

PF FORMATION



## HITCHCOCK ROAD SAND EXTRACTION AND REHABILITATION PROJECT, MAROOTA

ANNUAL ENVIRONMENTAL MANAGEMENT REPORT

**2014 - 2015**



# **PF Formation**

**HITCHCOCK ROAD**  
**Sand Extraction and Rehabilitation Project Maroota**

## **ANNUAL ENVIRONMENTAL MANAGEMENT REPORT 2014-2015**

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## Hitchcock Road Sand Extraction and Rehabilitation Project

# Annual Environmental Management Report 2014-2015

### Contents list

#### Terms and Abbreviations

	Page number
<b>1 Introduction</b>	<b>1</b>
<b>2 Status of the Project</b>	<b>3</b>
<b>3 Environmental Monitoring Program and Results</b>	<b>6</b>
Operational Monitoring Program	6
Analysis of Monitoring Results	6
<b>4 Noise Management</b>	<b>8</b>
Introduction	8
Noise Emission Criteria	8
Operator-attended Noise Survey Results	9
Conclusion	9
<b>5 Air Quality</b>	<b>10</b>
Introduction	10
Dust Impact Assessment Criteria	10
Dust Monitoring	11
Monitoring Results	12
Conclusions	13
<b>6 Ground and Surface Water Management</b>	<b>14</b>
Introduction	14
Groundwater Management	14
Surface Water Management	16
Conclusion	18
<b>7 Landscape Management and Rehabilitation</b>	<b>19</b>
Introduction	19
Earth Bunding and Rehabilitation	19
Rehabilitation Issues	19
Conclusion	21
<b>8 Social Impact Management</b>	<b>22</b>
<b>9 Independent Audits</b>	<b>23</b>
Independent Environmental Audit 2014	23
Department of Planning and Environment Audit 2015	26

## Figures

		Page number
Figure 1	Lots Included in the Extraction Area	3
Figure 2	Site Survey Plan	4
Figure 3	Noise Impact Assessment Monitoring Locations	9
Figure 4	Dust Deposition Monitoring Locations	11
Figure 5	Groundwater Monitoring Locations	15

## Tables

Table 1	Summary of Monitoring Results	7
Table 2	Noise Impact Assessment Monitoring Locations and Criteria	8
Table 3	Impact Assessment Criteria for Particulate Matter	10
Table 4	Impact Assessment Criteria for Deposited Dust	10
Table 5	Summary of Dust Deposition Monitoring Results	12

## Attachments

Attachment 1	Photographs of Works Carried Out in Last 12 Months
Attachment 2	Weighbridge Verification
Attachment 3	EPA Licence Annual Return
Attachment 4	Monthly Environmental Operational Procedures Checklists
Attachment 5	Annual Environmental Operational Procedures
Attachment 6	Noise Compliance Testing Hitchcock Road Sand Project
Attachment 7	Monthly Dust Monitoring Results 2014-2015
Attachment 8	PM10 Dust Action Plan
Attachment 9	Summary of Weather Conditions
Attachment 10	Groundwater Report
Attachment 11	Watertable Contours
Attachment 12	Maximum Extraction Depth of Mining Contours
Attachment 13	Lot 198 Water Testing Results
Attachment 14	2013 Monitoring of Revegetation
Attachment 15	Minutes of Community Consultative Committee
Attachment 16	2014 Independent Environmental Audit

<b>Term</b>	<b>Abbreviation</b>
<b>AEMR</b>	Annual Environmental Management Report
<b>AHD</b>	Australian Height Datum. The standard reference level used to express the relative elevation of various features. A height given in metres AHD is essentially the height above sea level.
<b>Airshed</b>	Lower atmosphere within a defined geographic area.
<b>Ambient</b>	The background level at a specific location, being a composite of all sources.
<b>Annual Average Daily Traffic</b>	Annual average daily traffic volume representing the total traffic in both directions at a specified location calculated from mechanically obtained axle counts.
<b>Annual Exceedance Probability (AEP)</b>	The probability of a flood event exceeding a nominated level in a year. A one per cent AEP is the probability of an event exceeding a nominated level in 100 years.
<b>Aquifer</b>	Geologic formation, group of formations, or part of a formation capable of transmitting and yielding economic quantities of water.
<b>Archaeology</b>	The scientific study of human history, particularly the relics and cultural remains of the distant past.
<b>ARI</b>	Average Recurrence Interval-average or expected period between exceedance of a flood.
<b>Background Noise Level</b>	The ambient sound pressure noise level in the absence of the sound under investigation exceeded for 90 per cent of the measurement period. Normally equated to the average minimum A-weighted sound pressure level.
<b>Batter</b>	The side slope of walls, embankments and cuttings or the degree of such slope, usually expressed as a ratio of horizontal distance to one vertical height.
<b>Bore</b>	A cylindrical drill hole sunk into the ground from which water is pumped for use or monitoring.
<b>Buffer</b>	A physical barrier, structure or width of land which encloses, partially encloses or defines a particular environment. It serves to minimise the impacts of non-desirable external influences on the adjoining environment.
<b>Bund Wall</b>	A wall erected to prevent the escape of various emissions into the environment (liquids, noise or views).
<b>Catchment</b>	The area drained by a stream or body of water or the area of land from which water is collected.
<b>Clay</b>	Very fine grained sediment, often defined as having a particle size less than 2 microns (0.002mm) in diameter.
<b>Compaction</b>	The process of compressing individual grains in a soil or sediment in response to pressure.
<b>Conservation</b>	The management of resources in a way that will benefit both present and future generations.

<b>Contaminant</b>	Any physical, chemical, biological or radiological substance or matter in water or soil that is not of natural origin.
<b>Contamination</b>	The degradation of the natural environment as a result of human activities.
<b>Council</b>	The Hills Shire Council.
<b>Day</b>	The period from 7.00am to 6.00pm on Monday to Saturday and 8.00am to 6.00pm on Sunday and public holidays.
<b>dBA</b>	Decibels using the A-weighted scale measured according to the frequency of the human ear.
<b>Decibel</b>	A scale unit used in the comparison of powers and levels of sound energy. The number of decibels is ten times the logarithm to the base of ten of the ratio of the powers.
<b>Department</b>	NSW Department of Planning & Environment.
<b>DPI</b>	NSW Department of Primary Industries
<b>DWE</b>	NSW Department of Water
<b>EA</b>	Environmental Assessment of the project entitled <i>Hitchcock Road Sand Extraction and Rehabilitation Project Environmental Assessment and Appendices</i> (3 volumes) dated November 2007, prepared by DFA Consultants, including the response to submissions and Preferred Project Report.
<b>Ecology</b>	The relationship between living things and their environment.
<b>Ecologically Sustainable Development</b>	Using, conserving and enhancing the resources of the community so that ecological processes on which life depends, are maintained and the total quality of life, now and in the future, can be increased.
<b>Ecosystem</b>	A functional unit of energy transfer and nutrient cycling in a given place. It includes all relationships within the biotic community and between the biotic components of the system.
<b>Emission</b>	Discharge of a substance to the environment.
<b>Environment</b>	A term for all the conditions (physical, chemical, biological and social) in which an organism or group of organisms, including humans, exists.
<b>Environmental Assessment (EA)</b>	Impact on the physical, social and economic environment. It includes an evaluation of alternatives and an overall justification of the project. The EA is used as a vehicle to facilitate public comment and as the basis for analysing the project with respect to granting approval under relevant legislation.
<b>Environment Protection Licence</b>	Licence monitored by the Environment Protection Authority
<b>EPA</b>	Environment Protection Authority
<b>EMP</b>	Environmental Management Plan

<b>EP&amp;A Act</b>	<i>Environmental Planning and Assessment Act 1979.</i>
<b>EP&amp;A Regulation</b>	<i>Environmental Planning and Assessment Regulation 2000.</i>
<b>EPL</b>	Environmental Protection Licence issued under the <i>Protection of the Environment Operations Act 1997</i> .
<b>Equivalent Continuous Sound Level (LAeq)</b>	The constant sound level which when operating over the same time interval as a fluctuating sound over an extended time, is equivalent to the same sound energy.
<b>Erosion</b>	The wearing away of the land surface by the action of water, wind and ice.
<b>Evening</b>	The period from 6.00pm to 10.00pm.
<b>Excavate</b>	Dig into natural material and remove using specialist machinery.
<b>Extraction</b>	A term referring to the removal of material from the earth synonymous with quarrying.
<b>Extraction area</b>	The land described as the extraction area in Appendix 1 of the Project Approval.
<b>Evapotranspiration</b>	Loss of water from a land mass through transpiration from plants and evaporation from the soil.
<b>Fauna</b>	All animals including birds, reptiles, marsupials and fish.
<b>Flora</b>	All plants
<b>Frequency</b>	Similar to the pitch of a musical note in sound pressure fluctuations of cycles per second (Hertz). Most sounds comprise a composite of frequencies of varying sound pressure levels in the range of 20 Hertz to 20,000 Hertz.
<b>Friable</b>	Easily crumbled.
<b>Front-end loader</b>	Machine used to lift and place soil, earth, rocks and other materials within an extraction site or to load products into trucks.
<b>Gradient</b>	Rate of change of a given variable with distance, such as temperature or elevation.
<b>g/m<sup>2</sup>/month</b>	grams per square metre per month
<b>Greenhouse effect</b>	Changes in climate that could occur due to increases in atmospheric concentrations of certain gases.
<b>Groundwater</b>	Subsurface water contained within the saturated zone.
<b>Hawkesbury Sandstone</b>	Prominent cliff-forming sandstone occurring across the Sydney basin.

