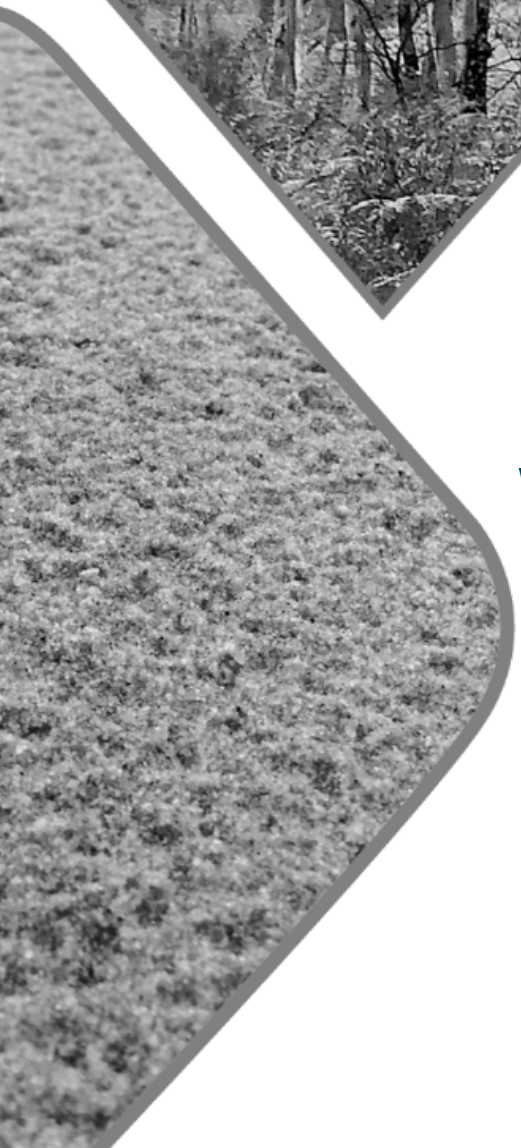

NEWCASTLE SAND

Air Quality Management Plan

Williamtown Sand Syndicate Pty Ltd

Williamtown Sand

Cabbage Tree Road, Williamtown

26 March 2019

Air Quality Management Plan

Williamtown Sand

Cabbage Tree Road, Williamtown

Prepared for:

WILLIAMTOWN SAND SYNDICATE PTY LTD

Only Williamtown Sand Syndicate Pty Ltd, its designated representatives or relevant statutory authorities may use this document and only for the specific project for which this report was prepared. It should not be otherwise referenced without permission.

Document Control:

Version	Description	Date	Author	Reviewer
1	Draft for agency consultation	08 March 2019	J.Berry J.Barnett (ERM)	J. Cox (ERM)
2	Draft for DPE Review	12 March 2019	J.Berry J.Barnett (ERM)	B.Deane J. Cox (ERM)
3	Final inclusive of DPE corrections	26 March 2019	J.Berry J.Barnett (ERM)	B.Deane J. Cox (ERM)

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Contents

Tables

Figures

1. INTRODUCTION

1.1 BACKGROUND

Williamtown Sand Syndicate Pty Ltd (WSS), trading as Newcastle Sand are proposing to construct and operate a sand quarry on four lots of land located at 398 Cabbage Tree Road, Williamtown, approximately 30 km from the Newcastle central business district. The Project would extract up to 530,000 tonnes per annum of sand products over a period of up to 15 years.

Development Consent (SSD-6125) was granted by the NSW Independent Planning Commission on 9 May 2018 for construction and operation of the quarry subject to a series of conditions. Condition 9 of Schedule 3 of the Development Consent requires the preparation and implementation of an Air Quality Management Plan.

Potential air quality impacts associated with the quarry include particulate emissions (dust) and greenhouse gas emissions. Activities that may impact air quality include excavation of quarry material, loading of material on to trucks, transport of material to and from site. The primary source of greenhouse gas emissions would be from combustion of diesel by equipment and vehicles and electricity use.

This plan has been prepared by Kleinfelder Australia Pty Ltd in conjunction with ERM to satisfy the Conditions of the Development Consent.

1.2 PROJECT OVERVIEW

The key details of the Project are shown within **Table 1** below. An overview of the Project Area is shown in **Figure 1.**

Table 1: Key Aspects of the Cabbage Tree Road Sand Project

Aspect	Key Aspects of the Project
Key elements	Sand quarry extracting up to 530,000 tonnes per annum over a period of 6 to 15 years including the construction of an intersection with Cabbage Tree Road, sealed and gravel access roads, site office, workshop and weighbridges. Progressive rehabilitation of quarried land returning to native vegetation communities with potential future use of the facilities area.
Location	398 Cabbage Tree Road, Williamtown, within the Port Stephens local government area.
Property Titles	Four titles within the Parish of Stockton, County of Gloucester including: • Lot 1 DP 224587 at 398 Cabbage Tree Road, Williamtown • Lot 121 DP 556403 at 282B Cabbage Tree Road, Williamtown. • Lot 11 DP 629503 at 282A Cabbage Tree Road, Williamtown. • Lot 1012 DP 814078 at 282 Cabbage Tree Road Williamtown.

Aspect	Key Aspects of the Project
Land Owner	Port Stephens Shire Council under lease to Williamtown Sand Syndicate Pty Ltd.
Proponent	Williamtown Sand Syndicate Pty Ltd, the owner of the quarry operator Newcastle Sand.
Area	Total Project Area of approximately 42.3 hectares from a Subject Land Area of approximately 176.2 hectares.
Project Life	Up to 15 years. At expected demand the quarry will have an eight (8) year life, or six (6) years at maximum extraction rates.
Extraction Rate	Maximum of 530,000 tonnes per annum, and maximum daily rate of 3,000 tonnes.
Operating Hours	Construction of intersection, access and workshop and office: • 7:00am to 5:00pm Monday to Friday. • 8:00am to 1:00pm Saturday. • No works on Sunday or public holidays. Quarrying Operations: • 7:00am to 5:00pm Monday to Friday. • 7:00am to 4:00pm on Saturday. • No quarrying on Sunday or a Public Holiday. Loading and dispatch of trucks: • 6:00am to 6:00pm Monday to Friday. • 7:00am to 4:00pm Saturday. • No works on Sunday or public holidays.
Transport Rate	• Up to 6 laden trucks per hour (12 trips per hour) during the hours of 6 am to 7 am Monday to Friday. • Up to 10 laden trucks per hour (20 trips per hour) during hours of 7 am to 6 pm Monday to Friday (i.e. all haulage hours excluding the morning peak). • Up to 10 laden trucks per hour (20 trips per hour) during hours of 7 am to 4 pm Saturdays. • Haulage between 5 am and 6 am is subject to agreement from adjacent landowners as per Schedule 3, Condition 1. • Up to 6 vehicles of employees would be expected to arrive from approximately 5:30 am to 7 am and leave between 5 pm and 7 pm.
Resource and products	Approximately 3.25 Mt of sand, comprising the following products to be extracted from site by truck onto Cabbage Tree Road for transport to markets: • Raw fill sand. • Screened sand. • Sandy loam. • Concrete sand. • Glass sand (estimated at about 16% of total resource). The Project covers approximately 42.3 hectares (including access roads) with extraction to a depth of not more than 1m above the highest predicted groundwater level.
Extraction	• Maximum extraction rate of 530,000 tonnes per annum. • Excavator and/or bulldozer to clear vegetation and strip topsoil. • Bulldozer or grader to windrow sand. • Front-end loader to feed conveyors to convey sand to the processing plant. • Front-end loader and haul truck to convey sand when conveyor unsuitable.

Aspect	Key Aspects of the Project
Processing Methods	• Raw sand product extracted directly from face with no processing. • Sand fed into electrically powered screen. • Screened sand sold as product or fed to electrically powered air separator. • Products stockpiled for loading directly into truck or fill bulker bags for removal from the site by truck.
Support facilities and utilities	• Site office, workshop, stores, car parking. • Power supply from local network • Water supply from local network.

1.3 PURPOSE AND SCOPE

This Management Plan outlines the key management controls to be implemented to minimise air quality and greenhouse gas emissions to the local community from quarry construction and operations. It also details air quality monitoring requirements associated with operation of the quarry against relevant air quality impact assessment criteria.

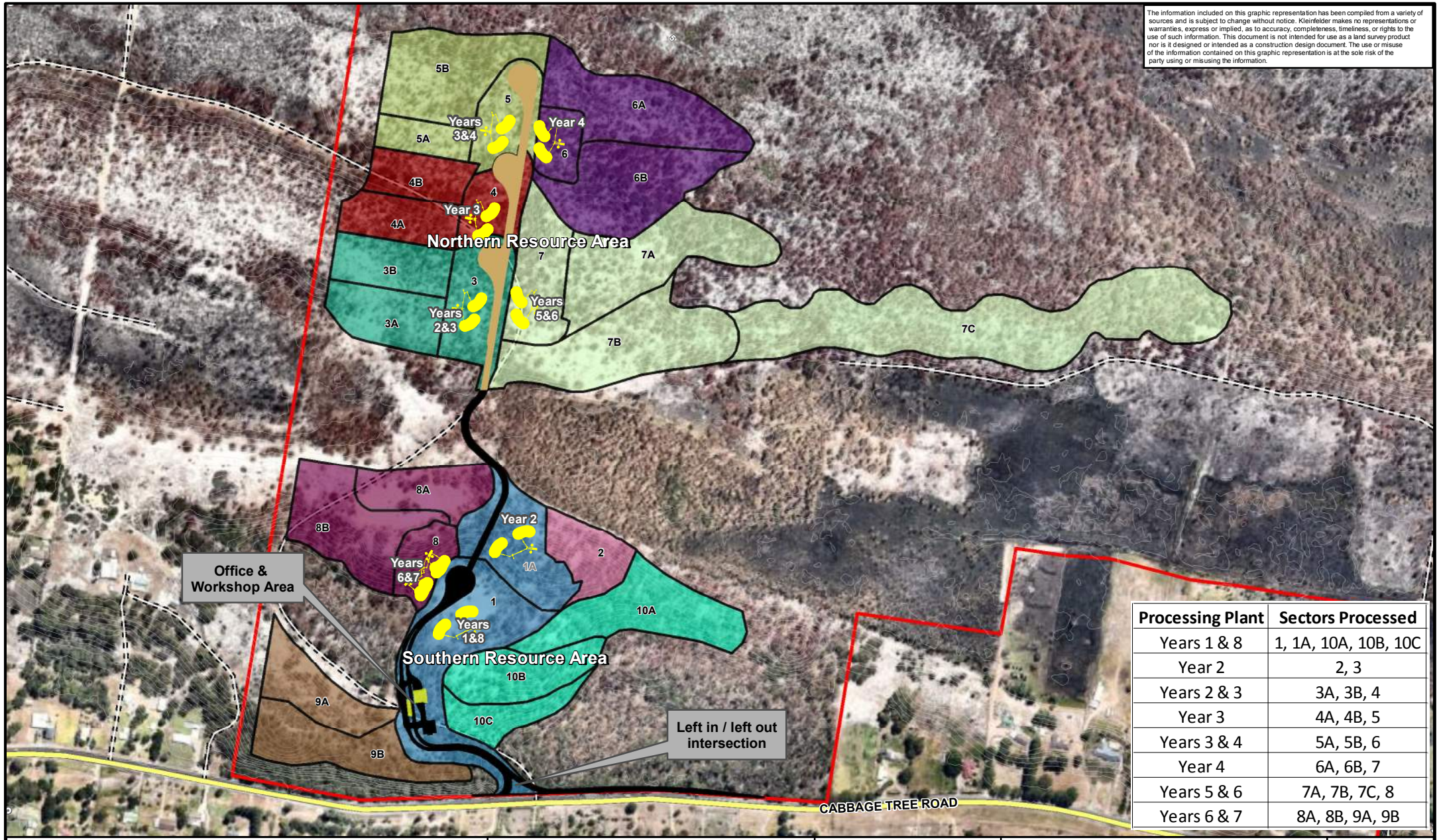
This document satisfies Development Consent Conditions 7 to 11 within Schedule 3 and the Statement of Commitments in Appendix 2 for the Project. A checklist of where each condition has been addressed in this document is provided in **Table 2.**

