

Appendices

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Appendix 1

Project Approval PA10_0183

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Project Approval

Section 75J of the *Environmental Planning and Assessment Act 1979*

As delegate of the Minister for Planning and Infrastructure, I approve the project application referred to in schedule 1, subject to the conditions in schedules 2 to 5.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.

Sam Haddad
Director-General

Sydney 22nd February 2013

SCHEDULE 1

Application Number:	10_0183
Proponent:	Metromix Pty Limited
Approval Authority:	Minister for Planning and Infrastructure
Land:	Lot 1 DP 224037 Lot 2 DP 224037
Project:	Teralba Quarry Extension

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DEFINITIONS

AM peak period	7:30 am to 9 am weekdays
Annual review	The review required by condition 4 of schedule 5
BCA	Building Code of Australia
Biodiversity offset strategy	The conservation and enhancement strategy described in the EA, and depicted conceptually in the figure in Appendix 5
CCC	Community Consultative Committee
Conditions of this approval	Conditions contained in schedules 1 to 5 inclusive
Council	Lake Macquarie City Council
CPI	Australian Bureau of Statistics Consumer Price Index
Department	Department of Planning and Infrastructure
Director-General	Director-General of the Department, or nominee
DRE	Division of Resources and Energy within the Department of Trade and Investment, Regional Services and Infrastructure
DPI	Department of Primary Industries within the Department of Trade and Investment, Regional Services and Infrastructure
EA	Environmental Assessment of the project titled <i>Environmental Assessment for the Teralba Quarry Extensions, Major Project Application No. 10_0183</i> , prepared by RW Corkery & Co Pty Limited and dated November 2011; and the <i>Teralba Quarry Extensions Response to Submissions</i> , prepared by RW Corkery & Co Pty Limited and dated June 2012
EPA	NSW Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPL	Environment Protection Licence under the <i>POEO Act</i>
Extraction Areas	The Southern, Southern Extension, Mid Pit and Northern Extension Extraction Areas shown on Figure 1 in Appendix 1
Feasible	Feasible relates to engineering considerations and what is practical to build
Haulage routes	The transport routes (see also Appendix 4) along which quarry products may be hauled from the site: <ul style="list-style-type: none"> • Route 1 – Northwestern Corridor: westwards along Rhondda Road, and then northwards along Wakefield Road and Northville Road to George Booth Drive; • Route 2 – Southwestern Corridor: westwards along Rhondda Road, and then southwards along Wakefield Road to the F3 Freeway; • Route 3 – Northeastern Corridor: northeast along Railway Street, Teralba, crossing the railway line, then southwards along York Street Teralba, then north-easterly along Five Islands Road to either The Esplanade or Lake Road; and • Route 4 – Southeastern Corridor: northeast along Railway Street, Teralba, crossing the railway line, then southwards along York Street Teralba and Toronto Road
km	kilometres
Land	As defined in the EP&A Act, except for where the term is used in the noise and air quality conditions in schedules 3 and 4 of this approval where it is defined to mean 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 this approval
m AHD	metres Australian Height Datum
Material harm to the environment	Actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial
Minister	Minister for Planning and Infrastructure, or delegate
Minor	Not very large, important or serious
Negligible	Small and unimportant, such as to be not worth considering
NOW	NSW Office of Water, within the Department of Primary Industries
OEH	Office of Environment and Heritage within the Department of Premier and Cabinet

Privately-owned land	Land that is not owned by a public agency or the Proponent (or its subsidiary)
PM peak period	4:30 pm to 6:00 pm weekdays
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Project	The development as described in the EA
Proponent	Metromix Pty Limited, or any other person who seeks to carry out the development approved under this approval
Quarrying operations	Includes the removal of overburden and extraction, processing, handling, storage and transportation of extractive materials on site
Reasonable	Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements
Rehabilitation	The restoration of land disturbed by the project to a good condition, ensuring that it is safe, stable and non-polluting and appropriately revegetated
RMS	Roads and Maritime Services
Statement of commitments	The Proponent's commitments in Appendix 3
Site	The land listed under "Land" in schedule 1

SCHEDULE 2 ADMINISTRATIVE CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

1. In addition to meeting the specific performance criteria established under this approval, the Proponent shall implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation, or rehabilitation of the project.

TERMS OF APPROVAL

2. The Proponent shall carry out the project generally in accordance with the:
 - (a) EA;
 - (b) statement of commitments; and
 - (c) conditions of this approval.

Notes:

- The general layout of the project is shown in Appendix 1 and Appendix 2.
- The statement of commitments is reproduced in Appendix 3.

3. If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.
4. The Proponent shall comply with any reasonable requirement/s of the Director-General arising from the Department's assessment of:
 - (a) any reports, strategies, plans, programs, reviews, audits or correspondence that are submitted in accordance with this approval; and
 - (b) the implementation of any actions or measures contained in these documents.

LIMITS ON APPROVAL

Quarrying Operations

5. The Proponent may carry out quarrying operations on the site until 31 December 2038.

Note: Under this approval, the Proponent is required to rehabilitate the site and carry out additional undertakings to the satisfaction of the Director-General. Consequently, this approval will continue to apply in all other respects other than the right to conduct quarrying operations until the rehabilitation of the site and those undertakings have been carried out to a satisfactory standard.

Extractive Material Limits

6. The Proponent shall not carry out quarrying operations below 20 m AHD in the Southern Extension Area or below 24 m AHD in the Mid Pit Extraction and Northern Extension Areas.

Note: This condition does not apply to the construction of any bores approved by NOW or pollution and sediment control structures described in the EA.

7. The Proponent shall not extract more than 1.2 million tonnes of extractive materials from the site in any calendar year.

Extractive Material Transport

8. The Proponent shall not:
 - (a) transport more than 1 million tonnes of quarry products from the site in any calendar year; or
 - (b) dispatch more than 326 laden trucks from the site on any day; or
 - (c) dispatch more than 241 laden trucks per day or 20 per hour westwards along Rhondda Road;
 - (d) dispatch more than 85 laden trucks per day or 8 per hour eastwards through Teralba;
 - (e) dispatch laden trucks for travel through Teralba between 6 pm and 6 am; or
 - (f) receive unladen trucks via the railway street entrance between 6 pm and 7 am.

9. The Proponent shall limit the total hourly truck dispatch rates from the site to the levels shown in Table 1.

Table 1 – Truck Dispatch Hours

Dispatch Period	Maximum Hourly Dispatch Rate
6:00 am – 7:00 am	Up to 28 loaded trucks
7:00 am – 6:00 pm	Up to 20 loaded trucks
6:00 pm – 5:00 am	Up to 6 loaded trucks
5:00 am – 6:00 am	Up to 12 loaded trucks

Note: Dispatch times and maximum hourly rates westwards along Rhondda Road or eastwards through Teralba are further limited by condition 8 above.