<b>Head (hydraulic head)</b>	Energy contained in a water mass produced by elevation, pressure or velocity.
<b>Heritage</b>	Things of value which are inherited from the past.
<b>Hydrocarbon</b>	Any organic compound, gaseous, liquid or solid, consisting only of carbon and hydrogen.
<b>Hydrogeology</b>	The study of subsurface water in its geological context.
<b>Impact</b>	The effect of human-induced action on the environment.
<b>Infiltration</b>	The process of surface water soaking into the soil.
<b>Infrastructure</b>	Supporting installations and services supplying the needs of a project.
<b>Introduced species</b>	Plants and animals not native to Australia and known or thought to have been brought here by humans.
<b>Land</b>	Land means the whole of a lot or contiguous lots owned by the same landowner in a current plan registered at the Land Titles Office at the date of the approval.
<b>Landform</b>	A specific feature of the landscape or the general shape of the land.
<b>µg/m<sup>3</sup></b>	micrograms per cubic metre.
<b>µs/cm</b>	microsiemens per centimetre .
<b>micron</b>	Unit of measure-one millionth of a metre.
<b>mg/L</b>	milligrams per litre
<b>Mitigation measures</b>	Measures put in place to reduce an impact.
<b>Modelling</b>	Use of mathematical equations to simulate and predict real events and processes.
<b>Monitoring</b>	Regular measurement of components of the environment to understand their condition and establish if necessary standards are being met.
<b>Minister</b>	NSW Minister for Planning and Environment or delegate.
<b>Night</b>	The period from 10.00pm to 7.00am on Monday to Saturday and 10.00pm to 8.00am on Sunday and public holidays/
<b>Observation well</b>	A well constructed or utilised for the purpose of observing groundwater parameters such as water levels, pressure changes and water quality.
<b>Palaeochannel</b>	An ancient river bed, often filled with more recent sediments.
<b>Perched water</b>	Unconfined groundwater separated from an underlying body of groundwater by an unsaturated zone.

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<b>pH</b>	A measure of acidity or alkalinity of a solution, numerically equal to 7 for neutral solution, increasing with increasing alkalinity and decreasing with increasing acidity. Originally stood for the words potential of hydrogen.
<b>Piezometer</b>	A pipe in which the elevation of the water level or potentiometric surface can be determined.
<b>Privately owned land</b>	Land not owned by a public agency or the proponent or its related companies.
<b>Preferred Project Report</b>	The proponent's Preferred Project Report dated September 2008 prepared by DFA Consultants as modified in the Proponent's email to the Department of Planning on 18 November 2008.
<b>Process plant</b>	Equipment used to clean and separate sand into various sizes.
<b>Project</b>	The development as described in the EA.
<b>Proponent</b>	PF Formation or its successors in title.
<b>Recharge</b>	Addition of water to the zone of saturation; also the amount of water added.
<b>Recovery</b>	The difference between the observed water level during the recovery period after cessation of pumping and the water level measured immediately before pumping stopped.
<b>Receptor</b>	An environmental modelling term used to describe a map reference point where the impact is predicted. A sensitive receptor is a home, work place, school or other place where people spend some time. An elevated receptor is a point above ground level.
<b>Rehabilitation</b>	Preparation of a final landform following extraction and its stabilisation with vegetation.
<b>Remnant vegetation</b>	Native vegetation remaining after widespread clearing has taken place.
<b>Resource</b>	Potentially usable material in a defined area that can be economically extracted.
<b>Response to Submissions</b>	The proponent's response to issues raised in submissions dated March 2008 prepared by DFA Consultants and subsequent submissions to the Department of Planning dated 27 August 2008.
<b>RL</b>	Reduced level, usually in metres to an arbitrary datum.
<b>RMS</b>	NSW Roads and Maritime Services
<b>Run-off</b>	The proportion of precipitation discharged through surface water systems.
<b>Sand</b>	Sediment comprising particles ranging between 0.063mm and 2mm.
<b>Sandstone</b>	A fine grained rock of sedimentary origin composed primarily of sand-sized particles (0.06 to 2 mm).

<b>Secretary</b>	Secretary (formerly Director-General) of the Department of Planning & Environment or delegate.
<b>Sedimentation basin</b>	An area where runoff is ponded to allow sediment to be deposited. The longer the period that the runoff is held, the smaller the size of the sediment deposited. Such basins have to be regularly cleaned.
<b>SHTW</b>	Sydney Hinterland Transition Woodland
<b>Silt</b>	Sediment comprising most particles between 0.004mm and 0.063mm.
<b>Species</b>	Taxonomic grouping of organisms that are able to interbreed with each other but not with other species.
<b>Stakeholder</b>	An individual or group with an interest in the proposal.
<b>Statement of Commitments</b>	The proponent's commitments in Appendix 3 of the Project Approval.
<b>Stockpile</b>	Mound used to store material.
<b>Stormwater</b>	Rainwater which runs off catchments following rain events. The untreated water is carried into creeks, rivers and lakes.
<b>Strategy A, Strategy B</b>	The alternative rehabilitation proposals described in the Preferred Project Report.
<b>Terrestrial</b>	Relating to the land as distinct from air or water.
<b>Tertiary</b>	Geologic time at the beginning of the Cainozoic era, 65 to 2 million years ago, after the Cretaceous and before the Quaternary.
<b>Topography</b>	The physical relief and contours of the area.
<b>Topsoil</b>	The surface layer of a soil profile containing most of the organic material and viable life forms and seeds.
<b>Total Dissolved Solids (TDS)</b>	The dissolved mineral content of groundwater, commonly expressed in milligrams/Litre.
<b>Total Suspended Solids</b>	A measure of suspended solids concentrations in a water body and expressed in terms of mass per unit of volume.
<b>Triassic</b>	The earliest of the three periods that constitute the Mesozoic Era. Approximately between 230 and 180 million years before present.
<b>TSC Act</b>	NSW Threatened Species Conservation Act.
<b>Turbidity</b>	A measure of light penetration through a water column containing particles of matter in suspension.
<b>Underflow</b>	The volume of groundwater that flows through a cross sectional area of an aquifer. It depends on permeability and the prevailing gradient.
<b>Unsaturated zone</b>	That part of an aquifer between the land surface and water table.

<b>Vegetation Offset</b>	The conservation and enhancement program described in the Preferred Project Report to occur on the land shown on the plan in Appendix 5 of the Project Approval.
<b>VENM</b>	Virgin Excavated Natural Material as defined in the <i>Protection of the Environment Operations Act 1997</i> .
<b>Wash plant</b>	Equipment designed to wash unwanted sized materials from the product.
<b>Water quality</b>	Degree or lack of contamination.
<b>Water table</b>	The surface of saturation in an unconfined aquifer at which the pressure of the water is equal to that of the atmosphere.
<b>Well</b>	A hole sunk into the ground and completed for the abstraction or injection of water or for water observation purposes. Generally synonymous with bore.
<b>1 in 100 Year Flood Level</b>	The flood which occurs on average once every 100 years. Also known as the 100 year Average Recurrence Interval of a flood.

## Chapter One

# INTRODUCTION

Following the lodgement of a Development Application ('DA') and associated Environmental Assessment ('EA') under Part 3A of the Environmental Planning and Assessment Act, the present development was approved by the Minister for Planning on 3 February 2009. The conditions attached to the approval required, among other things, the preparation of five management plans/monitoring programs:

- Environmental Strategy – results in Chapter 3.
- Noise Management Plan – results in Chapter 4.
- Air Quality Monitoring Program – results in Chapter 5.
- Water Management Plan – results in Chapter 6.
- Landscape Management Plan – results in Chapter 7.

The first revision of these Plans occurred in 2011 and the Department of Planning and Environment (DP&E) approved the revised Plans on 15 November 2011. The Plans have since been updated in 2014 and are awaiting approval by the DP&E.

Each of these documents sets out the various monitoring programs required to comply with the requirements of the approval conditions. The monitoring results are summarised in an annual report known as the Annual Environmental Management Report (AEMR). This is submitted 12 months from the date of approval and every year thereafter to the Secretary (formerly Director-General), relevant agencies and the Community Consultative Committee (CCC).