An overarching Environmental Management Plan (EMP) has also been prepared for the Project and provides the strategic context for the environmental management of quarry construction and operation along with management for other project aspects. This Air Quality Management Plan should be implemented along with the overarching project EMP for the duration of quarry operations.

1.4 CONSULTATION

The plan was supplied to the EPA for review and comment. As of the date of Version 3 of this plan, no response has been received from the EPA. It is understood the EPA regulate Environmental Protection Licence (EPL) as the preferred mechanism for management of noise impacts.

Copies of correspondence relating to the plan are included within **Appendix 1**.



The information included on this graphic representation has been compiled from a variety of sources and is subject to change without notice. Kleinfelder makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. This document is not intended for use as a land survey product nor is it designed or intended as a construction design document. The use or misuse of the information contained on this graphic representation is at the sole risk of the party using or misusing the information.

Processing Plant	Sectors Processed
Years 1 & 8	1, 1A, 10A, 10B, 10C
Year 2	2, 3
Years 2 & 3	3A, 3B, 4
Year 3	4A, 4B, 5
Years 3 & 4	5A, 5B, 6
Year 4	6A, 6B, 7
Years 5 & 6	7A, 7B, 7C, 8
Years 6 & 7	8A, 8B, 9A, 9B

Legend

- Subject Land
- Road - gravel
- Road - sealed
- Processing Plant & Infrastructure
- Arterial Road
- Track
- Contours (1m)

Sector

1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Metres
0 25 50 100 150 200 250

N

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PROJECT REFERENCE: 20190803
DATE DRAWN: 6/08/2018 14:35 Version 1
DRAWN BY: gjoyce
DATA SOURCE:
NSW DFSI - 2017
Nearmap - 2018

Quarry Operations Plan

Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Williamtown, NSW

FIGURE:
1

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2. STATUTORY REQUIREMENTS

2.1 LEGISLATION AND GUIDELINES

Air quality monitoring and management will be undertaken in accordance with the following State legislation:

- *Environmental Planning and Assessment Act 1979.*
- *Protection of the Environment Operations Act 1997.*

Specifically, operations will be the subject of Development Consent under the *Environmental Planning and Assessment Act 1979* and Environmental Protection Licence under the *Protection of the Environment Operations Act 1997.*

Air sampling and analysis will be undertaken generally in accordance with the guidelines specified in the EPA's publication *Approved Methods for Sampling and Analysis of Air Pollutants in NSW* 2007 and the data provided in accordance with *NSW EPA Requirements for publishing pollution monitoring data 2013.*

Air monitors will be set up in accordance with AS/NZS 3580.1.1:2016 Methods for sampling and analysis of ambient air – Guide to siting air monitoring equipment.

Sampling and analysis of PM_{10} will be undertaken in accordance with Australian Standard AS/NZS 3580.9.11:2016 : Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - PM_{10} beta attenuation monitors.

Other monitoring standards and guidelines applied to operations include:

- *AS/NZS 3580.9.3:2015 : Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - Total suspended particulate matter (TSP) - High volume sampler gravimetric method.*
- *AS 3580.14:2014 Methods for sampling and analysis of ambient air – Meteorological monitoring for ambient air quality monitoring applications.*
- *AS 2923-1987 Ambient air - Guide for measurement of horizontal wind for air quality applications.*
- *NSW EPA Requirements for publishing pollution monitoring data. October 2013.*

2.2 PROTECTION OF THE ENVIRONMENT OPERATIONS ACT, 1997

The following sections of the *Protection of the Environment Operations Act 1997* (POEO Act) are relevant to this Plan.

- Section 124 makes it an offence to operate any plant (other than domestic plant) at the premises in such a manner as to cause air pollution from the premises if the air pollution

is caused by the occupier's failure to maintain the plant in an efficient condition, or to operate the plant in a proper and efficient manner.

- Section 126 makes it an offence to fail to deal with "materials" in a proper and efficient manner that results in air pollution.
- Section 129 of the POEO Act states that the occupier of a premise must not cause or permit, the emission of any offensive odour.

Also relevant to this AQMP, under section 148 of the POEO Act, duties are imposed on employers and employees to notify the EPA (or local council) where a pollution incident causes or threatens material harm to the environment.

2.3 DEVELOPMENT CONSENT

Development Consent was granted for the Project under the *Environmental Planning and Assessment Act 1979* by the NSW Independent Planning Commission. The requirement for an Air Quality Management Plan arises from Condition 9 within Schedule 3 of the Development Consent. Other Air Quality Monitoring requirements include Conditions 7 to 11 of Schedule 3 and Appendix 2 – Statement of Commitments.

Table 2 provides a summary of where each requirement of the consent relating to Air Quality are addressed in this document.

Table 2: Development Consent Conditions

<table>
<tr><th>Condition</th><th>Description</th><th>Addressed in Section</th></tr>
<tr><td colspan="3">Schedule 3 – Specific Environmental Conditions</td></tr>
<tr><td>7</td><td>Air Quality Impact Assessment Criteria
The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria in Table 3 at any residence on privately-owned land.

Table 3: Air quality criteria
<table>
<tr><th>Pollutant</th><th>Averaging Period</th><th>Criterion</th></tr>
<tr><td>Particulate matter < 10 µm (PM_{10})</td><td>Annual</td><td>a, c 25 µg/m³</td></tr>
<tr><td>Particulate matter < 10 µm (PM_{10})</td><td>24 hour</td><td>b 50 µg/m³</td></tr>
<tr><td>Total suspended particulates (TSP)</td><td>Annual</td><td>a, c 90 µg/m³</td></tr>
</table>
Notes to Table 4:
a Cumulative impact (ie increase in concentrations due to the development plus background concentrations due to all other sources).
b Incremental impact (ie increase in concentrations due to the development alone, with zero allowable exceedances of the criteria over the life of the development.
c Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Secretary.</td><td>Section 3</td></tr>
</table>

Condition	Description	Addressed in Section
	d "Reasonable and feasible avoidance measures" includes, but is not limited to, the operational requirements in conditions 8 and 9 to develop and implement an air quality management system that ensures operational responses to the risks of exceedance of the criteria.	
8	**Operating Conditions** The Applicant must: a) implement best practice management to minimise the dust emissions of the development; b) regularly assess meteorological and air quality monitoring data and relocate, modify and/or stop operations on site to ensure compliance with the air quality criteria in this consent; c) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see note c under Table 3); d) monitor and report on compliance with the relevant air quality conditions in this consent; and e) minimise the area of surface disturbance and undertake progressive rehabilitation of the site, to the satisfaction of the Secretary.	Section 5
9	**Air Quality Management Plan** The Applicant must prepare an Air Quality Management Plan for the development to the satisfaction of the Secretary. This plan must: a) be prepared in consultation with the EPA;	Section 1.4
	b) be submitted to the Secretary for approval prior to commencing ground disturbing activities on the site, unless otherwise agree by the Secretary;	Appendix 1
	c) describe the measures to be implemented to ensure: • compliance with the air quality criteria and operating conditions of this consent; • best practice management is being employed; and • the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events;	Section 6
	d) describe the proposed air quality management system;	Section 5-9
	e) include an air quality monitoring program that: • is capable of evaluating the performance of the development; • includes at least two real-time particulate monitors; • includes risk-based monitoring to demonstrate compliance with the criteria in Table 3; • includes a Trigger Action Response Plan (TARP), including appropriate trigger levels, and a protocol to be implemented when trigger levels are exceeded; • includes a protocol for determining any exceedances of the relevant conditions of consent; • effectively supports the air quality management system; and • evaluates and reports on the adequacy of the air quality management system. The Applicant must not commence ground disturbing activities until the Air Quality Management Plan is approved by the Secretary. The Applicant must implement the Air Quality Management Plan as approved from time to time by the Secretary.	Section 7 & 8
10	**Meteorological Monitoring** For the life of the development, the Applicant must ensure that it has access to data from a suitable meteorological station operating in the vicinity of the site that complies with the requirements in the Approved *Methods for Sampling and Analysis of Air Pollutants in New South Wales* guideline.	Section 6.3
11	**Greenhouse Gas Emissions**	