Receival of Concrete, Virgin Excavated Natural Material and Excavated Natural Material

10. The Proponent shall not receive on site more than 120 tonnes of recycled concrete per day or stockpile more than 2,500 tonnes of concrete material on the site.
11. The Proponent shall not receive on site more than 100,000 tonnes of virgin excavated natural material or excavated natural material in any calendar year.

SURRENDER OF CONSENTS

12. By the end of December 2013, or as otherwise agreed by the Director-General, the Proponent shall surrender the development consent (DA 130/42) for existing operations on the site in accordance with Section 104A of the EP&A Act.

Note: The conditions or other requirements of this project approval do not prevent the continued carrying out of development which may be undertaken pursuant to DA 130/42, prior to the surrender of that consent.

STRUCTURAL ADEQUACY

13. The Proponent shall ensure that any new buildings and structures, and any alterations, or additions to existing buildings and structures, are constructed:
- in accordance with the relevant requirements of the BCA; and
 - to the satisfaction of the Mine Subsidence Board.

Notes:

- Under *Part 4A of the EP&A Act*, the Proponent is required to obtain construction and occupation certificates for the proposed building works.
- Part 8 of the EP&A Regulation* sets out the requirements for the certification of the project.
- Under Section 15 of the *Mine Subsidence Compensation Act 1961* the Proponent is required to obtain approval from the Mine Subsidence Board for the construction, erection or alteration of any improvements on the site.

DEMOLITION

14. The Proponent shall ensure that all demolition work on site is carried out in accordance with *AS 2601-2001: The Demolition of Structures*, or its latest version.

PROTECTION OF PUBLIC INFRASTRUCTURE

15. The Proponent shall:
- repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the project; and
 - relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the project.

PLANNING AGREEMENT

16. Within 12 months of the date of this approval, unless otherwise agreed by the Director-General, the Proponent shall enter into a planning agreement with the Council in accordance with Division 6 of Part 4 of the EP&A Act that provides for payment to the Council for road maintenance levies.

The agreement must include provision for those matters set out in condition 17 below.

If there is any dispute between the Proponent and Council relating to the preparation or implementation of the planning agreement, then either party may refer the matter to the Director-General for resolution.

ROAD MAINTENANCE

17. During the life of the project, for each calendar year, the Proponent shall pay Council \$0.066 per tonne per kilometre for every tonne of quarry products transported from the site on roads for which Council is liable for road maintenance funding. Each payment must be:
- (a) based on weighbridge records of the quantity of quarry products transported from the site;
 - (b) paid by the date required by the invoice issued by Council; and
 - (c) increased over the life of the project in accordance with the CPI.

OPERATION OF PLANT AND EQUIPMENT

18. The Proponent shall ensure that all plant and equipment used at the site is:
- (a) maintained in a proper and efficient condition; and
 - (b) operated in a proper and efficient manner.

STAGED SUBMISSION OF ANY STRATEGY, PLAN OR PROGRAM

19. With the approval of the Director-General, the Proponent may submit any strategy, plan or program required by this approval on a progressive basis.

Notes:

- *While any strategy, plan or program may be submitted on a progressive basis, the Proponent will need to ensure that the existing operations on site are covered by suitable strategies, plans or programs at all times; and*
- *If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program must clearly describe the specific stage to which the strategy, plan or program applies, the relationship of this stage to any future stages, and the trigger for updating the strategy, plan or program.*

PRODUCTION DATA

20. The Proponent shall:
- (a) provide annual quarry production data to DRE using the standard form for that purpose; and
 - (b) include a copy of this data in the Annual Review (see condition 4 of schedule 5).

SCHEDULE 3

ENVIRONMENTAL PERFORMANCE CONDITIONS

IDENTIFICATION OF APPROVED LIMITS OF EXTRACTION

1. Prior to carrying out quarrying operations under this approval, the Proponent shall:
 - (a) engage a registered surveyor to mark out the boundaries of the approved limits of extraction within the Extraction Areas; and
 - (b) submit a survey plan of these boundaries to the Director-General.
2. While ever quarrying operations are being carried out, the Proponent shall ensure that these boundaries are clearly marked at all times in a permanent manner that allows operating staff and inspecting officers to clearly identify the limits of extraction within the Southern, Southern Extension, Mid Pit and Northern Extension Extraction Areas.

EXTRACTION MANAGEMENT

Operating Conditions

3. The Proponent must ensure that:
 - (a) the underlying historical coal workings within the Great Northern coal seam pose not greater than a negligible risk to the safety of quarry workers, including risks from sudden unplanned collapses, release of noxious gases or explosion of flammable gases; and
 - (b) quarrying operations pose not greater than a negligible risk to the heating or combustion of the underlying historical coal workings within the Great Northern coal seam.

Lower Level Extraction Management Plan

4. The Proponent shall prepare and implement a Lower Level Extraction Plan for all extraction activities within 17.5 vertical metres of historical coal workings within the Great Northern coal seam, to the satisfaction of the Director-General. This plan must:
 - (a) be submitted for approval to the Director-General prior to undertaking any such quarrying operations and within 12 months of the date of this approval;
 - (b) be prepared by suitably qualified persons approved by the Director-General;
 - (c) provide for the achievement of the measures set out in condition 3 above;
 - (d) describe the measures that would be implemented to ensure:
 - best management practice quarrying operations are being employed on site;
 - individual responsibilities of workers, contractors and management are detailed and understood; and
 - compliance with the relevant conditions of this approval;
 - (e) include a Spontaneous Combustion Management Plan, which has been prepared in consultation with DRE and Oceanic Coal Pty Ltd, to manage the potential risks and impacts of spontaneous combustion or heating of coal, and which:
 - includes a detailed assessment, of the risks of spontaneous combustion and subsurface heating for each of the existing and proposed Extraction Areas;
 - clearly identifies responsibilities to address management of spontaneous combustion and subsurface heating risks, for both day to day operations and long term management; and
 - includes appropriate short and long term contingency plans.

NOISE

Noise Criteria

5. The Proponent shall ensure that the noise generated by the project does not exceed the criteria in Table 2 at any residence on privately-owned land.

Table 2: Noise criteria dB(A)

Location	Day Shoulder 6 - 7 am	Day 7 am – 6 pm	Evening 6 – 10 pm	Night 10 pm – 6 am	
	<i>L_{Aeq}(15 min)</i>	<i>L_{Aeq}(15 min)</i>	<i>L_{Aeq}(15 min)</i>	<i>L_{Aeq}(15 min)</i>	<i>L_{A1}(1 min)</i>
A	38	38	37	35	45
B	42	46	36	35	45
C	42	42	35	35	45
D, E, G, H, I	35	35	35	35	45
F	37	38	38	35	45

Notes:

- Receiver locations are shown in Figure 2 Appendix 1.
- Noise generated by the project is to be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.