This AEMR will:

- identify the standards and performance measures that apply to the project;
- describe the works that will be carried out in the next 12 months;
- include a summary of the complaints received during the past year and compare this to complaints received in previous years;
- include a summary of the monitoring results for the project during the past year to 30 June 2015;
- include an analysis of these results against the relevant
  - impact assessment criteria/limits
  - monitoring results from previous years
  - predictions in the EA;
- identify any trends in the monitoring results over the life of the project;
- identify any non-compliance during the previous year; and
- describe what actions were, or are being, taken to ensure compliance.

The Approval requires the project to have an Independent Environmental Audit within 12 months of the date of approval and every three years thereafter. The audit will:

- be conducted by a suitably qualified, experienced and independent person(s) whose appointment has been approved by the Secretary;
- include consultation with the relevant agencies;
- assess the environmental performance of the project and its effects on the surrounding environment;
- assess whether the project is complying with the relevant standards, performance measures and statutory requirements; and
- review the adequacy of any strategy/program required under this approval and, if necessary, recommend measures or actions to improve the environmental performance of the project and/or any strategy/plan/program required under this approval.

Independent Environmental Audits were conducted in April 2011 and April 2014. The results of the 2014 audit and response are reported in Chapter 9. The next independent environmental audit will be conducted in 2017.

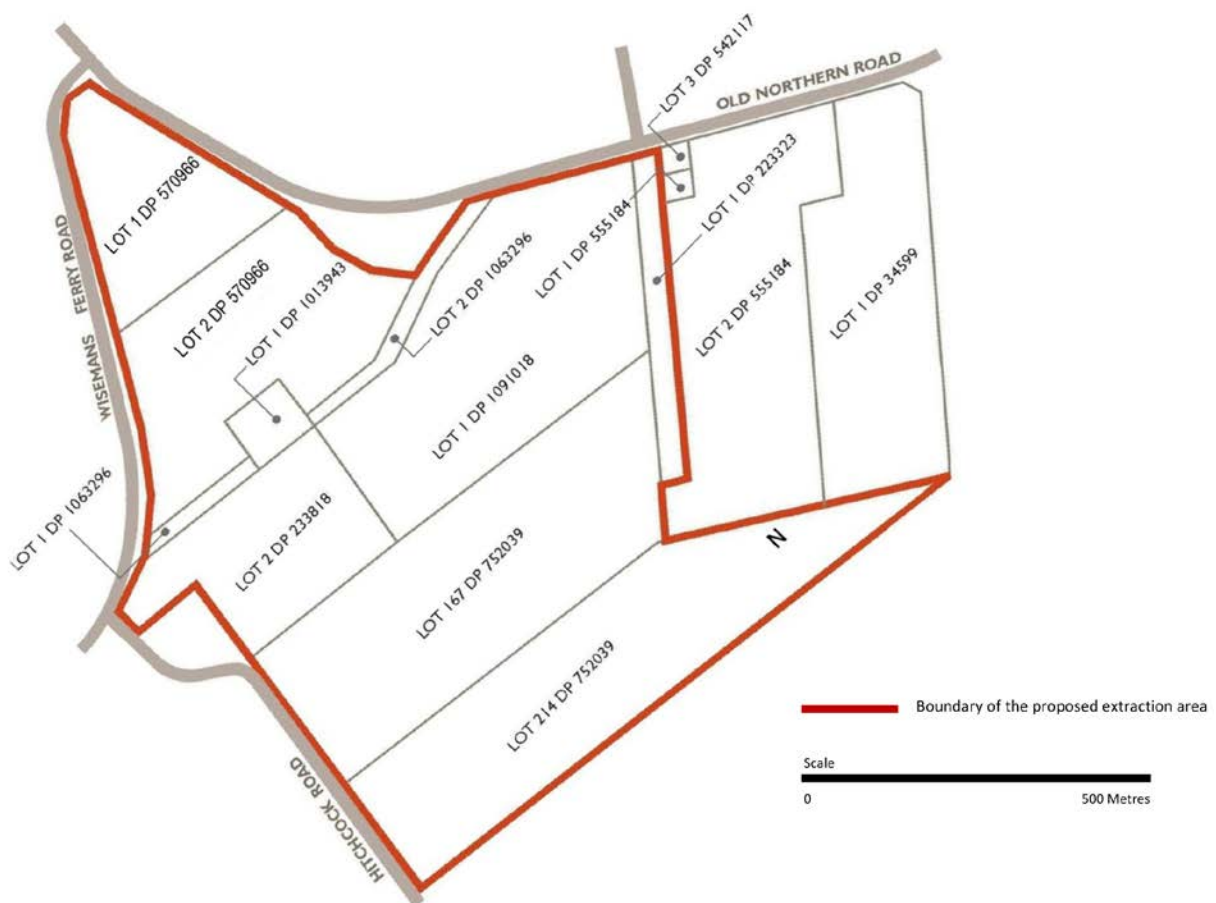
In addition, the DP&E conducted another independent audit in August 2015 and the final report is yet to be issued.

## Chapter Two

# STATUS OF THE PROJECT

The location and legal description of the various lots that make up the extraction area of the site is shown in **Figure 1**.

**Figure 1 Lots Included in the Extraction Area**



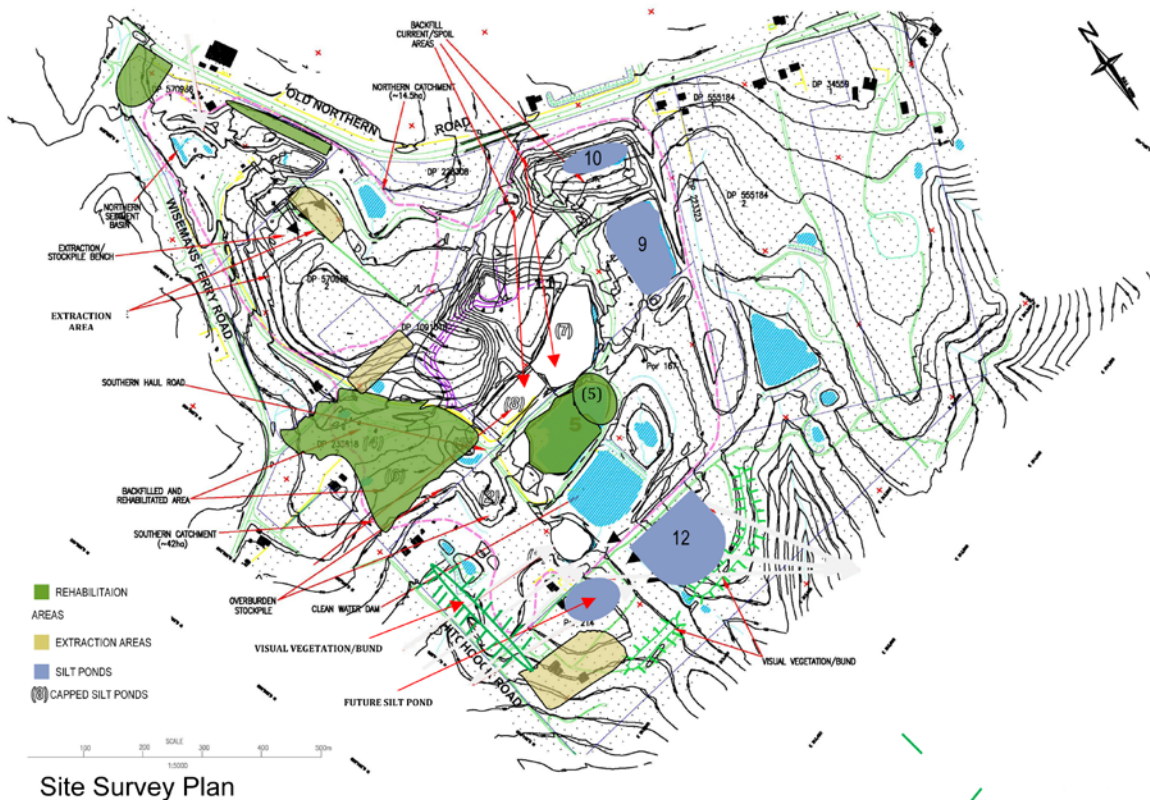
The total amount of processed material derived from the Hitchcock Road site over the 12 months to June 2015 was 254,727 tonnes within the limit of 400,000 tonnes of processed material allowed under Condition 7 of Schedule 2 for the Hitchcock Road Project Approval. This annual production amount was included in the data provided to the DPI.

### **Works Carried Out in Last 12 Months and Planning for Next 12 months**

The site survey plan in **Figure 2** over shows the current status of the development including works carried out in the last 12 months. Photographs of development works are included in **Attachment 1**.

- Limited extraction has continued in Lot 214 DP752039 in 2015 on the western side of the property (**Attachment 1 – Photo 1**). The majority of the sand from this site has now been extracted and extraction should be completed in 2016. Tailing ponds on the eastern side of the site are currently being used on the site as part of the rehabilitation process. (**Attachment 1 – Photo 2**).