Condition	Description	Addressed in Section
	The Applicant must implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site.	
Schedule 5 – Environmental Management, Reporting and Auditing		
3	**Management Plan Requirements** The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include: (a) detailed baseline data; (b) a description of: • the relevant statutory requirements (including any relevant approval, licence or lease conditions); • any relevant limits or performance measures/criteria; and • the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures; (c) a description of the measures that to be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria; (d) a program to monitor and report on the: • impacts and environmental performance of the development; and • effectiveness of any management measures (see (c) above); (e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible; (f) a program to investigate and implement ways to improve the environmental performance of the development over time; (g) a protocol for managing and reporting any: • incidents; • complaints; • non-compliances with statutory requirements; and • exceedances of the impact assessment criteria and/or performance criteria; and (h) a protocol for periodic review of the plan	Section 1-7
Appendix 2 – Statement of Commitments 8.3.10 Greenhouse Gas and Energy		
a)	• Record diesel and electricity by the operations. • Review of opportunities to improve energy efficiency.	
b)	On site diesel efficiency will continue to improve based upon the following measures: • Scheduling activities so that equipment and vehicle operation is optimised. • The quarry fleet will continue to be replaced by more efficient equipment over the life of the project, where replaced. Fuel use efficiency will be an important factor in selecting quarry fleet. • Resource recovery will be optimised within the constraints of the Project. • Machines will be working to their upper design performance. Optimising machine performance is key performance indicator for operators. • Fleet will be serviced and maintained to OEM specifications.	
Appendix 2 – Statement of Commitments 8.3.12 Air Quality		
a)	Air Quality controls and management measures will be revised and updated on determination of the project to ensure management measures proposed adequately reflect the requirements of the Conditions of Consent. The revised controls will be prepared in consultation with the NSW EPA for approval by NSW DPE.	Section 7
b)	Bitumen seal access road through to the boundary for the southern boundary of the northern resource area.	Section 5
c)	Utilise water carts or a sprinkler system for dust suppression of exposed areas and haul roads	Section 5

Condition	Description	Addressed in Section
d)	Water sprays will be incorporated into transfer points where higher levels of moisture are acceptable, such as conveyer transfers to product and reject stockpiles.	Section 5
e)	Install a suitable continuous air quality monitoring network	Section 5
f)	WSS will install a meteorological station to allow quarry personnel to access instantaneous wind speed and direction data and also generate site specific meteorological data records.	Section 6.3
g)	Quarry operations will be subject to a staged shutdown of equipment based on rolling 24-hour average PM_{10} concentrations, PM_{10} concentration spikes and adverse background air quality and meteorological conditions. Indicative completion criteria are set out below, it important to note that these triggers will be adapted and refined as the project progresses based on actual monitoring data. The proposed draft triggers include: Where the wind is directed toward surrounding residences, that is the weather station indicates winds are blowing from the quadrants west (270 degrees), through North (0 degrees) to East (90 degrees) the quarry should review dust controls (e.g. stockpile sprays and need for dust suppression on trafficked areas). In addition, based on the real-time air quality monitoring network, the following controls should be implemented: 1. No topsoil stripping or dozer push to occur where: a) Wind is directed toward surrounding residences; AND b) Rolling PM_{10} 24-hour average exceeds 35 µg/m^3 OR c) Rolling PM_{10} 1-hour average exceeds 50 µg/m^3. 2. If levels continue to increase after two hours, suspend sand extraction and processing (loading trucks only) where: a) Wind is directed toward surrounding residences; AND b) Rolling PM_{10} 24-hour average exceeds 42.5 µg/m3 OR c) Rolling PM_{10} 1-hour average exceeds 50 µg/m3. 3. If levels continue to increase after two hours, suspend loading trucks (no machinery operating) where: a) Wind is directed toward surrounding residences; AND b) Rolling PM_{10} 24-hour average exceeds 45 µg/m3. OR c) Rolling PM_{10} 1-hour average exceeds 50 µg/m3.	Section 7.1
h)	In the event the Trigger Response Framework fails to maintain levels below criteria, monitoring results are to be assessed for compliance using the following protocol: 1. Results above 24 hour average PM_{10} criteria of 50 µg/m^3. 2. Is wind direction in the preceding three hours toward receptors and the monitoring location? If **No**, unlikely to be due to project, suspend extraction activities until levels drop below 48 µg/m^3. Sales can continue. If **Yes** continue to Step 3. 3. Are regional levels also elevated as per the OEH monitoring network? 4. Does the quarry monitoring network show upstream and downstream air quality levels are above criteria? If **Yes**, unlikely to be due to project, suspend extraction activities until levels drop below 48 µg/m^3. If **No** continue to Step 5. 5. Exceedance directly related to activities onsite. Non-compliance has occurred. Review activities onsite and develop actions to mitigate future non-compliance.	
i)	If noncompliance is demonstrated, additional monitoring will be undertaken within one week following implementation of additional mitigation controls	Section 7.2

3. EXISTING ENVIRONMENT

3.1 PARTICULATE MATTER

It is proposed to regulate air quality emissions from the project using a real-time continuous air quality monitoring system that will allow the quarry to suspend activities onsite to ensure the project does not cause additional exceedances of the criteria.

The closest NSW Office of Environment and Heritage (OEH) air quality monitoring sites are located at Beresfield (approximately 13 km north-west of the Site), Wallsend (approximately 16 km south-west of the Site), and Newcastle (approximately 14 km south-south-west).

The annual average PM_{10} concentrations at these sits for the period 2014 to 2018 are presented in Table 3.

The operation of the quarry occurs in the context of existing air quality levels that on occasion exceed the 24-hour average PM_{10} criterion, as shown in **Table 4**. It is noted that 2018 has a higher number of exceedances than previous years

Table 3: Annual average PM_{10} concentrations (µg/m^3) – OEH sites 2014 to 2018

PM_{10} annual average (µg/m^3)			
Year	**Wallsend**	**Newcastle**	**Beresfield**
2014	16.9	21.4	19.4
2015	16.7	21.4	18.8
2016	16.6	21.6	19.1
2017	17.4	22.4	19.6
2018	19.4	24.5	21.6

Table 4: Exceedances of 24-hour PM_{10} criterion – OEH sites 2014 to 2018

PM_{10} 24-hour average > 50 µg/m^3			
Year	**Wallsend**	**Newcastle**	**Beresfield**
2014	0.0	2.0	0.0
2015	1.0	3.0	2.0
2016	1.0	1.0	0.0
2017	0.0	1.0	0.0
2018	5.0	8.0	8.0

3.2 MODELLING RESULTS

The continuous air quality monitoring and meteorological system proposed for the quarry will include trigger levels that will ensure the project does not cause an exceedance of the cumulative 24-hour average PM_{10} criterion of 50 µg/m^3. Where winds are blowing directly toward the nearest receptors this may include the temporary suspension of quarrying activities. The predicted concentrations for the project alone are low, and are unlikely to result in an exceedance of the 24-hour PM_{10} criterion at any residence.

3.2.1 Annual Average

The results presented in the updated modelling study (Pacific Environment, 2017) show that there are no sensitive receivers predicted to experience annual average concentrations above the relevant impact assessment criterion for PM_{10}, $PM_{2.5}$, TSP or dust deposition, either due to the Project or when including existing background concentrations. This includes using relatively conservative estimates of annual average background levels, representing well over half the individual EPA criterion.

3.2.2 24 Hour Maximum

Modelling scenarios for maximum 24-hour averages included both a “typical day” (based on an annual average production rate) and a “maximum day” (based on a maximum rate of production on any given day).

For typical day activities there are no predicted exceedances of either the PM_{10} or $PM_{2.5}$ assessment criteria, due to both the Project alone or cumulatively.

For maximum day activities (3,000 tonnes per day), there are a five residences in Year 7 and Year 8 that are predicted to experience one day above the PM_{10} assessment criterion of 50 µg/m^3. In Year 8 there is also one receptor predicted to experience two days above the impact assessment criterion. It needs to be understood here, that this is assuming that the maximum production rate is occurring every day of the year and will therefore coincide with the worst-case meteorological conditions which bring about that exceedance.

There are no predicted exceedances of the 24-hour $PM_{2.5}$ impact assessment criterion of 25 µg/m^3. It may also be reasonable to assume that if this maximum extraction rate was reached during Year 1, similar, though likely lower (owing to the reduced exposed areas) may occur. Year 7 and 8 were considered worst case for the life of the project.

In summary, the residences predicted to exceed the 24-hour average PM_{10} impact assessment criterion and the number of days (in brackets), in the absence of any real-time monitoring and reactive or predictive system, are located generally opposite the quarry on Cabbage Tree Road and include the following:

Year 7:

- Receptor 35 (1)
- Receptor 36 (1)
- Receptor 40 (1)
- Receptor 41 (1)
- Receptor 42 (1)

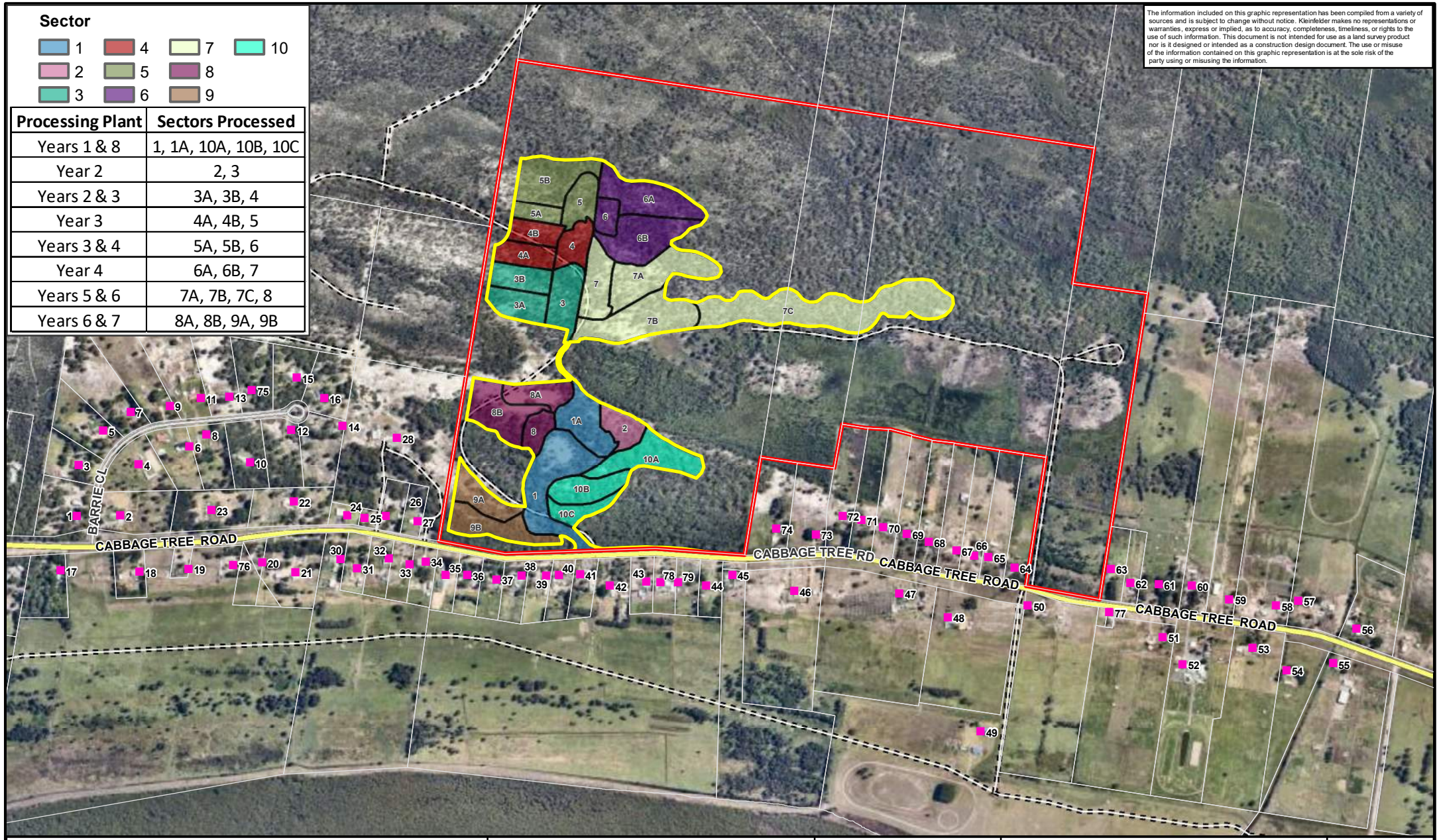
Year 8

- Receptor 37 (1)
- Receptor 38 (1)
- Receptor 41 (1)
- Receptor 42 (2)
- Receptor 44 (1)
- Receptor 79 (1)