However, these criteria do not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.

Hours of Operation

6. The Proponent shall comply with the operating hours set out in Table 3.

Table 3: Operating Hours

Day	Receipt of Concrete or Virgin Excavated Natural Material	Loading and Dispatch of Quarry Trucks	Extraction and Processing Operations
Monday – Friday	7 am to 5 pm	4 am Monday to midnight Friday	7 am to 7 pm
Saturday	7 am to 2 pm	midnight Friday to 6 pm Saturday	7 am to 2 pm
Sundays and Public Holidays	None	None	None

Note: Maintenance activities may occur at any time provided they are inaudible at privately-owned residences.

Operating Conditions

7. The Proponent shall:
- implement best practice noise management to minimise the construction, operational and traffic noise of the project;
 - minimise the noise impacts of the project during meteorological conditions when the noise limits in this approval do not apply;
 - maintain the effectiveness of any noise suppression equipment on plant at all times and ensure defective plant is not used operationally until fully repaired;
 - regularly assess noise monitoring data and relocate, modify, and/or stop operations on site to ensure compliance with the relevant conditions of this approval; and
- to the satisfaction of the Director-General.

Noise Management Plan

8. The Proponent shall prepare and implement a Noise Management Plan for the project to the satisfaction of the Director-General. This plan must:
- be submitted for approval to the Director-General within 4 months of the date of this approval;
 - describe the measures that would be implemented to ensure:
 - best management practice is being employed on site;
 - the noise impacts of the project are minimised during any meteorological conditions when the noise limits in this approval do not apply; and
 - compliance with the relevant conditions of this approval;
 - describe the proposed noise management system in detail; and
 - include a monitoring program that:

- is capable of regularly evaluating the performance of the project, including noisy individual items of plant, such as haulage trucks and the bulldozer;
- includes a protocol for determining any exceedances of the relevant conditions in this approval at locations listed in Table 2; and
- evaluates and reports on the effectiveness of the noise management system on site.

BLASTING

Blasting Criteria

9. The Proponent shall ensure that the blasting on the site does not cause exceedances of the criteria in Table 4.

Table 4: Blasting criteria

Location	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance
Any residence on privately owned land, or any public infrastructure	120	10	0%
	115	5	5% of the total number of blasts over a period of 12 months

However, these criteria do not apply if the Proponent has a written agreement with the relevant owner or infrastructure provider/owner, and the Proponent has advised the Department in writing of the terms of this agreement.

Blasting Hours

10. The Proponent shall only carry out blasting on site between 10 am and 4 pm Monday to Friday inclusive. No blasting is allowed on weekends or public holidays, or at any other time without the written approval of Director-General.

Blasting Frequency

11. The Proponent shall not carry out more than 1 blast a day on site, unless an additional blast is required following a blast misfire.

Note: A blast may involve a number of explosions within a short period, typically less than two minutes.

Property Inspections

12. If the Proponent receives a written request from the owner of any privately-owned land within 500 m of proposed blasting for a property inspection to establish the baseline condition of any buildings and/or structures on his/her land, or to have a previous property inspection report updated, then within 2 months of receiving this request the Proponent shall:
- commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to:
 - establish the baseline condition of any buildings and/or structures on the land, or update the previous property inspection report; and
 - identify any measures that should be implemented to minimise the potential blasting impacts of the project on these buildings and/or structures; and
 - give the landowner a copy of the new or updated property inspection report.

Property Investigations

13. If the owner of any privately-owned land claims that the buildings and/or structures on his/her land have been damaged as a result of blasting on site, then within 2 months of receiving this claim in writing from the landowner the Proponent shall:
- commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties, to investigate the claim; and
 - give the landowner a copy of the property investigation report.

If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Proponent shall repair the damages to the satisfaction of the Director-General.

If the Proponent or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Director-General for resolution.

Operating Conditions

14. During blasting operations, the Proponent shall:
 - (a) implement best management practice to:
 - protect the safety of people and livestock in the surrounding area;
 - protect public or private infrastructure/property in the surrounding area from any damage; and
 - minimise the dust and fume emissions of any blasting; and
 - (b) operate a suitable system to enable the public to get up-to-date information on the proposed blasting schedule on site, to the satisfaction of the Director-General.
15. The Proponent shall not undertake blasting within 500 metres of:
 - (a) any public road without the approval of Council; or
 - (b) any land outside the site not owned by the Proponent, unless:
 - the Proponent has a written agreement with the relevant landowner to allow blasting to be carried out closer to the land, and the Proponent has advised the Department in writing of the terms of this agreement, or
 - the Proponent has:
 - demonstrated to the satisfaction of the Director-General that the blasting can be carried out closer to the land without compromising the safety of the people or livestock on the land, or damaging the buildings and/or structures on the land; and
 - updated the Blast Management Plan to include the specific measures that would be implemented while blasting is being carried out within 500 metres of the land.

Blast Management Plan

16. The Proponent shall prepare and implement a Blast Management Plan for the project to the satisfaction of the Director-General. This plan must:
 - (a) be submitted to the Director-General for approval within 4 months from the date of project approval;
 - (b) be prepared in consultation with the Council and interested members of the local community potentially affected by blasting operations;
 - (c) describe the measures that would be implemented to ensure:
 - best management practice is being employed; and
 - compliance with the relevant conditions of this approval;
 - (d) include a road closure management plan for blasting within 500 metres of a public road, that has been prepared in consultation with Council;
 - (e) include a specific blast fume management protocol to demonstrate how emissions will be minimised including risk management strategies if blast fumes are generated; and
 - (f) include a monitoring program for evaluating the performance of the project including:
 - compliance with the applicable criteria; and
 - minimising fume emissions from the site.

AIR QUALITY

Air Quality Criteria

17. The Proponent shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the project do not exceed the criteria in Tables 5 to 7 at any residence on privately-owned land, or on more than 25% of any privately-owned land.

Table 5: Long-Term Impact Assessment Criteria for Particulate Matter

Pollutant	Averaging period	^d Criterion
Total suspended particulates (TSP)	Annual	^a 90 µg/m ³
Particulate matter < 10 µm (PM ₁₀)	Annual	^a 30 µg/m ³

Table 6: Short Term Impact Assessment Criteria for Particulate Matter

Pollutant	Averaging period	^d Criterion
Particulate matter < 10 µm (PM ₁₀)	24 hour	^a 50 µg/m ³

Table 7: Long-Term Impact Assessment Criteria for Deposited Dust

Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
^c Deposited dust	Annual	^b 2 g/m ² /month	^a 4 g/m ² /month

Notes to Tables 5-7:

- ^a Total impact (ie incremental increase in concentrations due to the project plus background concentrations due to all other sources);
- ^b Incremental impact (ie incremental increase in concentrations due to the project on its own);
- ^c Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.
- ^d Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Director-General in consultation with EPA.