Figure 2 Site Survey Plan



- Extraction on the north-western side of the site on Lot 2 DP570966 continued in 2015 but will continue to be the secondary extraction area in 2016 (**Attachment 1 – Photo 3**).
- Removal of significant overburden heading north through Lot 1 DP1091018 to Lot 2 DP570966 has continued as part of the long-term extraction of this area. This area includes the clearing of the Sydney Hinterland Transitional Woodland in the middle of the site. This will be the main long-term extraction area. (**Attachment 1 – Photo 4**).
- Tailings Ponds 9 and 10 were tailings ponds in use in the system during 2015 (**Attachment 1 – Photo 5**). They are filling up gradually and are then spelled to let the silt settle.
- Former tailings Pond 7 and 8 and that area in the middle of the quarry are used as an overburden stockpile area (**Attachment 1 – Photo 6**).
- Pond 12 (Lot 214 DP 752039) will be the primary tailings pond in the 2016 period (**Attachment 1 – Photo 2**). Ponds 9 and 10 will be used intermittently. Water flows through these ponds to get to the Clean Water Dam (**Attachment 1 – Photo 7**).
- Capping of Tailings Pond 5 in the middle of the site is complete. Soil is stored here to be used in rehabilitation (**Attachment 1 – Photo 8**).
- Continued monitoring and supplemental planting of revegetation in the completed areas of Lot 2 DP233818 (**Attachment 1 – Photos 9 and 10**). More than 4 hectares of Sydney Hinterland Transitional Woodland has been planted on the site at this stage.
- No further planting of vegetation has occurred along the northern end of Old Northern

Road. The electricity infrastructure company has cleared the area under the power lines.

These activities will be initiated or continued over the next 12 months.

There have been no complaints during the year.

### **Other Matters**

The weighbridge is required to be verified under the Fair Trading Rules every two years. The last verification was done on 10 June 2014 and a copy of the verification is in **Attachment 2**.

Annual EPA Licence – we are required to lodge an annual return with the EPA. A copy is enclosed in **Attachment 3** for the year ended 29 September 2014.

### *Chapter Three*

## **ENVIRONMENTAL MONITORING PROGRAM AND RESULTS**

### **Operational Monitoring Program**

Based on all the Management Plans and Environmental Strategy the Environmental Operational Procedures have been determined and set out in the appendix to the Environmental Strategy. A Summary of the Monitoring Results is provided in **Table 1** over.

The Environmental Operational Procedures detail actions and responsibilities, performance indicators, monitoring and reporting requirements.

To document the adherence to this environmental monitoring from an operational viewpoint:

- Monthly, the Environmental Manager has a checklist that is reviewed and signed, see **Attachment 4**.
- Annually, the actions required by the Environmental Operational Procedures are reviewed and signed, see **Attachment 5**.
- The specific monitoring of Noise Management is detailed in **Chapter 4**, Air Quality in **Chapter 5**, Water Management in **Chapter 6** and Landscape Management in **Chapter 7**.

### **Analysis of Monitoring Results**

All monitoring indicated that quarry operations were within any defined limits and no indicators of new potential issues were identified.

From the procedures conducted there are no trends identified as yet and no areas of non-compliance.

Table 1 Summary of Monitoring Results

Noise Monitoring	2015	2014	2013	2012	2011	2010	2009
→ Noise from operational activities exceed guidelines	NIL	NIL	NIL	NIL	NIL	NIL	NIL
→ Complaints received	NIL	NIL	NIL	NIL	NIL	NIL	NIL
<b>Air Quality</b>							
Monthly dust deposit - average g/m2/month (from all sources)							
→ Location 1 - behind Maroota Primary School	2.01	2.26	3.35	1.9	3.22 <sup>⑤</sup>	2.27	4.05 <sup>①</sup>
→ Location 2 - Hitchcock & Wisemans Ferry Roads	2.57	2.71	2.74	1.66	2.38	2.18	6.04 <sup>① ②</sup>
→ Location 3 - Jurd's Residence	3.58	2.87	2.95	2.43	2.56	2.55	3.14
<sup>①</sup> results impacted by back burning in September 2008 (10.66, 12.60 respectively)							
<sup>②</sup> results impacted by ploughing in July 2008 (21.97)							
<sup>③</sup> result impacted by reading of 10.5 in October 2010							
<sup>⑤</sup> result impacted by reading of 11.01 in August 2012 Maroota Muster at School							
→ Complaints received	NIL	NIL	NIL	NIL	NIL	NIL	NIL
→ Plant exhaust deficiency when vehicles serviced	NIL	NIL	NIL	NIL	NIL	NIL	NIL
<b>Access &amp; Traffic</b>							
→ Traffic movements within limits	YES	YES	YES	YES	YES	YES	YES
<b>Erosion &amp; Sediment Control</b>							
→ Sediment leaving site	NIL	NIL	NIL	NIL	1	NIL	NIL
<b>Water Management</b>							
→ Evidence of issue with groundwater quality	NIL	NIL	NIL	NIL	NIL	NIL	NIL
<b>Rehabilitation</b>							
→ Area vegetated	> 4 hectares	> 4 hectares	> 4 hectares	> 4 hectares	> 4 hectares	2.4 hectares	2.4 hectares
<b>Overall number of complaints received</b>	NIL	NIL	NIL	NIL	1	NIL	NIL

## Chapter Four

# NOISE MANAGEMENT

## Introduction

The Project Approval (Schedule 3 Condition 8) for the Hitchcock Road development requires the preparation and implementation of a Noise Management Plan in order to demonstrate that compliance with the relevant noise impact assessment listed in the approval has been achieved. The objectives of the Annual Environmental Management Report on noise issues are therefore;

- identify the environmental noise emission criteria nominated in the relevant approval documents;
- document the results of environmental noise monitoring conducted in the 12 months ended June;
- assess the measured noise emissions levels against the relevant criteria; and
- nominate existing noise emission monitoring methodology and establish routine measurement procedures.

## Noise Emission Criteria

The Noise Management Plan requires the noise criteria set out in **Table 2** to be applied to the impact assessment. These assessment locations as shown on **Figure 3** over, were selected because they are representative or closer to the quarry than the Noise Assessment Locations identified in Table 1 of Schedule 3 to the Notice of Project Approval.

**Table 2 Noise impact assessment monitoring locations and criteria**

Noise assessment location	Other locations covered	Day	Night <sup>1</sup>	
		LAeq (15 minute)	LAeq (15 minute)	LA1 (1 minute)
1. R9 – Young, Hitchcock Road	R10- Tornatola	39	35	45
2. R5 - Pignataro	R6 Camilleri	42	35	45
3. R3 – Firestation/Jurd	R1 Hammond & R2 Hitchcock	40	35	45
4. R7 – Maroota Public School	R6 Camilleri & R8 Portelli	36(LAeq(1 hour))	N/A	N/A

Note 1: Night time is defined as the period between 10.00pm and 7.00am. Activities on the site start at 6.00am and are completed by 6.00pm. There is no activity on the site during the evening period.

The following noise parameters are measured at the nominated monitoring locations.

- LAeq(15 minute) noise level measured at an appropriate free-field location close to the façade of the relevant residence or other building during day time and evening hours.
- LAeq(1 minute) noise level measured at an appropriate free-field location close to the façade of the relevant residence during night time hours.

**Figure 3 Noise Impact Assessment Monitoring Locations**



### Operator-attended Noise Survey Results

In accordance with the Noise Management Plan PF Formation conducted its quarterly operator attended daytime noise surveys at each of the four test locations. An external Noise Consultant was employed to prepare a report to assess and review the results against the noise criteria. The report prepared by Koikas Acoustics Pty Ltd is attached as **Attachment 6**.

The locations used by Koikas Acoustics correspond to the locations in **Figure 3**.

### Conclusion

Koikas Acoustics concluded that at most sites the quarry noise was either just audible or inaudible. In most cases the measured  $L_{Aeq}$  was dominated by environmental and intermittent noise sources unrelated to the quarry noise. The site complies with the nominated noise criteria.

## Chapter Five

# AIR QUALITY

### Introduction

The Project Approval (Schedule 3 Condition 12) for the Hitchcock Road development required the preparation and implementation of an Air Quality Monitoring Program. The objectives of the Annual Environmental Management Report on air quality issues are therefore:

- identify the dust deposition criteria nominated in the relevant approval documents and listed in the Air Quality Monitoring Program;
- document the results of dust deposition monitoring conducted in the 12 months ended June 2015;
- assess the measured dust deposition levels against the relevant amenity criteria; and
- nominate existing dust deposition monitoring methodology and establish routine measurement procedures.

### Dust Impact Assessment Criteria

The proponent will ensure that dust generated by the project does not cause exceedances of the criteria listed in **Table 3** and **Table 4** at any residence or on more than 25 per cent of any privately owned land.