3.3 RECEPTORS

With respect to the proximity of residential dwellings it is important to note that the resource is effectively divided into two areas, the northern portion of the resource and the southern resource area. Land use surrounding these resource areas of the quarry is characterised below and shown within **Figure 2**:

- Northern resource area:
  - One dwelling within 500m of the resource extraction area.
  - Land to the east, west and north of the quarry is uninhabited, comprising land used for biodiversity offset for the project, Hunter Water owned land and the Tilligerry State Conservation Area (SCA).
- Southern resource area:
  - To the south, the closest dwellings are located more than 75 m from Sector 9B (refer to Figure 2) along the southern most extent of the resource.
  - To the south-west, the closest dwelling is located more than 75 m from Sector 9B (refer to Figure 2) along the southern most extent of the resource.
  - To the west the closest dwelling is over 160 m, and the dwellings at the end of Barrie Close are in excess of 300 m from the Sector 8A and 9A.
  - To the east the closest dwelling is over 220 m.



Processing Plant	Sectors Processed
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Year 2	2, 3
Years 2 & 3	3A, 3B, 4
Year 3	4A, 4B, 5
Years 3 & 4	5A, 5B, 6
Year 4	6A, 6B, 7
Years 5 & 6	7A, 7B, 7C, 8
Years 6 & 7	8A, 8B, 9A, 9B

Legend

- Subject Land Boundary
- Project Area Boundary
- Arterial Road
- Local Road
- Track
- Receptor
- Lot Boundary

Metres
0 50 100 200 300 400 500
N

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PROJECT REFERENCE: 20190803
DATE DRAWN: 8/03/2019 13:59 Version 1
DRAWN BY: BDeane

DATA SOURCE:
NSW DFSI - 2017
Nearmap - 2018

Subject Land and Receptors

Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Williamtown, NSW

FIGURE:
2

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3.4 WEATHER

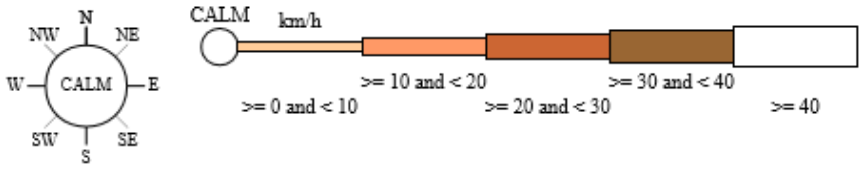
Weather data are available at the Bureau of Meteorological Station located at the Williamtown Airport approximately 4 km to the north east of the northern portion of the site. **Table 5** provides an overview of the wind directions at Williamtown.

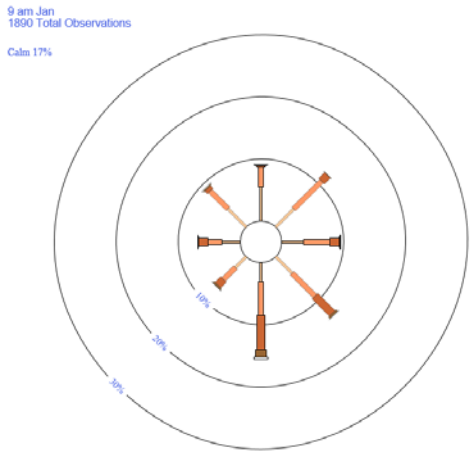
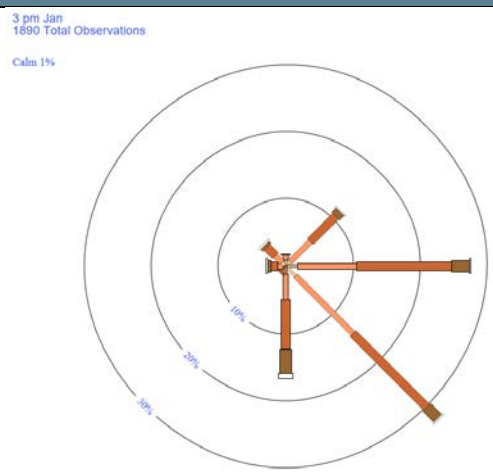
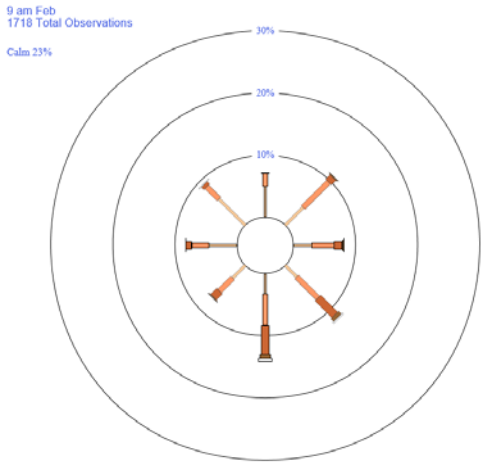
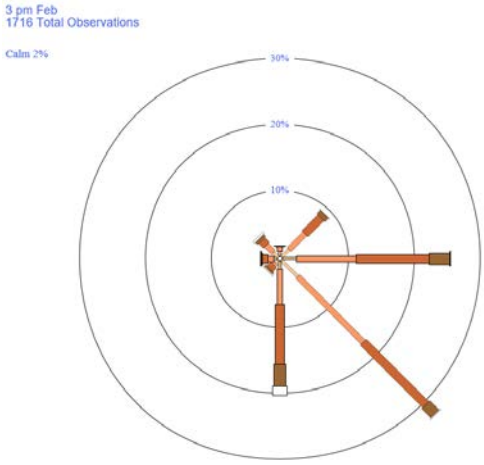
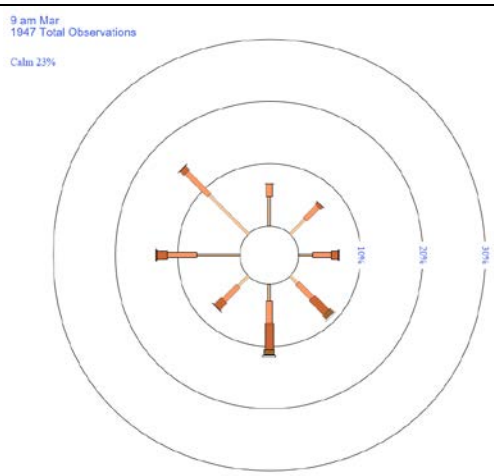
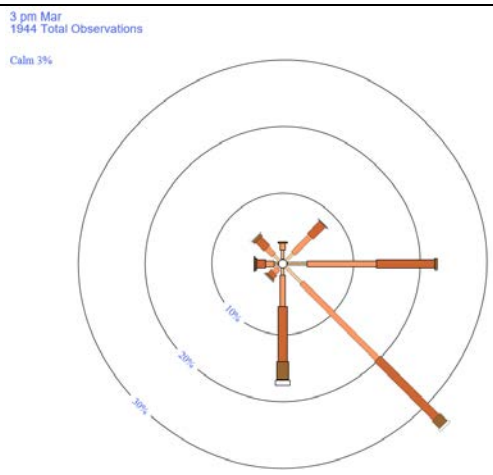
The wind directions have the following key characteristics relevant to the Quarry operations:

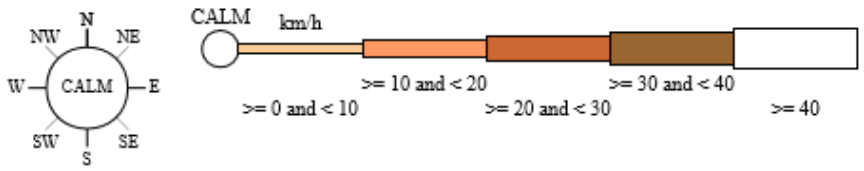
- Calm mornings and windy afternoons throughout the year.
- Mornings have a more even distribution of winds, with the following tendencies:
    - Summer has a greater proportion of winds from the south that will direct dust generated at the quarry away from dwellings.
    - Autumn, winter and spring have a higher proportion of winds from the west and north-west that have greater propensity to push dust generated from the quarry to dwellings.
- Afternoons typically have a more dominant wind pattering including:
    - Spring, summer and autumn have dominant south and south east onshore wind that will direct dust generated at the quarry away from dwellings.
    - Winter still have a southerly component, though north and north-westerly winds increase that have greater propensity to push dust generated from the quarry to dwellings.

While dust concentrations are subject to a complex range of parameters (e.g. background levels, mixing heights etc), simplistically, based on prevailing winds winter is likely to require the highest level of dust suppression to through the year, followed by the mornings during autumn and spring.