Greenhouse Gas Emissions

18. The Proponent shall implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site.

Operating Conditions

19. The Proponent shall:
- implement best management practice to minimise the dust emissions of the project;
 - regularly assess air quality monitoring data and relocate, modify, and/or stop operations on site as may be required to ensure compliance with the relevant conditions of this approval,
 - minimise the air quality impacts of the project during adverse meteorological conditions and extraordinary events (see Note d to Tables 5-7 above);
 - minimise any visible off-site air pollution; and
 - minimise surface disturbance of the site, other than as permitted under this approval.

Air Quality Management Plan

20. The Proponent shall prepare and implement an Air Quality Management Plan for the project to the satisfaction of the Director-General. This plan must:
- be prepared in consultation with Council, and submitted for approval to the Director-General within 4 months of the date of this approval;
 - describes the measures that would be implemented to ensure:
 - best management practice is employed;
 - the air quality impacts of the project are minimised during adverse meteorological conditions and extraordinary events; and
 - compliance with the relevant conditions of this approval;
 - describes the proposed air quality management system; and
 - includes an air quality monitoring program that:
 - is capable of evaluating the performance of the project;

- includes a protocol for determining any exceedances of the relevant conditions of approval;
- adequately supports the air quality management system; and
- evaluates and reports on the adequacy of the air quality management system.

METEOROLOGICAL MONITORING

21. For the life of the project, the Proponent shall ensure that there is a suitable meteorological station operating in the vicinity of the site that:
- complies with the requirements in the *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline; and
 - is capable of continuous real-time measurement of temperature lapse rate, in accordance with the *NSW Industrial Noise Policy*, or as otherwise approved by EPA.

SOIL & WATER

Note: The Proponent is required to obtain the necessary water licences for the project under the Water Act 1912 and/or the Water Management Act 2000.

Water Supply

22. The Proponent shall ensure it has sufficient water during all stages of the project, and if necessary, adjust the scale of quarrying operations on site to match its available supply.

Surface Water Discharges

23. The Proponent shall ensure that all surface water discharges from the site comply with the discharge limits in any EPL which regulates water discharges from the site, or with section 120 of the POEO Act.

On-Site Sewage Management

24. The Proponent shall manage on-site sewage to the satisfaction of Council and the EPA.

Storage of Chemicals & Petroleum Products

25. The Proponent shall ensure that all chemicals and/or petroleum products on site are held in appropriately bunded areas with impervious flooring and sufficient capacity to contain 110% of the largest container stored within the bund, and in accordance with Australian Standard AS1940-2004, *The Storage and Handling of Flammable and Combustible Liquids*. The flooring and bund(s) shall be designed in accordance with:
- the requirements of relevant Australian Standards; and
 - DECC's *Storing and Handling Liquids: Environmental Protection – Participants Manual*.

Water Management Plan

26. The Proponent shall prepare and implement a Water Management Plan for the project to the satisfaction of the Director-General. This plan must be prepared in consultation with Council and NOW by suitably qualified and experienced person/s whose appointment has been approved by the Director-General, and be submitted to the Director-General for approval within 6 months of the date of this approval and prior to any extraction activities within the Northern Extension area.

In addition to the standard requirements for management plans (see condition 3 of schedule 5), this plan must include a:

- (a) Site Water Balance that:
- includes details of:
 - sources and security of water supply, including contingency planning;
 - water use on site;
 - water management on site;
 - reporting procedures, including comparisons of the site water balance each calendar year; and
 - describes the measures that would be implemented to minimise clean water use on site;

- (b) Surface Water Management Plan, that includes:
- detailed baseline data on surface water flows and quality in the watercourses that could be affected by the project;
 - a detailed description of the surface water management system on site, including the:
 - clean water diversion systems;
 - erosion and sediment controls; and
 - water storages;
 - design objectives and performance criteria for proposed:
 - erosion and sediment control structures;
 - water storages; and
 - control of water pollution from rehabilitated areas of the site;
 - performance criteria, including trigger levels for investigating any potentially adverse impacts, for surface water quality of local watercourses and Lake Macquarie;
 - a program to monitor:
 - the effectiveness of the water management system;
 - surface water flows and quality in local watercourses and Lake Macquarie; and
 - ecosystem health of local watercourses and Lake Macquarie;
 - a plan to respond to any exceedances of the performance criteria, and mitigate and/or offset any adverse surface water impacts of the project; and
 - a detailed review the dirty water management system to:
 - determine whether the capacity, integrity, retention time and management of the system are sufficient to ensure that water discharged from the site meets the performance criteria and propose any upgrades necessary to meet these criteria;
 - assess appropriate options to improve storage and retention times in accordance with *The Blue Book - Managing Urban Stormwater (MUS): Soils and Construction (Landcom)*; and
- (c) Groundwater Management Plan, that includes:
- detailed baseline data on groundwater yield and quality in the area, that could be affected by the project;
 - groundwater assessment criteria, including trigger levels for investigating any potentially adverse groundwater impacts;
 - a program to monitor:
 - surface water inflows into the groundwater system beneath the site;
 - the impacts of the project on:
 - the local coal seam aquifer;
 - any groundwater bores on privately-owned land that could be affected by the project; and
 - groundwater dependent ecosystems; and
 - seepage/leachate from water storages or backfilled voids (including historical coal workings) on site; and
 - a plan to respond to any exceedances of the groundwater assessment criteria;

Note: The Director-General may require the Proponent to implement upgrades and other changes identified under paragraph (b), in accordance with condition 4 of schedule 2.

VISUAL

Protection of Ridgelines

27. The Proponent shall ensure that any clearing of visually prominent ridgeline vegetation is done in a progressive manner, so as to provide for a maximum of 6 months of future quarrying operations.
28. The Proponent shall ensure that the:
- (a) eastern facing quarry benches of the Southern Extension are vegetated with native endemic understory species and trees as soon as practicable following the completion of extraction of those benches; and
 - (b) revegetation of the quarry benches is managed to ensure that a tree canopy is regenerated, as soon as practicable, to be consistent with and visually integrated into the surrounding tree canopy,
- to the satisfaction of the Director-General.

Operating Conditions

29. The Proponent shall
- (a) implement all reasonable and feasible measures to minimise the visual impacts and any off-site lighting impacts of the project; and
 - (b) maintain and improve the effectiveness of the vegetated plantings on the quarry benches, over the life of the project.

Advertising Signage

30. The Proponent shall not erect or display any advertising structure(s) or signs on the site without the written approval of the Director-General.

Note: This condition does not require approval for any business identification, traffic management, and/or safety or environmental signs.