Table 3 Impact Assessment Criteria for Particulate Matter		
Pollutant	Averaging period	Criterion
Total suspended particulate (TSP) matter	Annual	90µg/m <sup>3</sup>
Particulate matter < 10µm (PM10)	Annual	30µg/m <sup>3</sup>
	24 hour	50µg/m <sup>3</sup>

Table 4 Impact Assessment Criteria for Deposited Dust			
Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
Deposited dust	Annual	2g/m <sup>2</sup> /month	4g/m <sup>2</sup> /month

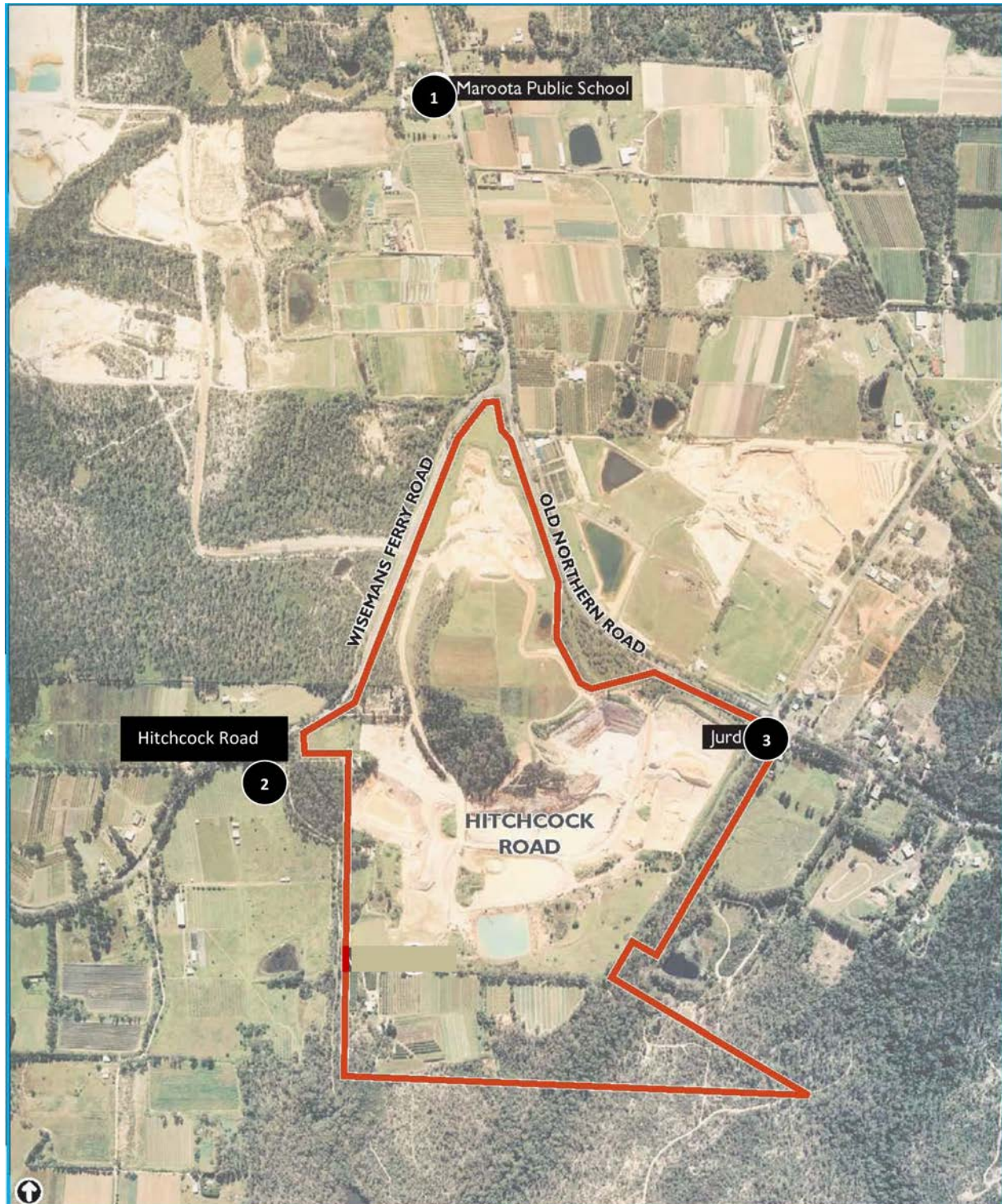
### Notes

*Deposited dust is assessed as insoluble solids as defined by Standards Australia 1991 AS 3580.10.1-1991: Methods for Sampling and Analysis of Ambient Air – Determination of Particulates – Deposited Matter – Gravimetric*

## Dust Monitoring

PF Formation has maintained a program of continuous monthly dust deposition monitoring. This is in compliance with the requirements of the Air Quality Monitoring Program. The locations of the monitoring stations are shown on **Figure 4**.

**Figure 4 Dust Deposition Monitoring Locations**



Analysis of the dust composition measurements was carried out independently by Boral Materials Testing and Environmental Services. The analysis procedure was in accordance with AS3580.10.1-1991 *Methods for Sampling and Analysis of Ambient Air Method 10.1: Determination of Particulate Deposited Matter – Gravimetric Method*.

## Monitoring Results

A summary of the monthly dust deposition monitoring results is provided in **Table 5**. The detailed measurement and analysis results by month for the three sites, as prepared by Boral Materials Testing and Environmental Services, are summarised in **Attachment 7**.

**Table 5 Summary of Dust Deposition Monitoring Results**

Summary of Dust Deposition Monitoring Results (g/m2/month)				
		Location 1	Location 2	Location 3
		Maroota School	Hitchcock Road	Jurd residence
Month/Year		Insoluble Solids	Insoluble Solids	Insoluble Solids
2014	July	1.49	3.44	2.08
	August	1.91	1.55	1.85
	September	2.16	2.22	6.35
	October	3.13	3.31	4.4
	November	3.43	3.43	9.8
	December	1.32	2.36	2.95
2015	January	2.39	2.08	1.74
	February	1.29	2.04	1.79
	March	2.75	2.66	4.42
	April	1.42	1.29	2.63
	May	1.66	4.7	3.02
	June	1.18	1.71	1.87
Monthly Average		2.01	2.57	3.58
2014		2.26	2.71	2.87
2013		3.35	2.74	2.95
2012		1.90	1.66	2.43
2011		3.22	2.38	2.56
2010		2.27	2.18	2.55

In general, dust monitoring procedures were guided by the requirements of AS2724.1-1984 *Ambient Air Particulate Matter, Part 1 – Determination of Deposited Matter Expressed as Insoluble Solids, Ash, Combustible Matter, Soluble Solids and Total Solids*.

The following information can be derived from these results in relation to the dust nuisance criterion.

- The insoluble solids portion of deposited dust is expected to be mineral matter with the ash content indicating the level of solid dust particles of inorganic origin such as soil/dust that could be derived from a source such as sand extraction and processing operations.

- The monitoring results are characterised by generally low average levels over extended periods with an occasional spike when high levels are experienced. As the operations from the site are very consistent the dust generated from the site is consistent subject to weather impacts. Spikes are usually caused by factors unrelated to the quarry such as mowing or horticultural activities near the monitoring station or regional issues such as bush fires.
- The annual average ambient dust deposition rate (insoluble solids) considered a nuisance criterion is 4 g/m<sup>2</sup>/month. All sites monitored had annual averages below this level. Location 1 – Maroota School average was 2.01 g/m<sup>2</sup>/month while Location 2 – Hitchcock Road was 2.57 g/m<sup>2</sup>/month.
- The annual average ambient dust deposit rate (insoluble solids) at Location 3 – Jurd's House was 3.58 g/m<sup>2</sup>/month (2.87 in 2014). This is less than the dust nuisance criterion of 4 g/m<sup>2</sup>/month but higher than it has been in past years. The September to November 2014 results were high at a time when no extraction was occurring in the vicinity of this location. In the past grass slashing in the area has resulted in high one off results but no cause of these high results for the three months was identified.
- The results of the dust deposit gauges were very good for the year being below the nuisance criterion. Because of the distances from the quarry operations and the significant other factors impacting the dust deposit gauge results high recordings are not necessarily a result of quarry operations. It is reassuring when all locations have relatively low results in the last few years.
- PF Formation and Dixon Sand (a neighbouring operator) have an agreement whereby if the rolling 24-hour PM<sub>10</sub> average recorded by the TEOM reaches 42.5 µg/m<sup>3</sup>, PF Formation would be notified. The wind direction would then be assessed and measures to reduce any dust impacts affecting the TEOM readings would be implemented. At no time in the last 12 months have the results derived from the TEOM reached the designated trigger. A copy of the action plan if this occurs is attached in **Attachment 8**.
- There have been no complaints concerning dust generation over the past year.
- A summary of the weather conditions recorded on-site is in **Attachment 9**.

## Conclusions

In accordance with the requirements of the Project Approval, PF Formation has implemented a program of dust deposition monitoring. The results of the regular monthly dust deposition monitoring conducted over the past year and analysed externally by Boral Materials Testing and Environmental Services show that deposition rates from all sources are well below the maximum levels criteria.