Table 5: Monthly wind roses 9am and 3pm at Williamtown Bureau of Meteorology Station



Month	9am	3pm
January		
February		
March		



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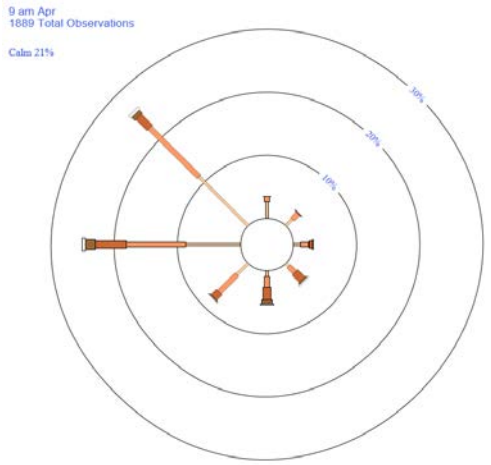
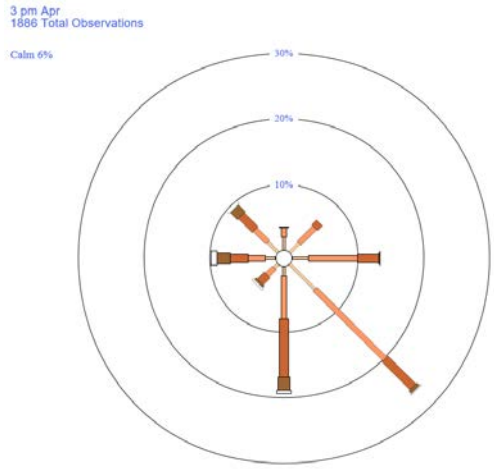
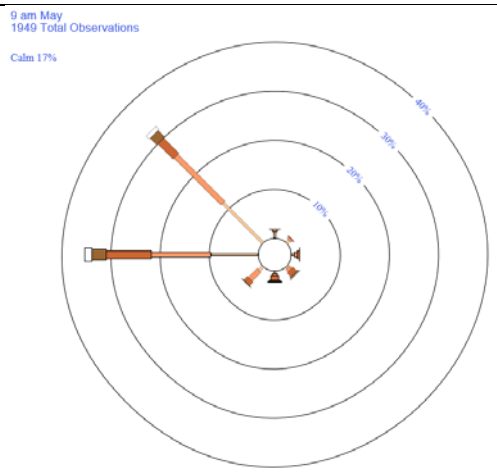
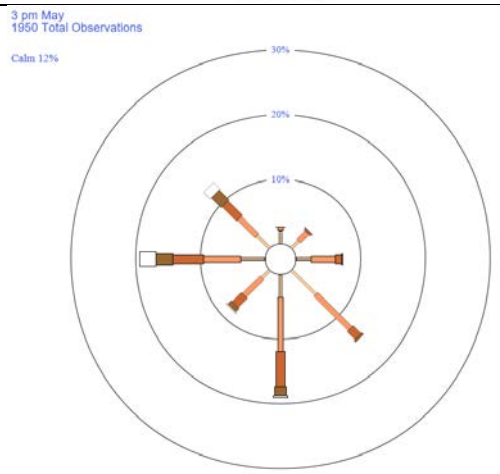
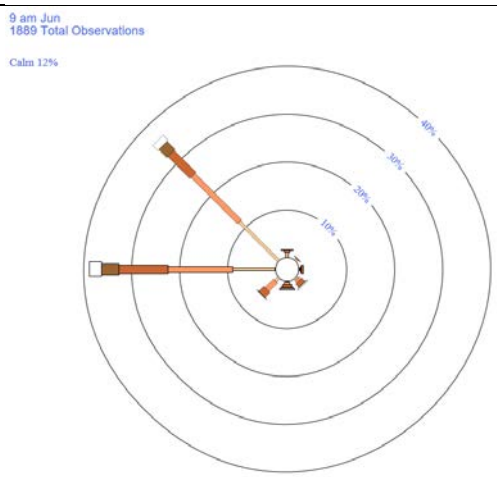
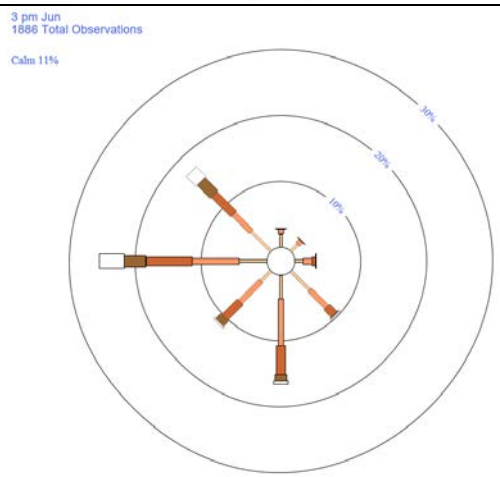
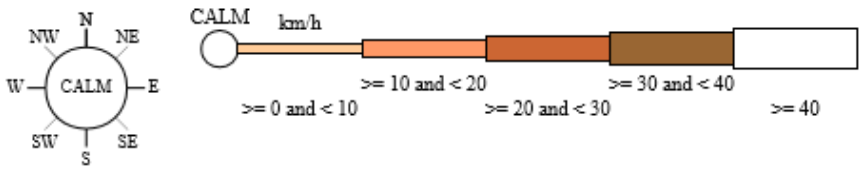
April		
May		
June		



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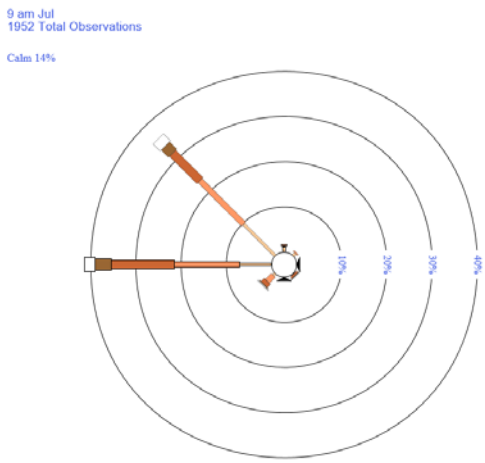
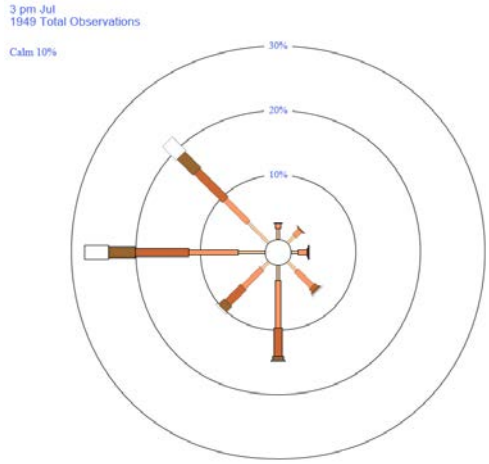
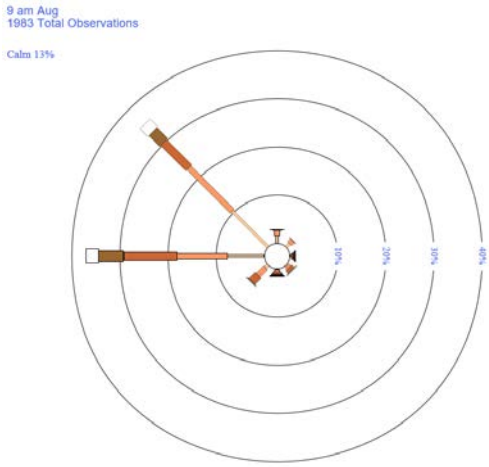
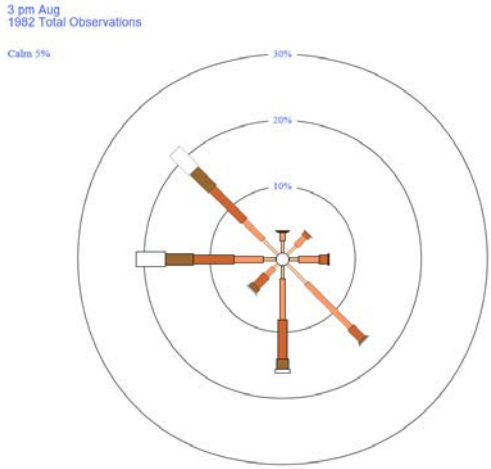
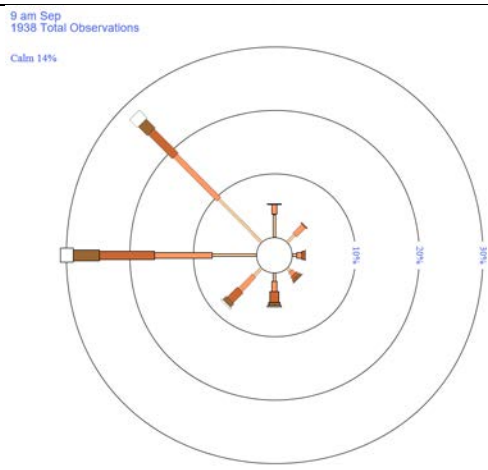
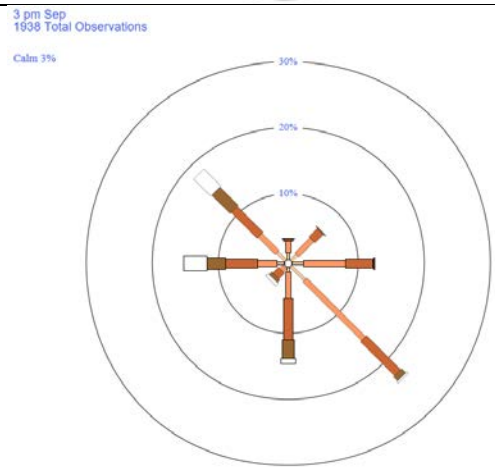
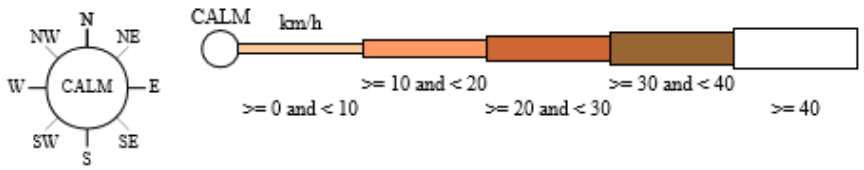
July		
August		
September		



