our boundary. We understand that noise levels are predicted to remain within acceptable limits, however do not object to any incidental noise exceedances that may occur during operations. We understand that this agreement shall remain in place for the life of the quarry and that we will pass on this agreement to any future proprietor(s) of the land prior to a transfer of interest or ownership in the land.

### Signed by:

  
Mr F Roberts

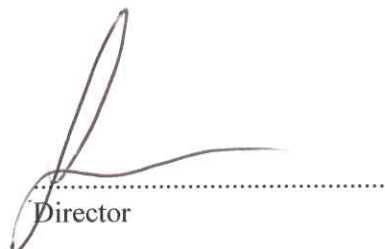
Date: 20 / 11 / 2019

  
Dixon Sand (No.1) Pty Ltd  
Director

Date: 20 / 11 / 2019

  
Mrs J Roberts

Date: 20 / 11 / 2019

  
Director

Date: 20 / 11 / 2019