## Chapter Six

# GROUND AND SURFACE WATER MANAGEMENT

## Introduction

The groundwater monitoring program included in the Water Management Plan approved by the Director-General of the Department of Planning and Environment includes:

- provision of additional monitoring bores around the periphery of the site;
- detailed baseline data on groundwater levels, flows and quality in the region and particularly any groundwater bores, springs and seeps (including spring and seep fed dams) that may be affected by operations on site;
- groundwater assessment criteria including trigger levels for investigating any potentially adverse groundwater impacts;
- a program to monitor:
  - groundwater levels and quality in new and existing monitoring bores;
  - impacts of the project on any groundwater bores, springs and seeps (including spring and seep fed farm dams) on privately-owned land and any groundwater dependent ecosystems; and
- a protocol for further groundwater modelling to confirm the limits to excavation depth across the site permitted in accordance with Condition 9 of Schedule 2 of the Project Approval.

This chapter addresses the surface and groundwater aspects of the sand extraction operations at the site.

## Groundwater Management

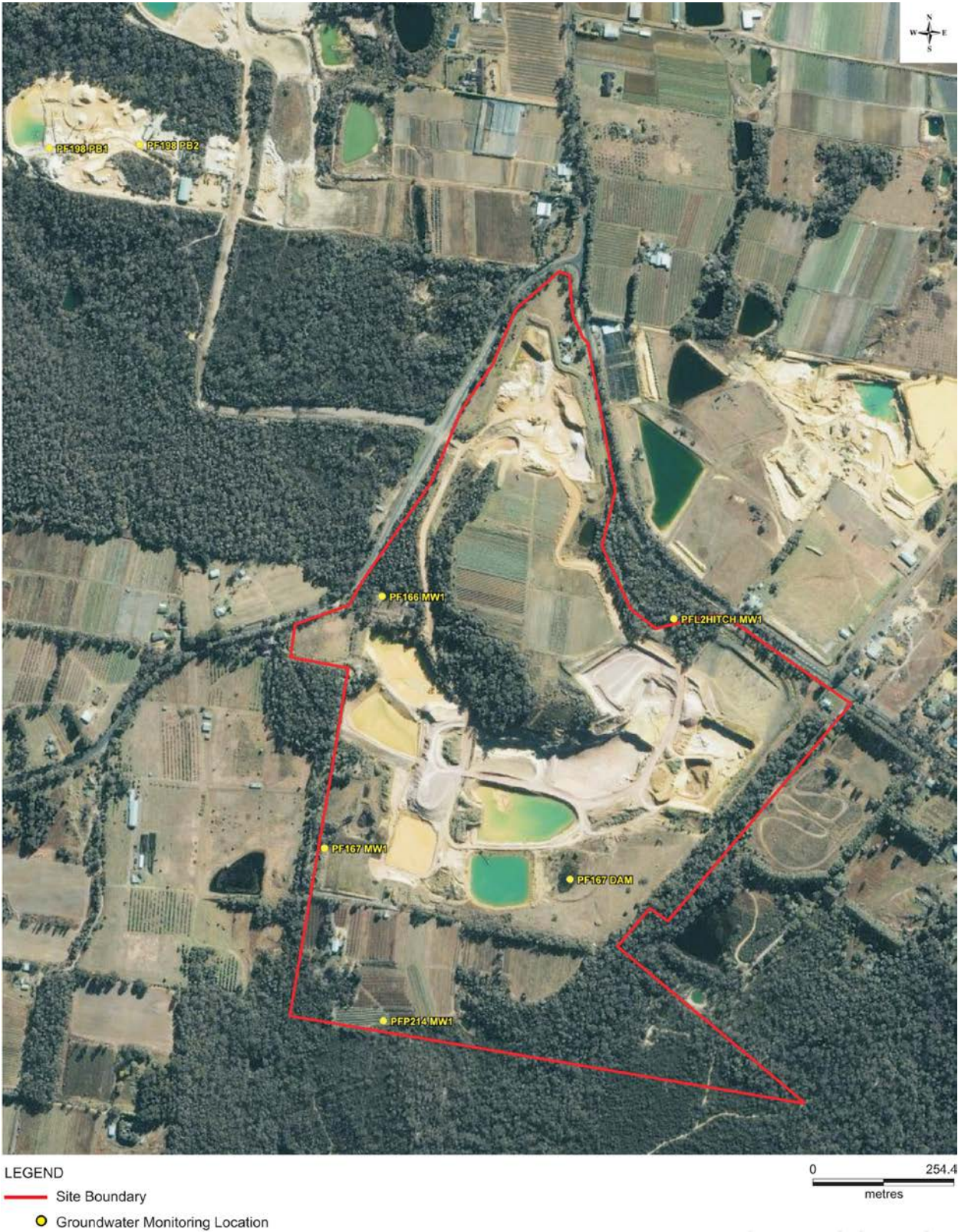
The groundwater component of the report has been prepared by Earth2Water and is included in **Attachment 10**. The previous water hydrologist consultant from URS Australia retired during the year but assisted in the 2014 data recording and downloading process.

At the Hitchcock Road site groundwater is monitored at five locations as shown in **Figure 5** over.

1. Monitoring bore PF167MW1, located in Portion 167;
2. Monitoring bore PF166MW1, located in Portion 166;
3. Supply dam PF167DAM, located in Portion 167 (not utilised for 2014-2015);
4. Monitoring bore PFL2HitchMW1, located in Lot 2; and
5. Monitoring bore PFP214MW1, located in Portion 214.

In addition, groundwater pumpage and chemical records are also collected from one of the two water supply bores in Portion 198 (i.e. PF198PB1). Groundwater monitoring has been carried out at the sites since 1996.

Figure 5 Groundwater Monitoring Locations



The 2014-2015 groundwater assessment concluded the data collected on the groundwater levels and quality in the Maroota Hitchcock Road site indicate that:

- Water levels in the Maroota Sand aquifer general respond to the rainfall pattern (the rainfall in 2014/2015 was above the annual average).
- Water quality in the Maroota Sand aquifer varies with rainfall recharge (slight increasing EC/TDS trends are visible in two deep bores (PFL2HitchMW1, PF214MW1) due to variations in aquifer characteristics and rainfall from 2013 to 2015).
- No water was pumped from the dam in Portion 167 due to the above average annual rainfall recharge.
- Groundwater pumpage occurred from the two deep water supply bores in Portion 198 (21.8 ML in 2014-2015). The pumpage records for 2014-2015 were 6.1 ML and 15.7 ML for PF198PB1, and PF198PB2, respectively.
- The chemical composition of the groundwater in the deep aquifer of the Hawkesbury Sandstone (water supply bores in Portion 198) has an overall character that indicates that recharge occurs readily.
- The current sand extraction operations in the Hitchcock Road area operate in a manner that does not appear to have an adverse impact upon the groundwater sustainability, and meet the DA Approval Conditions.
- The data collected during the year are available to the NSW Office of Water for their continued study in the area.

URS Australia had previously prepared the map of the wet weather groundwater level for the site based on all available site specific groundwater monitoring data they have reviewed over the years. This map is in **Attachment 11**.

From the wet weather groundwater levels URS Australia has prepared the Maximum Extraction Depth of Mining Contours for the project and this is **Attachment 12**.

## Surface Water Management

### **Current site conditions**

The location of the current extraction areas, tailings ponds and sediment basins is shown on **Figure 2**. No significant changes have occurred in these areas in the last year as discussed in Chapter 2.

The following points respond, where appropriate, to the specific surface water issues listed in the Water Management Plan.

### **Treatment of sediment-laden water**

Sediment-laden water is treated by the use of a series of tailings ponds which enable the sediment to progressively settle out of suspension with the resulting clean water returned to the processing cycle.

Stormwater runoff from disturbed areas flows to these ponds and other sediment basins across the site to maximise reuse of all water. Prior to overflow and discharge from the spillways and the site, the stormwater runoff is treated where necessary.

The clean water supply dam, located close to the southern boundary of the southern catchment, comprises the final sediment basin before any discharge of stormwater from the Hitchcock Road site. It is included in the process water cycle and, at the time of the inspection, was estimated to be using about 67% of its calculated capacity of 25,000 cubic metres.

The clean water supply dam is connected by pipe to the clean water dam on Lot 198 DP 752025 below the central processing plant (sand wash plant). A sediment trap system has now been built in front of the dam to pump the wash plant sediment back into the wash plant. The system is working well and minimal operational sediment now enters the clean water dam. The capacity is 50,000 cubic metres and was estimated to be using 75% at the time of inspection. Water can be balanced between the two sites as necessary (see **Attachment 1 – Photo 7**).

Past extraction in the northern extraction area has created a temporary excavation, the capacity of which significantly exceeds that required as a sediment basin for the northern catchment section of the site. A minimum capacity of 7,800 cubic metres will be maintained following final trimming of this basin. Inspection indicates a current freeboard to the spillway of about 4 metres with no indication of any discharge from the site during the year.