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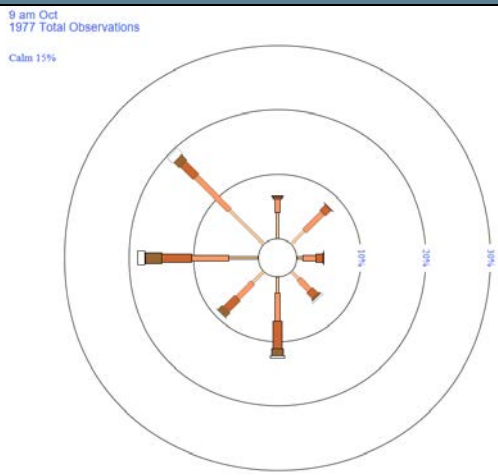
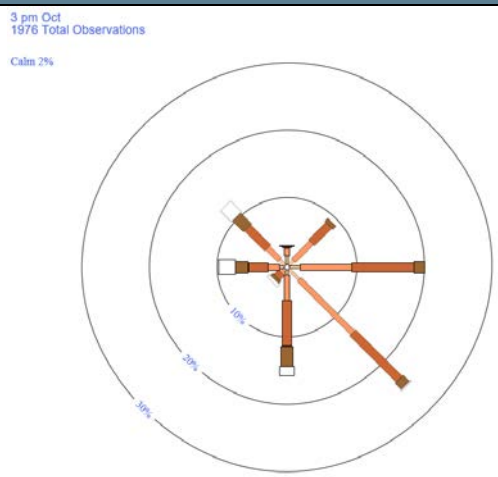
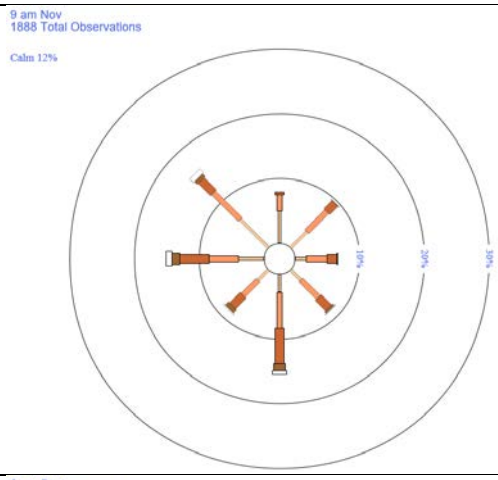
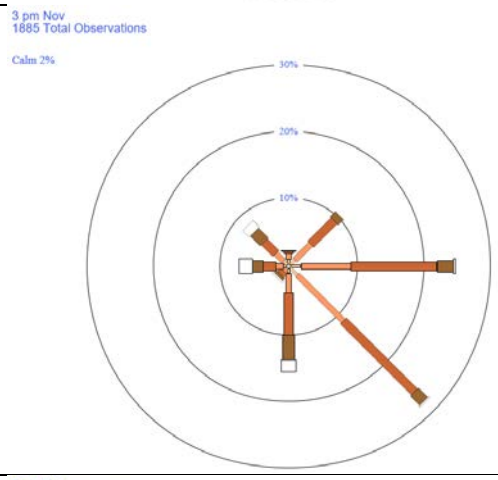
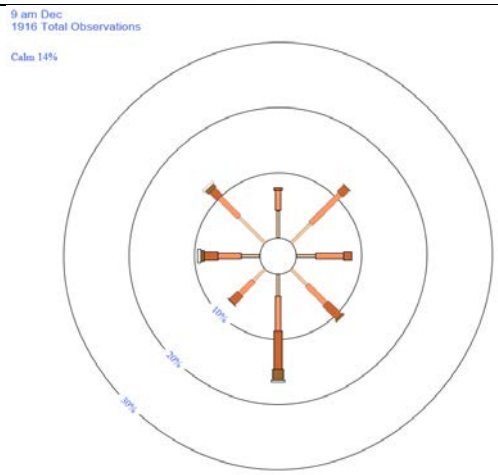
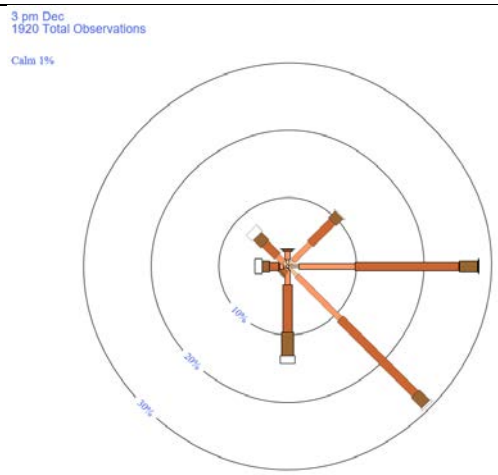
October		
November		
December		

4. ROLES AND RESPONSIBILITIES

Roles used within this plan are defined below, responsibilities are shown in Section 6 or otherwise defined below.

4.1 EMERGENCY CONTACTS

The following contacts are available in the event of a compliant, enquiry or emergency.

Table 6: Key contacts for management of air quality

Contact	Name	Phone	Email
Quarry Manager	TBA	TBA	TBA
EPA – Incidents Line		131 555	
EPA – Newcastle Office		02 4908 6800	
OEH – Regional Operations - Newcastle		02 4927 3119	

4.2 QUARRY OWNER

The Quarry Owner is WSS who operates the quarry under Newcastle Sand. The Quarry Owner is responsible for the development and assignment of a suitably qualified Quarry Manager and to provide sufficient support to the Quarry Manager to undertake the required actions defined in this plan.

4.3 QUARRY MANAGER

The Quarry Manager is the person who manages the Quarry and is responsible for the day to day activities on the site. The Quarry Manager reports to the Quarry Owner.

The Quarry Manager must read, understand and implement the practical application of this plan. All activities being undertaken on the quarry site are the responsibility of the Quarry Manager.

The responsibilities of the Quarry Manager are defined by **Section 6**.

4.4 ONSITE PERSONNEL

Onsite personnel constitutes all employees and contractors working on the site.

5. AIR QUALITY CRITERIA

Dust particles are not individually visible to the human eye however a concentration of fine particles may be seen as a haze or smog.

Dust particles are referred to as particulate matter (PM) and are typically described by size:

- PM_{10} includes all particles smaller than 10 micron (µm) in diameter (smaller than 1/7th of a hair width).
- Total Suspended Particulate Matter (TSP) refers to the total of all particles suspended in the air. These particles are generally 50 µm to 100 µm in diameter (less than the average width of a human hair).

In accordance with Condition 7 of Schedule 3 of the Development Consent, particulate matter emissions generated by the project are not to exceed the criteria in **Table 7** at any residence on privately owned land. The annual averaging period are based on cumulative values (background plus the quarry), while the 24-hour level is the quarry's contribution alone.

Table 7: Air quality criteria

Pollutant	Averaging Period	Criteria*
Particulate matter < 10 µm (PM_{10})	Annual	[a c] 25 µg/m^3
Particulate matter < 10 µm (PM_{10})	24-hour	[b] 50 µg/m^3
Total suspended particulates (TSP)	Annual	[a c] 90 µg/m^3

Where:

a – Cumulative impact (i.e. increase in concentrations due to the project plus background concentrations due to all other sources)

b – Incremental impact (i.e. increase in concentrations alone, with zero allowable exceedances of the criteria over the life of the project)

c – Excludes extraordinary events such as bushfire, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by DPE.

* Based on standard air quality assessment criteria in the *Approved Methods for Modelling and Assessment of Air Pollutants in NSW 2007*

Emissions generated by quarry operations are to be minimised during adverse meteorological conditions and extraordinary events (such as those in note c above).

6. MANAGEMENT CONTROLS

Table 8 defines the key air quality management parameters, while **Table 9** describe the relevant air quality management actions and controls to be implemented for the Project. These controls are based on achieving the Development Consent Conditions in **Table 2**.

Table 8: Air Quality Management metrics

Aspects	• Excavation of quarry material. • Loading of material on to trucks. • Transport of material to and from site. • Diesel combustion (greenhouse gas). • Electricity use (greenhouse gas).	**Impacts**	• Dust emissions and disturbance to neighbouring landowners. • Greenhouse Gas Emissions.
Objectives	• Maintain air quality at neighbouring properties below criteria. • All activities undertaken with the objective of preventing visible emissions of dust from the site. • Comply with Development Consent conditions.	**Targets**	• Zero Environmental Incidents/Non-compliances. • Zero landowner complaints.

Table 9: Air Quality Management Measures

Item	Action	Trigger / Timing	Responsibility	Reporting
6.1 GENERAL				
A	Ground disturbing activities will not commence until this Air Quality Management Plan is approved by DPE.	Prior to commencement of construction	Quarry Manager	Approval of this plan by DPE
B	Induction to include awareness for all site personnel on the presence of dust and to immediately notify the Quarry Manager where visible dust exists above wheel height.	Ongoing	Quarry Manager	Induction
6.2 DESIGN CONTROLS				
A	Incorporation of conveyors in operations to minimise wheel generated dust.	During Operations	Quarry Manager	Nil
B	Extraction will be undertaken in sectors that requires progressive rehabilitation and limits the extent of open and exposed sand.	Ongoing	Quarry Manager	Nil
C	The central spine road from Cabbage Tree Road to the southern boundary of the Northern Resource Area will include a bitumen seal.	During construction	Quarry Manager	Nil
D	The spine road from through the Northern Resource Area will be maintained and constructed of a suitable material with regard to minimising silt content.	During construction	Quarry Manager	Nil
E	Water sprays will be incorporated into transfer points where higher levels of moisture are acceptable, such as conveyer transfers to product and reject stockpiles.	Ongoing	Quarry Manager	Record water volume used and publish in AEMR.
6.3 DUST CONTROL MEASURES				
A	Surface disturbance will be minimised where practicable and progressive rehabilitation of the site will be undertaken to minimise exposed areas.	Ongoing	Quarry Manager	Nil
B	The spine road from through the Northern Resource Area will be regularly watered by road side static sprays or water cart to minimise dust generation.	Ongoing	Quarry Manager	Nil

Item	Action	Trigger / Timing	Responsibility	Reporting
C	Where exposed areas (such as temporary batters, un-vegetated quarry floor) generate dust, static sprays or water cart (where access is possible) will be established to maintain a suitable moisture content until suitable vegetation cover can be established.	Ongoing	Quarry Manager	Nil
6.4 GREENHOUSE GAS AND ENERGY				
A	Keep a record diesel and electricity use by the operations.	Ongoing	Quarry Manager	Record diesel and electricity use and publish in AEMR.
B	Regularly review opportunities to improve energy efficiency.	Annually	Quarry Manager	Record any energy efficiency improvements in AEMR.
C	Onsite diesel efficiency will be progressively improved through the following measures: • Schedule activities so that equipment and vehicle operation is optimised. • Quarry fleet will continue to be replaced by more efficient equipment over the life of the project. Fuel use efficiency will be an important factor in selecting quarry fleet. • Resource recovery will be optimised within the constraints of the Project. • Machines will be working to their upper design performance. Optimising machine performance is key performance indicator for operators. • Fleet will be serviced and maintained to OEM specifications.	Ongoing	Quarry Manager	Maintain service and maintenance records
6.5 MONITORING				
A	Visual monitoring: All site personnel will be responsible for notifying the Quarry Manager in the event of visible dust onsite.	At all times	All site personnel.	Nil
B	Implement an air quality monitoring network (refer to **Section 7**) that at a minimum: • Will include two real-time particulate monitors. • Can be used to adjust operations. • Will demonstrate compliance with air quality criteria (refer **Section 5**).	Ongoing / collect data monthly	Quarry Manager	Updated to website monthly. Results published in AEMR.