TRANSPORT

Intersection Investigation and Wheel Wash

31. Within 6 months of the date of this approval the Proponent shall:
- (a) commission a suitably qualified and experienced person endorsed by the Director-General to undertake a road safety audit report of the intersection of York Street and Anzac Parade in consultation with Council;
 - (b) submit the report and any recommendations to the Director-General for approval; and
 - (c) implement any recommendations of the road safety audit to upgrade the intersection of York Street and Anzac Parade to the satisfaction of Council.
32. The Proponent shall install truck wheel wash facilities within 6 months of the date of this approval at all quarry exits and following such installation, must ensure that all trucks have their tyres and vehicles cleaned of mud, dirt and dust prior to exiting the site, so as to avoid tracking dirt onto public roads, to the satisfaction of the Director-General.

Operating Conditions

33. The Proponent shall construct the tunnel and conveyor under Rhondda Road to the satisfaction of Council.
34. Within 6 months of the date of this approval, the Proponent shall cease transporting quarry material by truck between the quarry pits.
35. The Proponent may only transport quarry products from the site on the designated Haulage Routes (see Appendix 4), except in circumstances where the final destination of the quarry products can only be accessed by other roads.
36. The Proponent shall ensure that all heavy vehicles:
- (a) do not exceed an on-site speed limit of 30 km per hour;
 - (b) exiting the site to the east via the bottom gate (ie to Railway Street) during the Day Shoulder period do not exceed the on-site speed limit and minimise noise as far as reasonable between Railway Street and the end of the existing engineering works; and
 - (c) entering or leaving the site have their loads covered.
37. During the AM peak period and PM peak period, the Proponent shall implement all reasonable and feasible measures to minimise project-related traffic delays and congestion at the intersection of Toronto and Five Islands Roads and along York Street, to the satisfaction of the Director-General.
38. Only trucks owned by the Proponent, its shareholders or approved contractors and fitted with airbag suspension may transport quarry products from the site between 6 pm and 6 am.

Maintenance

39. The Proponent shall regularly maintain the pavement of the on-site road that connects to Railway Street to minimise dust generation and potholes, to the satisfaction of the Director-General.

Monitoring of Product Transport

40. The Proponent shall:
- (a) keep accurate records of:
 - the amount of quarry products transported from the site (monthly and annually); and
 - all laden truck movements from the site (hourly, daily, weekly, monthly and annually); and
 - (b) publish these records on its website on a quarterly basis.

Road Signage

41. Within 6 months of the date of this approval the Proponent shall install flashing lights within Northville Drive for the 40 km school zones outside of Barnsley and Edgeworth Heights Public Schools, to the satisfaction of RMS.
42. Prior to carrying out quarrying operations under this approval, the Proponent shall install "Trucks entering" warning signs 200 metres either side of the quarry entrances on public roads.

Parking

43. The Proponent shall provide sufficient parking on-site for all project-related traffic in accordance with Council's parking codes and in consultation with Council.

Transport Management Plan

44. The Proponent shall prepare and implement a Transport Management Plan for the project to the Director-General. This plan must:
- (a) be prepared by a suitably qualified traffic consultant in consultation with the RMS and Council, and submitted to the Director-General for approval within 4 months of the date of this approval;
 - (b) include a drivers' code of conduct for the project;
 - (c) describe the measures that would be implemented to ensure:
 - drivers are aware of potential safety issues along the haulage routes in particular near schools;
 - drivers of project-related vehicles comply with the drivers' code of conduct;
 - compliance with the relevant conditions of this approval; and
 - (d) include a program to monitor the effectiveness of the implementation of these measures.

BUSHFIRE MANAGEMENT

45. The Proponent shall:
- a) ensure that the project is suitably equipped to respond to any fires on site; and
 - b) assist the Rural Fire Service, emergency services and National Parks and Wildlife Service as much as possible if there is a fire in the surrounding area.

WASTE

46. Prior to importing any Virgin Excavated Natural Material or excavated natural material to the site, the Proponent must obtain a 'resource recovery exemption' under the POEO Act and provide evidence of this approval to the Department.
47. The Proponent shall:
- (a) minimise the waste generated by the project; and
 - (b) ensure that the waste generated by the project is appropriately stored, handled, and disposed of,
- to the satisfaction of the Director-General.

48. The Proponent shall prepare and implement a Waste Management Plan for the project to the satisfaction of the Director-General. This plan must:
- be prepared in consultation with DRE and Council, and submitted to the Director-General for approval prior within 4 months of the date of this approval;
 - identify the various waste streams of the project;
 - estimate the volumes of waste material that would be generated by the project, including recycled concrete brought on-site;
 - describe and justify the proposed strategy for disposing of this waste material, including recycled concrete brought on-site; and
 - include a program to monitor the effectiveness of these measures.

ABORIGINAL HERITAGE

Heritage Management Plan

49. The Proponent shall prepare and implement a Heritage Management Plan for the project to the satisfaction of the Director-General. This plan must:
- be prepared in consultation with Aboriginal stakeholders;
 - be submitted to the Director-General for approval prior to carrying out any development within the Northern Extension area or within 6 months of the date of this approval;
 - describe the measures that would be implemented for:
 - monitoring all new surface disturbance on site for unidentified Aboriginal objects;
 - managing the discovery of any human remains or previously unidentified Aboriginal objects on site; and
 - ensuring ongoing consultation with Aboriginal stakeholders in the conservation and management of any Aboriginal cultural heritage values on site.

LANDSCAPE

Fauna Habitat

50. The Proponent shall install 20 nest boxes for microbats, 20 nest boxes for Little Lorikeets and 30 nest boxes for Sugar Gliders. These boxes must be monitored and maintained regularly over the life of the project, and re-located or replaced if not used by targeted fauna for a period of 12 months.
51. The Proponent shall, wherever practicable, avoid clearing hollow-bearing trees. If clearing a hollow-bearing tree cannot be avoided, then its removal must be offset with an additional and comparable habitat structure within the site.

Biodiversity Offset Strategy

52. The Proponent shall implement the Biodiversity Offset Strategy, as described in the EA, summarised in Table 8 and shown conceptually in the figure in Appendix 5, to the satisfaction of the Director-General.

Table 8: Biodiversity Offset Strategy

Area	Offset Type	Minimum Size (ha)
Offset Area	Existing vegetation to be enhanced	142.6 ha
TOTAL		142.6

Long Term Security of Offsets

53. By the end of June 2014, unless the Director-General agrees otherwise, the Proponent shall enter into a conservation agreement pursuant to section 69B of the *National Parks and Wildlife Act 1974* for the Offset Area, which records the obligations assumed by the Proponent under the conditions of this approval in relation to this area, and shall register this agreement pursuant to section 69F of the *National Parks and Wildlife Act 1974*. The conservation agreement must remain in force in perpetuity.