#### ***Maintaining/monitoring current surface water quality***

The site does not have any permanently flowing surface waters. Existing surface water is limited to a supply sump in an area of previous extraction and a number of small farm dams. The existing tailings ponds and sediment basins will maintain the quality of the intermittent surface water flows experienced on the site.

Monitoring of surface water quality will be achieved by the visual inspection of waters within the sediment basins allowing treatment to take place if necessary prior to overflow and discharge from the site.

No discharges from the site occurred but quarterly samples were taken from an existing monitoring site on the creek below Lot 198 DP 752025. The results from these samples are in **Attachment 13**. The pH, electrical conductivity and oil and grease results were all within the expected ranges.

#### ***Dewatering of water pits***

Of the commissioned ponds, Numbers 9, 10 and 12 are currently in the tailings stream cycle. Ponds 9 and 10 will be used intermittently over the next year.

All other tailings ponds have been fully capped.

Decant water from the tailings ponds flows to the clean water supply dam and then to the slurry plant and the processing/wash plant on Lot 198.

#### ***Destination points for waters collected within the extraction areas***

In the southern catchment, the collected waters flow to the tailings ponds and the clean water dam (southern sediment basin) and thence to the slurry plant and the main process plant on Lot 198.

In the northern part of the Hitchcock Road site the collected waters flow to the northern sediment basin and thence (if not recovered and reused) via the overflow spillway, and two further minor sediment traps to the Wisemans Ferry Road surface drains. There are no indications that any surface water has been discharged from the Hitchcock Road site and all available water is used in the processing cycle.

#### ***On-site reuse of collected waters***

All collected waters are reused in the processing cycle during the operational stage of the extraction works.

***Water levels within the existing water sump***

Water levels and volumes within the sump are detailed in **Attachment 10**. The sump (dam) is located at the lowest point in the south-eastern corner of the existing pit on Portion 167 on the eastern side of the clean water dam. The capacity of this area is essentially the full extent of the existing pit and would greatly exceed that calculated in the Rehabilitation Plan as necessary for the total capture of runoff from the 100 year time of concentration storm event (19,400 m<sup>3</sup>).

***Significant site features, recharge areas and natural areas***

The main extraction area changes within the site but only impacts internal water flows. Groundwater recharge areas, outside the current extraction areas remain essentially unaltered and the groundwater management plan has concluded that there has been no apparent impact on the sustainability of the groundwater (see **Attachment 10**).

**Conclusion**

Groundwater and surface water levels have been monitored and water samples tested with no abnormalities noted.

## Chapter Seven

# LANDSCAPE MANAGEMENT AND REHABILITATION

### Introduction

A Landscape Management Plan has been prepared in compliance with the requirements of the current Project Approval and was approved by the Department of Planning. The following section therefore describes the current phase of site rehabilitation. Reference is also made to the biodiversity offset strategy which is described in more detail in the Landscape Management Plan.

### Earth Bunding and Rehabilitation

Bund construction and planting work has been completed in most areas, mainly sections of the northern and southern boundaries of the triangular shaped, northern portion of the site bounded by Old Northern Road and Wisemans Ferry Road.

Sections along Hitchcock Road were referred to in the 2014 Independent Environmental Audit as an area where improvement is required. The screen planting and bunding could be improved in this area notwithstanding it adjoins another quarry. Further planting in this section will occur over the next year.

### Visual assessment

Because extraction has occurred and will continue to occur in the high areas of the site it has become more visible from surrounding areas. Boundary planting has occurred but the visual restriction impact is limited as these areas are substantially lower than the extraction area. The area along Old Northern Road will continue to be the main area of focus for rehabilitation.

### Conclusion

The works as proposed ensure that satisfactory screening and rehabilitation of the boundary areas of the Hitchcock Road site is achieved. The proposed method of earth bunding and planting will, in time, ameliorate the visual impacts of the site operations but there is increasing visual accessibility of the quarry from a distance because of the extraction of the higher levels in the middle of the site. In conjunction with further rehabilitation work, the site can be returned to a natural state on the completion of sand extraction.

### Rehabilitation Issues

#### Rate of rehabilitation

Rehabilitation of the site is taking place generally in phase with the overall staging program. The removal of material from the first phases has been completed and extraction has continued as shown on the Site Survey Plan in **Figure 2**.

Rehabilitation of the project is dependent on three main factors:

- Material for backfilling does not become available until topsoil and overburden are removed from later phases as similar material from the first phase area is used to form peripheral mounds and the earthworks required for the tailings dams.
- Substantial parts of the operational area are occupied by a series of basins required for surface water treatment. These require capping prior to any major rehabilitation taking

place in the area. This cannot be undertaken until new basins are developed as part of the next phase development which in turn serves the whole project. In addition, capping cannot take place until the ponds are sufficiently dry to accommodate heavy vehicles with safety. This can take up to three years.

The timing of the rehabilitation of the initial phases is therefore dependent on a substantial start being made on the next phase. Activity to date has focussed on the provision of the peripheral mounds which are required for acoustic and visual reasons. These have been constructed, so far, in those areas particularly sensitive to these impacts. This work has now been completed.

A number of the early tailings dams have been capped and the area is in the process of rehabilitation. This is particularly the case in the western part of the site immediately to the south of the former Crown Road where several silt ponds have been capped and the ground contours reconfigured. Four hectares of the eastern part has been seeded under the guidance of Greening Australia and Parsons Brinckerhoff.

### ***Final landform (Strategy A)***

Two options for the final landform were incorporated in the planning documents. Strategy B was based on final landforms if PF Formation was unable to get approval from the Director General to disturb the Sydney Hinterland Transition Woodland in the middle of the site. On 15 March 2013 the NSW Department of Planning and Infrastructure gave approval to proceed with the clearing of the Sydney Hinterland Transition Woodland. Therefore the final landform will be based on Strategy A from the planning documents.

### ***Maintenance of vegetated conservation zones and rehabilitated areas***

Conservation zones identified in the Landscape Management Plan are regularly inspected as required in the Environmental Strategy (**Strategy 7.1**). These areas are signposted and the areas suitably protected. All existing vegetation around the periphery of the site will be protected within setbacks and buffer zones.

The peripheral bunds constructed to date have been planted. These are regularly inspected and the area maintained.

### ***Retention and protection of vegetation within buffer zones***

All existing vegetation within the defined buffer zones will be retained and protected. A setback with a minimum depth of 30 metres is being maintained along Hitchcock Road and all existing vegetation within this area will be retained.

### ***Integration of the site rehabilitation with the surrounding terrain***

Operations have been undertaken on the Hitchcock Road site under the previous consent since November 1998. These have inevitably concentrated on the site works required for the development including retention basins and the construction of the peripheral bunds. It is too early in the life of the development, with more than 10 years of life remaining, to consider the establishment of the final landform in any detail. The area in the south has been reformed with final batter slopes which give an indication of the way in which the final landform will integrate with the surrounding area.

The final landform of the Hitchcock Road site will be influenced by the depth of extraction, the location of commercially available resource and the volume of overburden, mainly clay, available for re-contouring the extracted areas. Sand has been extracted from part of the site to the depth allowed in the previous consent and part of this area has been rehabilitated. The existing topography and setbacks is also shown on the Site Survey Plan in **Figure 2**. The final landform has been developed in response to the requirements of the proposed biodiversity offset strategy.

The final landform (Strategy A) comprises a large gently sloping basin with steeper side slopes along the boundary to Old Northern Road. Some of the levels have been amended to reflect changes in the extraction areas to minimise vegetation removal.

### **Vegetative cover**

In 2010 Greening Australia were commissioned to prepare a plan of management for the rehabilitation area of 2.4 hectares previously planted and for the additional area of 1.6 hectares to be rehabilitated. Based on that plan of management the additional area was planted in Spring 2011 to give an area subject to Sydney Hinterland Transition Woodland rehabilitation exceeding 4 hectares.

### **Flora and fauna monitoring program**

Regular monitoring of flora and fauna is a requirement of the Environmental Strategy. Results to date are encouraging. A report prepared by Parsons Brinckerhoff was completed in December 2013 and is appended as **Attachment 14**. The report states that *'the rehabilitation of the area is progressing well and is generally meeting or exceeding the targets set'*. Parsons Brinckerhoff has been commissioned to conduct their next further site inspection. This work has not been done at the time of completing the 2015 AEMR and will be placed on the website when received.

### **Conservation of threatened species, populations and ecological communities**

It is a requirement of the Environmental Strategy that all those areas to be retained and defined as needing protection will be clearly identified. Signs have been placed at intervals around the areas needing protection.

### **Construction of acoustic and visual bunding**

Construction of the peripheral bunds has already been noted. Improvements are required along Old Northern Road to better screen the sand slurry plant.

### **Compliance with current environmental laws, standards and practices**

All the necessary management controls and related actions are in conformity with all relevant current laws, standards and practices as indicated in the document.