Item	Action	Trigger / Timing	Responsibility	Reporting
C	Install a meteorological station to allow quarry personnel to access instantaneous wind speed and direction data and generate site specific meteorological data records (refer to **Section 7.3**)	Ongoing / collect data monthly	Quarry Manager	Summary in AEMR.
6.6 TRIGGER RESPONSE FRAMEWORK				
A	Implement Trigger Response Framework as per **Section 8.**	Continuous	Quarry Manager	Summary of the effectiveness of trigger response mechanisms provided in the AEMR.
6.7 COMPLIANCE EVALUATION				
A	Where a complaint is received relating to air quality OR the monitoring system reports the 24-hour average PM_{10} criteria of 50 µg/m^3 the following compliance evaluation will be undertaken: 1) Results above 24-hour average PM_{10} criteria of 50 µg/m^3. 2) Is wind direction in the preceding three hours toward receptors and the monitoring location? If **No**, unlikely to be due to project, suspend extraction activities until levels drop below 48 µg/m^3. Sales can continue. If **Yes**, continue to Step 3. 3) Are regional levels also elevated as per the EPA monitoring network? 4) Does the quarry monitoring network show upstream and downstream air quality levels are above criteria? If **Yes**, unlikely to be due to project, suspend extraction activities until levels drop below 48 µg/m^3. If **No** continue to Step 5. 5) Exceedance directly related to activities onsite. Non-compliance has occurred. Where Trigger Response Framework fails to maintain levels below criteria resulting in a Non-Compliance, the implementation of mitigation measures and trigger response levels will be reviewed and modified as necessary to improve system.	Complaint OR System shows exceedance of 24 hour average exceeding 50 µg/m^3	Quarry Manager	Results included in AEMR If a Non-compliance has occurred, complete Incident Notification. Notification to be provided to DPE within 24 hours.

Item	Action	Trigger / Timing	Responsibility	Reporting
C	Annual review of compliance with this plan will be undertaken through consideration of the following key indicators: • Compliance with 24-hour average criteria. • Compliance with annual average criteria. • Controls implemented / or plan and triggers amended if needed to improve. • Complaints received regarding air quality.	Annual	Quarry Manager	Summary in AEMR
6.8	**INCIDENT INVESTIGATION AND CORRECTIVE ACTIONS**			
A	Incident Investigations will record the following details as part of the Incident Investigation: • When and where did the incident occur? • In the three prior to and following the incident: o What were the monitoring results? o What operational activities were occurring at that time? o What were the weather conditions (rainfall, wind direction, temperature)? • Were alerts issued to Quarry Manager? • Was the Trigger Response Framework followed? • If Trigger Response Framework not followed, review reasons for failure and implement corrective actions with onsite personnel. • If the Trigger Response Framework was implemented correctly (or could not reasonably be implemented), amend triggers and controls.	Non-compliance with criteria	Quarry Manager	Incident Investigation and Corrective Actions Report provided to DPE within 7 days of event.
B	Monthly internal inspections as per 6.2 of the project EMP	Monthly	Quarry Manager	Monthly Inspection Report
C	Three-yearly Independent Environmental Audits as per Section 6.3 of the project EMP.	Three-yearly	Quarry Manager	Audit Report

Item	Action	Trigger / Timing	Responsibility	Reporting
6.9 COMPLAINTS				
A	All complaints will be recorded in the Consultation Register and resolved in line with the project Complaints Procedure in Section 5.2.1.2 of the project EMP.	Receipt of complaint	Quarry Manager	Complaints Register Summary in AEMR.
B	In the event of complaints relating to dust generation at privately owned dwellings, the monitoring network will be reviewed and where justified and feasible modified (relocation of, or inclusion of additional monitors) to improve monitoring of dust emissions.	Receipt of complaint regarding dust	Quarry Manager	Complaints Register Summary in AEMR.
6.10 CONTINUOUS IMPROVEMENT				
A	All controls in this plan will be reviewed and if necessary, revised to confirm their applicability on an ongoing basis throughout the life of the Project and ensure continual improvement of management practices. In addition the following circumstances will require review of this plan: • Internal monthly compliance inspections. • Non-compliance with criteria. • Annual review. • Modifications of the Consent. • Audit Report.	Annually at a minimum	Quarry Manager	Summary in AEMR

7. MONITORING NETWORK

7.1 NETWORK

The air quality-monitoring network comprises the following key components and is illustrated in **Figure 3**:

- Two real-time compliance monitors measuring PM_{10} installed between the quarry and dwellings to the south of the quarry (subject to land owner agreement). Each real-time monitor will be fitted with wind direction sensors to enable contributions from the quarry to be better determined.
- A high volume air sampler (HVAS) with a PM_{10} inlet will be co-located with the downwind real-time monitors for correlation of the real-time monitor. The preferred siting for these co-located monitors would be the predicted worst affected receptor and subject to land owner agreement. An additional HVAS measuring TSP will also be located here.
- A meteorological station installed at the quarry office, in line with siting requirements outlined in the relevant standard. In particular, it will be at a suitable distance from any building so as not to be disturbed by the air flow around the building.

The network will be established at the earliest feasible opportunity, at least eight weeks prior to the commencement of quarrying onsite to better establish site-specific background conditions.

7.1.1 Real-time Monitors

Two real-time monitors will be installed consistent with the following guidelines:

- AS/NZS 3580.1.1:2016 Methods for sampling and analysis of ambient air – Guide to siting air monitoring equipment.
- EPA Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales 2007.

The preferred real-time monitors will be beta attenuation monitors (BAMs), operated in accordance with AS/NZS 3580.9.11:2008 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM_{10} beta attenuation monitors. The monitors will log continuously and enable proactive and reactive dust management by allowing on site operators to be notified when pre-set trigger levels are exceeded.

The final locations of the BAMs will be determined in consultation with the regulatory authorities and land-owners. However, the intent is for one downwind and one upwind of the prevailing winds. The most affected receptors are Residences 41 and 42 (predicted exceedances in both Year 7 and Year 8) so either of those would be suitable and are downwind of the prevailing north westerlies. Residence 28 may also be a suitable upwind site.

7.1.1.1 Maintenance and Calibration

All instruments, including the meteorological station will be calibrated on an annual basis. Regular maintenance of the continuous PM_{10} monitors will occur more frequently, on a quarterly basis. Daily checks will also be carried out on the continuous PM_{10} monitors to ensure the instruments are operating correctly and this can be done remotely.

7.1.2 High Volume Air Samplers

The HVAS network will include the following locations:

- One high volume air sampler (HVAS) with a PM_{10} inlet will be co-located with the downwind real-time monitors for correlation of the real-time monitor. The preferred siting for these co-located monitors would be the predicted worst affected receptor and subject to land owner agreement.
- One HVAS measuring TSP will also be located at the downwind real-time monitor.

The HVAS will be installed in accordance with the following guidelines:

- AS/NZS 3580.1.1:2016 Methods for sampling and analysis of ambient air – Guide to siting air monitoring equipment
- EPA Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales 2007.

The HVAS will be operated in accordance with:

- AS/NZS 3580.9.3:2015 : Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - Total suspended particulate matter (TSP) - High volume sampler gravimetric method..
- AS/NZS 3580.9.6: 2015 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM10 high volume sampler with size selective inlet – Gravimetric method

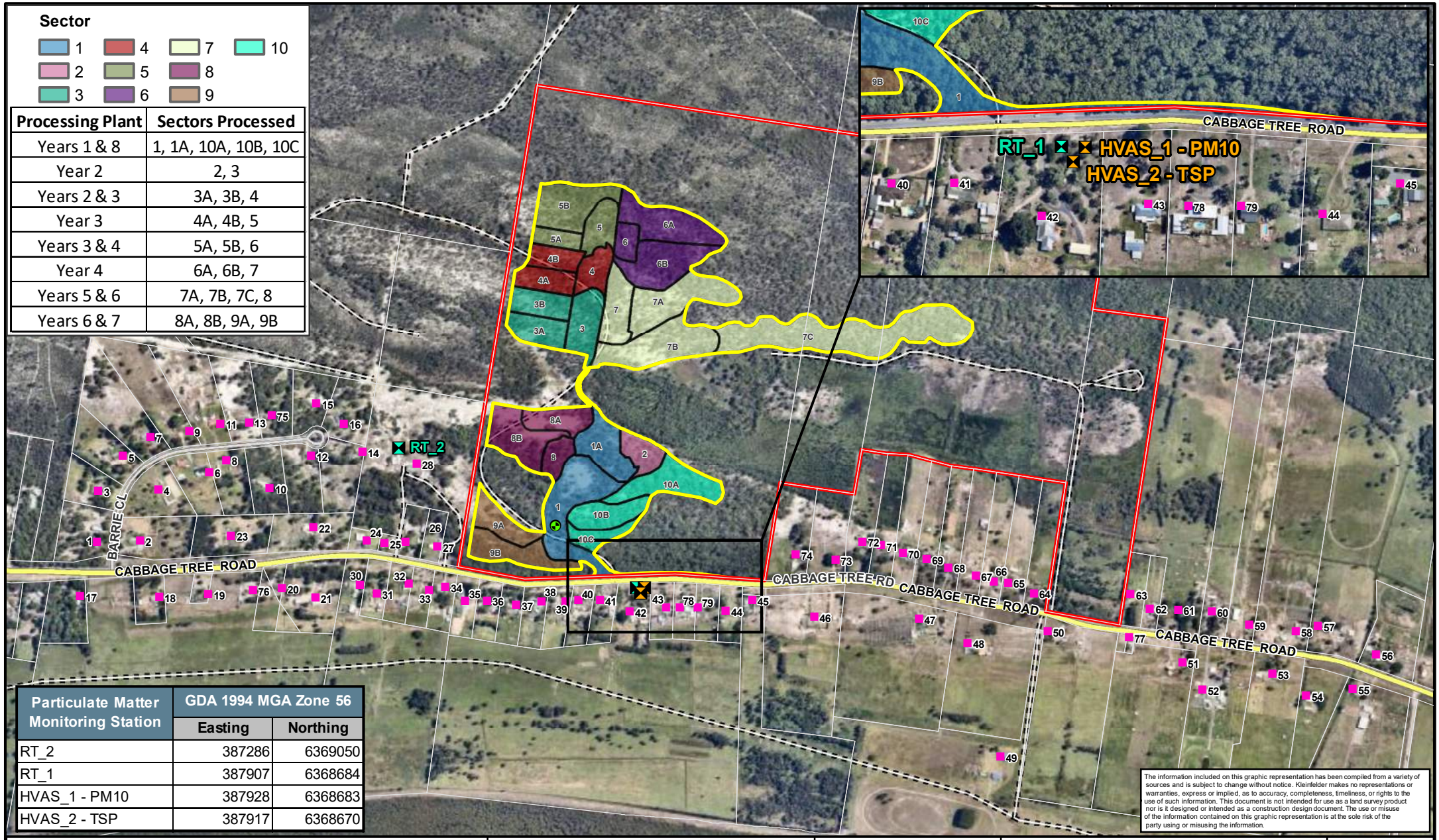
7.1.2.1 Sample frequency

The HVAS will operate for a 24 hour period once every six days, cycling through each day of the week (i.e. Monday 12:00am to 12:00pm 1st week, then Sunday 12:00am to 12:00pm 2nd week, and so on). The schedule will be aligned with regional EPA schedules where operating.