If OEH is not prepared to enter into a conservation agreement, then to satisfy this condition, the Proponent may propose another conservation measure to secure the offset for approval by the Director-General.

Relocated Powerlines

54. The Proponent shall ensure that any relocation of existing powerlines on-site does not cause greater than minor environmental consequences within the Offset Area.

Rehabilitation Objectives

55. The Proponent shall rehabilitate the site to the satisfaction of the Director-General. This rehabilitation must be generally consistent with the proposed rehabilitation strategy in the EA and Appendix 6, and comply with the objectives in Table 9.

Table 9: Rehabilitation Objectives

Feature	Objective
Site (as a whole)	Safe, stable & non-polluting.
Surface Infrastructure	To be decommissioned and removed, unless the Director-General agrees otherwise.
Benched Quarry Walls	Landscaped and revegetated utilising native tree and understorey species, ensuring that the tree canopy is restored and integrated with the surrounding canopy to minimise visual impacts
Quarry Pit Floors and Silt Ponds	Landscaped and revegetated utilising native flora species and felled trees from clearing. Revegetation not required for existing and proposed industrial areas.
Other land affected by the project	Restore ecosystem function, including maintaining or establishing self-sustaining eco-systems comprised of: <ul style="list-style-type: none"> • native endemic species; and • a landform consistent with Figure 8 (Appendix 6) and the surrounding environment.

Progressive Rehabilitation

56. The Proponent shall rehabilitate the site progressively, that is, as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time. Interim rehabilitation strategies shall be employed when areas prone to dust generation cannot yet be permanently rehabilitated.

Landscape Management Plan

57. The Proponent shall prepare and implement a Landscape Management Plan for the project to the satisfaction of the Director-General. This plan must:
- be prepared in consultation with DRE, DPI and Council;
 - be submitted to the Director-General for approval prior within 12 months of the date of this approval;
 - describe how the implementation of the Biodiversity Offset Strategy would be integrated with the overall rehabilitation of the site;
 - describe the short, medium and long term measures that would be implemented to:
 - manage remnant vegetation and habitat on site;
 - implement the Biodiversity Offset Strategy; and
 - ensure compliance with the rehabilitation objectives and progressive rehabilitation obligations in this approval;
 - include detailed performance and completion criteria for evaluating the performance of the Biodiversity Offset Strategy and the rehabilitation of the site, including triggering remedial action (if necessary);
 - include a detailed description of the measures that would be implemented over the next 3 years, including the procedures to be implemented for:

- ensuring compliance with the rehabilitation objectives and progressive rehabilitation obligations in this approval;
 - enhancing the quality of remnant vegetation and fauna habitat;
 - restoring native endemic vegetation and fauna habitat within the biodiversity offset areas and rehabilitation area;
 - maximising the salvage of environmental resources within the approved disturbance area – including tree hollows, vegetative and soil resources – for beneficial reuse in the enhancement of the biodiversity areas or rehabilitation area;
 - collecting and propagating seed;
 - ensuring minimal environmental consequences for the local *Tetratheca juncea* population;
 - minimising the impacts on native fauna on site, including undertaking appropriate pre-clearance surveys;
 - controlling weeds and feral pests;
 - controlling erosion;
 - controlling access; and
 - bushfire management;
- (g) include a program to monitor the effectiveness of these measures, and progress against the performance and completion criteria;
- (h) identify the potential risks to successful implementation of the Biodiversity Offset Strategy and rehabilitation of the site, and include a description of the contingency measures that would be implemented to mitigate against these risks; and
- (i) include details of who would be responsible for monitoring, reviewing, and implementing the plan.

Conservation & Rehabilitation Bond

58. Within 6 months of the approval of the Landscape Management Plan, the Proponent shall lodge a Conservation and Rehabilitation Bond with the Department to ensure that the Biodiversity Offset Strategy and the rehabilitation of the site is implemented in accordance with the performance and completion criteria set out in the Landscape Management Plan. The sum of the bond shall be determined by:
- (a) calculating the cost of implementing the Biodiversity Offset Strategy over the next 3 years;
 - (b) calculating the cost of rehabilitating the site, taking into account the likely surface disturbance over the next 3 years of quarrying operations; and
 - (c) employing a suitably qualified quantity surveyor or other expert to verify the calculated costs,
- to the satisfaction of the Director-General.

Notes:

- *If capital and other expenditure required by the Landscape Management Plan is largely complete, the Director-General may waive the requirement for lodgement of a bond in respect of the remaining expenditure.*
 - *If the Biodiversity Offset Strategy and rehabilitation of the site area are completed to the satisfaction of the Director-General, then the Director-General will release the bond. If the Biodiversity Offset Strategy and rehabilitation of the site are not completed to the satisfaction of the Director-General, then the Director-General will call in all or part of the bond, and arrange for the completion of the relevant works.*
59. Within 3 months of each Independent Environmental Audit (see condition 9 of schedule 5), the Proponent shall review, and if necessary revise, the sum of the Conservation and Rehabilitation Bond to the satisfaction of the Director-General. This review must consider the:
- (a) effects of inflation;
 - (b) likely cost of implementing the Biodiversity Offset Strategy and rehabilitating the site (taking into account the likely surface disturbance over the next 3 years of the project); and
 - (c) performance of the implementation of the Biodiversity Offset Strategy and rehabilitation of the site to date.

SCHEDULE 4 ADDITIONAL PROCEDURES

NOTIFICATION OF LANDOWNERS

1. As soon as practicable after obtaining monitoring results showing an:
 - (a) exceedance of any relevant criteria in schedule 3, the Proponent shall notify affected landowners in writing of the exceedance, and provide regular monitoring results to each affected landowner until the project is again complying with the relevant criteria; and
 - (b) an exceedance of the relevant air quality criteria in schedule 3, the proponent shall send a copy of the NSW Health fact sheet entitled "*Mine Dust and You*" (as may be updated from time to time) to the affected landowners and/or existing tenants of the land.

INDEPENDENT REVIEW

2. If an owner of privately-owned land considers the project to be exceeding the relevant criteria in schedule 3, then he/she may ask the Director-General in writing for an independent review of the impacts of the project on his/her land.

If the Director-General is satisfied that an independent review is warranted, then within 2 months of the Director-General's decision the Proponent shall:

- (a) commission a suitably qualified, experienced and independent expert, whose appointment has been approved by the Director-General, to:
 - consult with the landowner to determine his/her concerns;
 - conduct monitoring to determine whether the project is complying with the relevant criteria in schedule 3; and
 - if the project is not complying with these criteria, then identify the measures that could be implemented to ensure compliance with the relevant criteria; and
 - (b) give the Director-General and landowner a copy of the independent review.
3. If the independent review determines that the project is complying with the relevant criteria in schedule 3, then the Proponent may discontinue the independent review with the approval of the Director-General.