## **Conclusion**

The site rehabilitation is necessarily more in focus in the latter stages of the development. 4.2 hectares of Sydney Hinterland Transition Woodland has been planted on site. Parsons Brinckerhoff last monitored this area in December 2013 by reviewing plant species within six fixed (20 x 20 metre) quadrants and their report is in **Attachment 14**. In general the revegetation areas appear to be progressing well and is meeting or exceeding the targets set.

*Chapter Eight*

## **SOCIAL IMPACT MANAGEMENT**

Community representatives participate in the Community Consultative Committee which has met twice during the year. Minutes of these meetings held on 11 November 2014 and 5 May 2015 are included as **Attachment 15**.

## Chapter Nine

# INDEPENDENT AUDITS

### Independent Environmental Audit 2014

Condition 6 of Schedule 5 of the Department of Planning's Hitchcock Road Sand Project approval (06\_0104) dated 3 February 2009 requires an independent environmental audit of the project every three years. Audits were conducted in April 2011 and April 2014. The conclusions of the April 2014 audit (included as **Attachment 16**) were as follows.

*"Full cooperation was obtained from PF Formation staff during the audit with full access granted to records and copies made of records if requested. No obstacles were encountered during the audit and subsequent queries. Based on the audit findings the audit conclusions are as follows.*

*Based on completion of the environmental audit tasks (section 3), audit evidence and environmental monitoring results (section 4), consultation with agencies (section 5) and assessment of the compliance tables and audit findings (section 6) the environmental performance of the sand project is satisfactory with some non-compliances. The project is generally complying with the relevant standards, performance measures and statutory requirements including project approval conditions, project approval commitments and Environment Protection Licence conditions with some non-compliances that can be rectified. There is a need to improve on some environmental commitments and record keeping.*

*The effects of the Hitchcock Road sand project on the surrounding environment appear to be relatively minor and generally localised within the confines of the project area, nevertheless acceptable and manageable with some improvements and corrective actions needed. This assumes that all environmental management measures continue to be implemented by PF Formation.*

*All strategies/plans/programs required under the project approval to date are adequate with some corrective actions proposed.*

*There is nothing confidential in this audit report and it can be distributed as required."*

### Response to 2014 Audit Recommendations

PF Formation's 12 June 2014 detailed response to DP&E on the twelve April 2014 audit recommendations (*in italics*) follows.

*1. The Environmental Strategy needs to be updated including the date of publication, new names of NSW government departments, new legislation, updated emergency response management, revised Australian Standards and references. The revised documents should then be made available on the PF Formation website.*

Agreed. Within 3 months of this response being issued i.e. by 12 September 2014, any updated environmental management and monitoring strategies/plans/programs are to be forwarded to the Director- General for approval. After this approval is received the updated Environmental Strategy will be made available on the PF Formation website.

*Note: These Plans were updated and forwarded to the DP&E on 12 September 2014 and are awaiting approval by DP&E.*

*2. All AEMPs need to include the EPA annual returns.*

Agreed. The 2010 and 2011 EPA annual returns were inadvertently excluded from the 2011 and 2012 AEMP. The 2012 EPA annual return was included in the 2013 AEMP.

*3. Annual reports on the effectiveness of the retention basins need to be produced and included in the AEMRs.*

In the Water Management Statement of Commitments it says 'All retention basins will be regularly inspected and an annual report prepared on their effectiveness'. This commitment was incorporated into Strategy 5.1 of the Environmental Operation Procedures and is reviewed as part of the monthly checklist. These reports are signed off, dated and copies included in the AEMR (Chapter 3). Whilst there is no separate report it is reported in the AEMR in a satisfactory manner. Specific reference to the effectiveness of the retention basins will be incorporated in the AEMR in the future.

*4. The monthly operational checklists in the AEMPs need more complete heading descriptions for the first three columns.*

The monthly operational checklist is a monthly summary of the Environmental Operating Procedures. The headings will be improved to better reference back to the Environmental Operating Procedures.

*5. Modified copies of the annual production data produced for the Department of Primary Industries using the standard form for that purpose need to be included in the AEMRs. With the consent of the Department of Planning and Environment and to avoid disclosure of commercially sensitive information to the public and competitors, production data should be provided in 100, 000 tonne bands in the AEMRs. Alternatively a Section 96 modification could be made to amend this consent condition.*

The AEMR is available on our website for public viewing and therefore we are reluctant to include the detail of our sales as disclosed in the annual production data provided to the Department of Primary Industries. This is particularly the case when the information provided to the Department of Primary Industries is a total of all our sales not just those from this Approval. In the second paragraph of Chapter 2 of the AEMR we confirm that our annual volume was within the limit of 400,000 tonnes. We will show the data relating to this development within bands as suggested.

*6. The Complaints Register needs to be recorded in full in response to any complaints on the project and any corrective actions undertaken.*

Agreed. The one complaint in the period should have had a better documented response.

*7. With the consent of the Department of Planning and Environment only the three closest noise assessment locations to the project being R3 Jurd, R5 Pignataro, R10 Tornatola plus R7 Maroota Public School need to be monitored in the future. Alternatively a Section 96 modification could be made to amend this consent condition.*

Whilst the Approval refers to several residences in the area the noise assessment locations are those closest to the quarry covering all directions and all residences mentioned. We could apply to remove some of the locations that are duplicated but as our testing covers all the locations and meets the Approval requirements we will not apply to change the Approval wording unless it is in conjunction with other Section 96 modifications.

8. *The EPA approved pollution incident response management plan needs updating (on page 11) to include telephone contacts for all authorities and inclusion of Attachment A Hazardous Substances Register, Attachment B Emergency Procedure and Attachment C Site Plans/Map. PF Formation should consider including landslip or land stability as an additional hazard to be considered in the plan. The revised plan then needs to be made available on the PF Formation website.*

Agreed.

9. *Procedures must be improved so that the site operations including truck movements and use of the weighbridge do not commence before 6 am and that no more than 10 laden trucks enter and leave the site between 6 am and 7 am.*

No trucks left the site before 6am. Trucks were going on the weighbridge and getting their paperwork (the earliest was at 5.56am) before moving forward 40 metres to a separate area to cover their load. We have advised the weighbridge staff that no trucks are to leave the weighbridge until 6am not just the site which was their understanding.

With regard to limiting truck numbers within defined hours it is very difficult to implement unless it is an average figure. Because trucks arrive from various locations every day you do not know there is a problem until they arrive. For a period we did have a truck operator that was sending their fleet of vehicles to Maroota at one time. We subsequently spoke with the operator and got them to limit the number of trucks sent to Maroota between 6am to 7am.

PF Formation also has Hills Shire Consent 2592/2005/HE which uses the same truck entry and has no numerical limit on the number of trucks between 6 am and 7 am. Therefore having more than 10 trucks before 7am does not necessarily mean the consent condition is not being adhered to.

10. *The Hazardous Substance Register needs revision to include only hazardous substances.*

All items with Material Safety Data Sheets are kept in one folder at our weighbridge for easy access. We will now separate them into two folders, one for hazardous substances and one for non-hazardous substances.

11. *At the site entrance on Wisemans Ferry Road a 20km/hour speed limit sign needs to be installed.*

There are several speed limit signs in our main quarry on the northern side of Wisemans Ferry Road. We will place a speed limit sign on the southern side of Wisemans Ferry Road.

12. *A 3m high peripheral bund planted with screening vegetation needs to be fully established all along and 30m away from the Hitchcock Road boundary to improve visual amenity.*

As there are no residents in the area, only another approved quarry on the other side of the Hitchcock Road, we had considered our bunding sufficient. We will improve the peripheral bund wall.

All matters referred to in PF Formation 'Comments on Independent Environment Report' dated 12 June 2014 have now been completed.

The next independent audit will be conducted in 2017.

## Department of Planning and Environment Audit 2015

The DP&E conducted a compliance audit of the Hitchcock Road Sand Extraction and Rehabilitation Project as part of the State Sand Quarries Campaign (May – August 2015) in August 2015. A site inspection of the quarry was made by DP&E officers together with PF Formation management on 5 August 2015 and a draft compliance audit was issued by DP&E in September 2015.

The draft compliance audit found the quarry to be operating generally in compliance with the conditions of the Project Approval and Statement of Commitments. However, some administrative non-compliances and low risk non-compliances with conditions were identified where action is required to ensure compliance is achieved. A number of performance observations were also made. PF Formation has yet to formally respond to the draft compliance audit findings.

Where possible this AEMP 2014-2015 has taken into account the foreshadowed draft compliance audit issues to be addressed including the following.

- Inclusion of annual production data.
- Commitment to regular summary of monitoring results on [www.pfformation.com.au](http://www.pfformation.com.au).
- Explanation of any upward trends of dust deposition gauge results.
- Reporting on commitments for groundwater quality and level monitoring.
- Inclusion of tables and graphs in the body of the AEMR with a summary of results.