Filter papers will be replaced prior to the following sample period by Quarry staff and provided to a NATA accredited laboratory for gravimetric analysis.

7.1.2.2 Maintenance and Calibration

At the conclusion of each sampling period, the filters in the high volume air samplers will be replaced and removed filters will collected and placed in separate, suitably labelled, dustproof containers and sent to a NATA accredited laboratory for preparation and weighing. The TSP and PM_{10} concentrations will be determined at the laboratory by dividing the mass of collected particulate matter by the total volume of air drawn in the sampling period. The results are reported in $\mu g/m^3$



Processing Plant	Sectors Processed
Years 1 & 8	1, 1A, 10A, 10B, 10C
Year 2	2, 3
Years 2 & 3	3A, 3B, 4
Year 3	4A, 4B, 5
Years 3 & 4	5A, 5B, 6
Year 4	6A, 6B, 7
Years 5 & 6	7A, 7B, 7C, 8
Years 6 & 7	8A, 8B, 9A, 9B

Particulate Matter Monitoring Station	GDA 1994 MGA Zone 56	
	Easting	Northing
RT_2	387286	6369050
RT_1	387907	6368684
HVAS_1 - PM10	387928	6368683
HVAS_2 - TSP	387917	6368670

Legend

- Subject Land Boundary
- Project Area Boundary
- Lot Boundary
- Proposed Met Station
- Receptor
- Arterial Road
- Local Road
- Track

Proposed Particulate Matter Monitoring Locations

- High Volume Air Sampling
- Real-time Monitor

Metres
0 50 100 200 300 400 500
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PROJECT REFERENCE: 20190803
DATE DRAWN: 8/03/2019 14:15 Version 2
DRAWN BY: BDeane
DATA SOURCE:
NSW DFSI - 2017
Nearmap - 2018

Proposed Particulate Matter Monitoring Locations

Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Williamtown, NSW

FIGURE:
3

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7.2 METEOROLOGICAL CONDITIONS

A meteorological station will be installed onsite at the quarry office in accordance with the requirements in the AS/NZS 3580.14:2014, Methods for sampling and analysis of ambient air - Meteorological monitoring for ambient air quality monitoring applications

Real-time measurements of meteorological conditions will be taken to support air quality monitoring and to identify weather conditions which may trigger the need to modify operations.

The following meteorological parameters will be collected at 15-minute intervals at a height of 10m above ground-level:

- Temperature.
- Rainfall (mm).
- Humidity.
- Wind speed.
- Wind direction.
- Sigma theta.
- Solar Radiation.

Monitoring data will be validated and analysed on a monthly basis by a qualified practitioner to ensure high quality control and enable rapid response if there are issues with the data.

8. TRIGGER RESPONSE FRAMEWORK

Quarry operations are subject to staged shutdown of equipment based on rolling 24-hour average PM_{10} concentrations and meteorological conditions.

Trigger response criteria are set out below, it is important to note that these triggers will be adapted and refined as the project progresses to ensure compliance with criteria and suitable actions are undertaken.

An SMS Alert system will notify the Quarry Manager from automated alerts from the real-time monitors and a meteorological station. SMS Alerts will be established as per the conditions in **Table 10** and the actions implemented accordingly. Staged shutdown can be reversed where the Rolling PM_{10} 24-hour average is below relevant trigger level and stable or subsiding.

Table 10: Trigger Response Framework

Stage	Conditions	Action
1	a) **Wind toward residents**. Where wind is directed toward surrounding residences, that is the weather station indicates winds are blowing from the quadrants west (270 degrees), through North (0 degrees) to East 90 degrees. **OR** b) **PM_{10} above background**. Continuous PM_{10} monitor shows rolling PM_{10} 24-hour average exceeds the average background concentration of 22 µg/m^3.	Review operations and ensure water dust suppression is active (e.g. haul roads and stockpile sprays)
2	a) Wind is directed toward surrounding residences; **AND** b) Rolling PM_{10} 24-hour average exceeds 35 µg/m3.	No topsoil stripping or dozer push
3	a) Wind is directed toward surrounding residences; **AND** b) Rolling PM_{10} 24-hour average exceeds 40 µg/m3.	No sand processing **In addition to Stage 1 & 2 actions**
4	a) Levels continue to increase after two hours since last action; **AND** b) Wind is directed toward surrounding residences; **AND** c) Rolling PM_{10} 24-hour average exceeds 42.5 µg/m^3.	Suspend sand extraction **In addition to Stage 1, 2 & 3 actions**
5	a) PM_{10} levels continue to increase after two hours since last action; **AND** b) Wind is directed toward surrounding residences; **AND** c) Rolling PM_{10} 24-hour average exceeds 45 µg/m^3.	Suspend loading trucks (i.e. no machinery operating – except water carts and product haulage trucks already loaded). **In addition to Stage 1, 2, 3 & 4 actions**
6	a) Rolling PM_{10} 24-hour average exceeds 50 µg/m^3	**All activities suspended (except dust control measures)** Complete Incident Notification to DPE within 24 hours. Complete Incident Investigation and Corrective Action Report.

9. REPORTING

Table 11 provides a summary of the key reporting required in the implementation of this plan.

Table 11: Reporting Requirements

Item	Report	Trigger	Responsibility	Reporting Authority
A	Air Monitoring Results	Available on website. Summary published within 14 days of the data being obtained for the last sample collected for the monthly period.	Quarry Manager	DPE
B	Diesel and Electricity Use Records	Annual record to be summarised in AEMR	Quarry Manager	DPE
C	Fleet and equipment Service and Maintenance Records	Continuous	Quarry Manager	Internal
D	Incident Notification	Following identification of a non-compliance.	Quarry Manager	EPA and DPE – within 24 hours
E	Incident Investigation and Corrective Action Report	Incident Notification Completion	Quarry Manager	EPA and DPE – within 7 days
F	Complaints Register, that includes the following information: • Name, address and contact details of complainant (kept confidential on website). • Date and time of complaint. • Date and time of incident / subject of complaint. • Nature of complaint (type, location, duration). • Investigation undertaken in relation to complaint. • Actions implemented due to complaint. • Notification of complainant of controls implemented.	Complaints	Quarry Manager	DPE
G	Monthly Inspection Report	Following monthly internal inspections	Quarry Manager	Internal
H	Three-yearly Independent Environmental Audits	Following three-yearly independent audit	Quarry Manager	DPE
I	The Project Website will include the following related to this plan:	Updated monthly	Quarry Manager	Public

Item	Report	Trigger	Responsibility	Reporting Authority
	• A comprehensive summary of monitoring results from the development. • Complaints register. • A copy of this plan.			
J	Annual Environmental Management Report (AEMR). AEMR to include: • Summary of all air monitoring results and management actions undertaken in the 12-month period; • Summary of recorded weather data in the 12-month period; • Summary of effectiveness of trigger mechanisms; • Summary of Diesel and Electricity Use in the 12-month period; • Summary of any air non-compliances recorded in the 12-month period; • Summary of any air quality-related complaints recorded in the 12-month period; • Summary of corrective actions and improvements to reduce air emissions. AEMR will be uploaded to Project website within two weeks of report being issued.	Annually at time agreed with DPE	Quarry Manager	DPE

APPENDIX 1: REGULATOR CORRESPONDENCE

Correspondence	Comment	Response
Email from DPE regarding amendment of draft AQMP on 25 March 2019	1. Page 11, condition 9 – the sub-clauses to this condition are (a) to (e), rather than (f) to (j).	• Amended formatting error.
	2. Page 14, Tables 3 and 4 – nothing incorrect, but is there an opportunity to obtain and include a complete set of 2018 data?	• Amended to include all available 2018 data.
	3. Page 23, Table 6 - I think that "OEH" (x2) should be replaced by "EPA"?	• Amended OEH to EPA and added contact details for EPA Newcastle Office
	4. Pages 32 and 33 – comment on the location of air quality monitoring sites. I think that there is a potential data gap for residences 74 and those further to the east as there is no air quality monitor to pick up om westerly winds towards these residences. I am accepting of the proposed monitoring locations, with the proviso that these locations are subject to review in the light of any air quality complaints that are received.	• Noted, see Section 6.9.

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N E W C A S T L E O F F I C E

18 December 2018
File Ref: NMP AQMP - EPA_181218.docx
Document Ref: NCAL19_WSS

Regional Operations Unit - Hunter
NSW Environmental Protection Authority
PO Box 488G,
Newcastle NSW 2300

Attention: Steve Clair
Delivered by email: Steve.Clair@epa.nsw.gov.au

Subject: Cabbage Tree Road Sand Quarry – Air Quality and Noise Management Plan Consultation

The Cabbage Tree Road Sand Quarry was approved 9 May 2018 by the NSW Department of Planning and Environment under application SSD-6125 issued to the Williamtown Sand Syndicate.

Condition 6 and Condition 9 of Schedule 3 of the Consent conditions requires the preparation of a Noise Management Plan and an Air Quality Management Plan in consultation with the the NSW Environmental Protection Authority, with approval by the Secretary of the Department of Planning and Environment.

Accordingly, please find attached a copy of the two management plans for your review. It would be appreciated if you can supply any feedback you may have on the plans by 18 January 2018. The Environmental Protection Licence for the operation is intended to be lodged early in 2019.

Should you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

Kleinfelder Australia Pty Ltd

Jonathan Berry B.App.Sc (Hons)

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Environmental Management
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Attached: Air Quality Management Plan dated 6 December 2018
Noise Management Plan dated 9 November 2018