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

- (a) implement all reasonable and feasible mitigation measures, in consultation with the landowner and appointed independent expert, and conduct further monitoring until the project complies with the relevant criteria; or
- (b) secure a written agreement with the landowner to allow exceedances of the relevant criteria, to the satisfaction of the Director-General.

SCHEDULE 5 ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

ENVIRONMENTAL MANAGEMENT

Environmental Management Strategy

1. The Proponent shall prepare and implement an Environmental Management Strategy for the project to the satisfaction of the Director-General. This strategy must:
 - (a) be submitted to the Director-General for approval with 6 months of the date of this approval;
 - (b) provide the strategic framework for environmental management of the project;
 - (c) identify the statutory approvals that apply to the project;
 - (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project;
 - (e) describe the procedures that would be implemented to:
 - keep the local community and relevant agencies informed about the operation and environmental performance of the project;
 - receive, handle, respond to, and record complaints;
 - resolve any disputes that may arise during the course of the project;
 - respond to any non-compliance; and
 - respond to emergencies; and
 - (f) include:
 - copies of any strategies, plans and programs approved under the conditions of this approval; and
 - a clear plan depicting all the monitoring required to be carried out under the conditions of this approval.

Adaptive Management

2. The Proponent shall assess and manage project-related risks to ensure that there are no exceedances of the criteria and/or performance measures in schedule 3. Any exceedance of these criteria and/or performance measures constitutes a breach of this approval and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation.

Where any exceedance of these criteria and/or performance measures has occurred, the Proponent shall, at the earliest opportunity:

- (a) take all reasonable and feasible measures to ensure that the exceedance ceases and does not recur;
- (b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and
- (c) implement remediation measures as directed by the Director-General, to the satisfaction of the Director-General.

Management Plan Requirements

3. The Proponent shall ensure that the Management Plans required under this approval 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 project or any management measures;
 - (c) a description of the measures that would 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 project; and
 - effectiveness of any management measures (see (c) above);

- (e) a contingency plan to manage any unpredicted impacts and their consequences;
- (f) a program to investigate and implement ways to improve the environmental performance of the project 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.

Note: The Director-General may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.

Annual Review

- 4. By the end of March each year, the Proponent shall review the environmental performance of the project to the satisfaction of the Director-General. This review must:
 - (a) describe the development (including rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year;
 - (b) include a comprehensive review of the monitoring results and complaints records of the project over the previous calendar year, which includes a comparison of these results against:
 - the relevant statutory requirements, limits or performance measures/criteria;
 - the monitoring results of previous years; and
 - the relevant predictions in the EA;
 - (c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
 - (d) identify any trends in the monitoring data over the life of the project;
 - (e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and
 - (f) describe what measures will be implemented over the current calendar year to improve the environmental performance of the project.

Revision of Strategies, Plans & Programs

- 5. Within 3 months of the submission of an:
 - (a) annual review under condition 4 above;
 - (b) incident report under condition 7 below;
 - (c) audit report under condition 9 below; and
 - (d) any modifications to this approval,the Proponent shall review, and if necessary revise, the strategies, plans, and programs required under this approval to the satisfaction of the Director-General.

Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the project.

Community Consultative Committee

- 6. The Proponent shall establish and operate a Community Consultative Committee (CCC) for the project to the satisfaction of the Director-General. This CCC must be operated in general accordance with the *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects* (Department of Planning, 2007, or its latest version), and be operating within four months of the date of this approval.

Notes:

- *The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Proponent complies with this approval.*
- *In accordance with the guideline, the Committee should comprise an independent chair and appropriate representation from the Proponent, Council, recognised environmental groups and the local community.*

REPORTING

Incident Reporting

7. The Proponent shall notify, at the earliest opportunity, the Director-General and any other relevant agencies of any incident that has caused, or threatens to cause, material harm to the environment. For any other incident associated with the project, the Proponent shall notify the Director-General and any other relevant agencies as soon as practicable after the Proponent becomes aware of the incident. Within 7 days of the date of the incident, the Proponent shall provide the Director-General and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.

Regular Reporting

8. The Proponent shall provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval.

INDEPENDENT ENVIRONMENTAL AUDIT

9. Within a year of the commencement of development on site under this approval, and every 3 years thereafter, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:
 - (a) be conducted by suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General;
 - (b) include consultation with the relevant agencies;
 - (c) assess the environmental performance of the project and whether it is complying with the relevant requirements in this approval and any relevant EPL and/or Water License (including any assessment, plan or program required under these approvals);
 - (d) review the adequacy of any approved strategy, plan or program required under the these approvals; and
 - (e) recommend measures or actions to improve the environmental performance of the project, and/or any assessment, plan or program required under these approvals.

Note: This audit team must be led by a suitably qualified auditor and include experts in any fields specified by the Director-General.

10. Within 3 months of commissioning this audit, or as otherwise agreed by the Director-General, the Proponent shall submit a copy of the audit report to the Director-General, together with its response to any recommendations contained in the audit report.

ACCESS TO INFORMATION

11. Within 4 months of the date of this approval, the Proponent shall:
 - (a) make the following information publicly available on its website:
 - the EA;
 - current statutory approvals for the project;
 - approved strategies, plans or programs;
 - a summary of the monitoring results of the project, which have been reported in accordance with the various plans and programs approved under the conditions of this approval;
 - a complaints register, updated on a quarterly basis;
 - minutes of CCC meetings;
 - copies of any annual reviews (over the last 5 years);
 - any independent environmental audit, and the Proponent's response to the recommendations in any audit; and
 - any other matter required by the Director-General; and
 - (b) keep this information up-to-date, to the satisfaction of the Director-General.

APPENDIX 1 PROJECT SITE & LAND REFERENCE PLAN

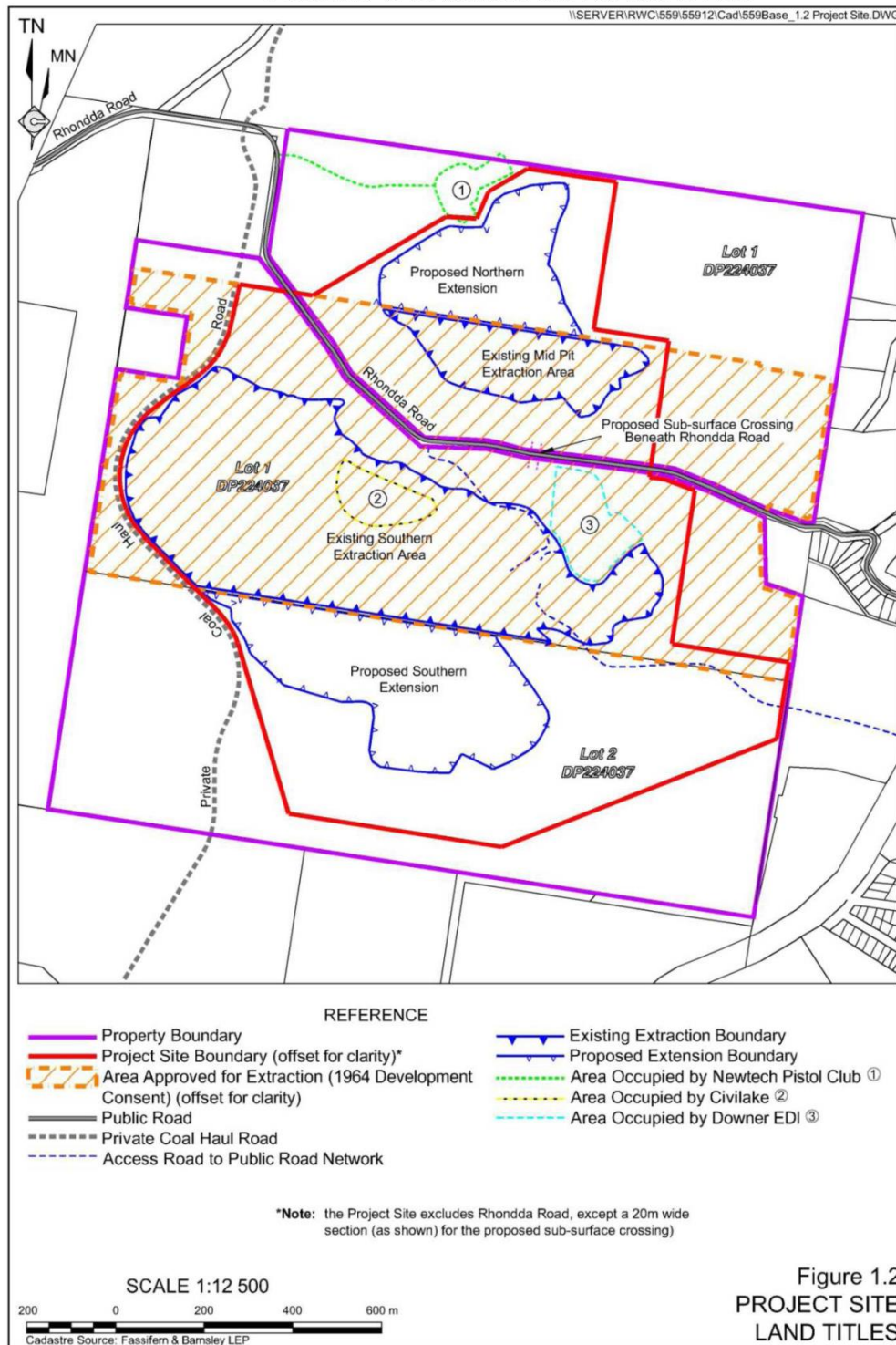


Figure 1: Property Descriptions (Lot and DP)

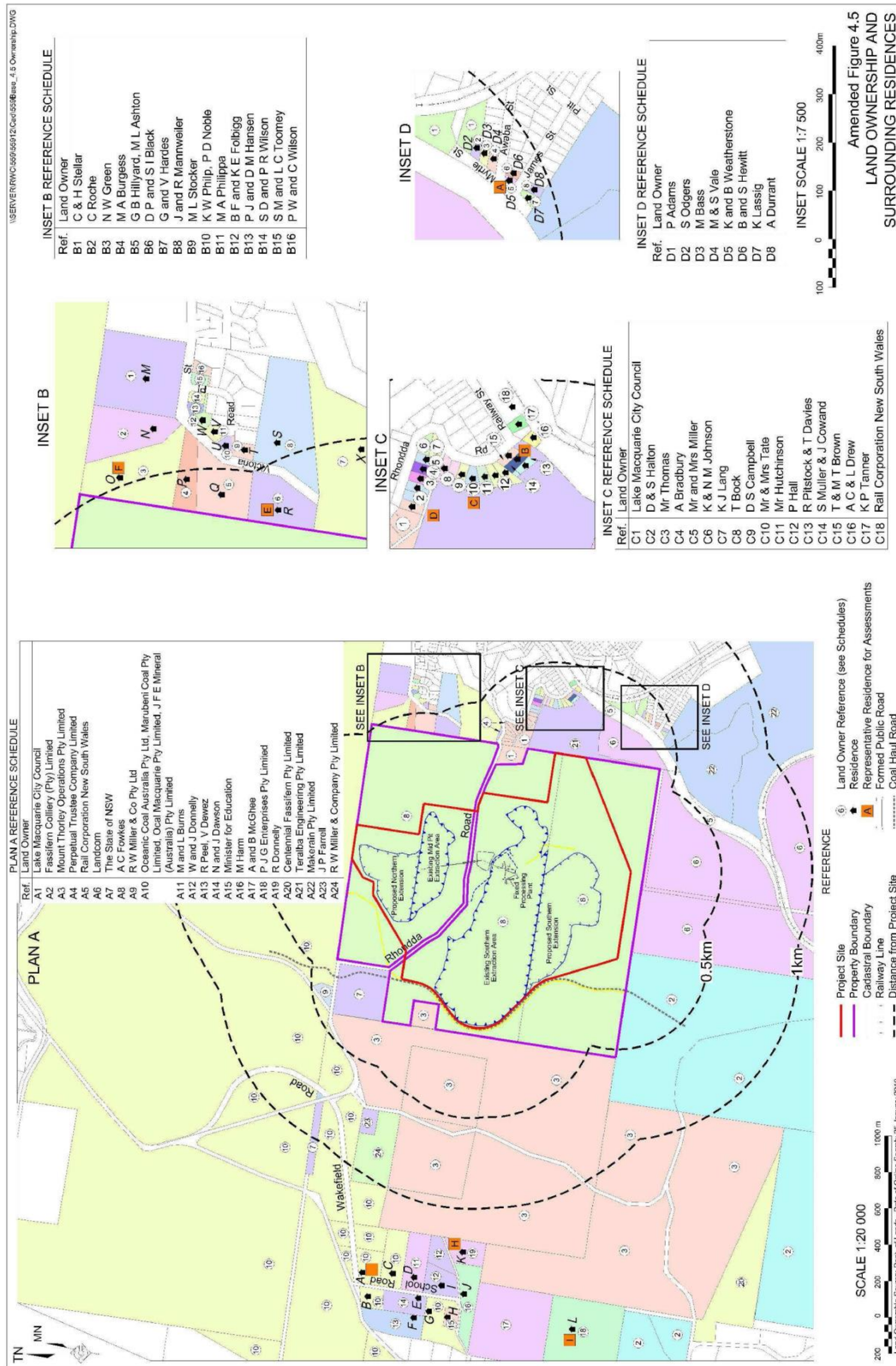
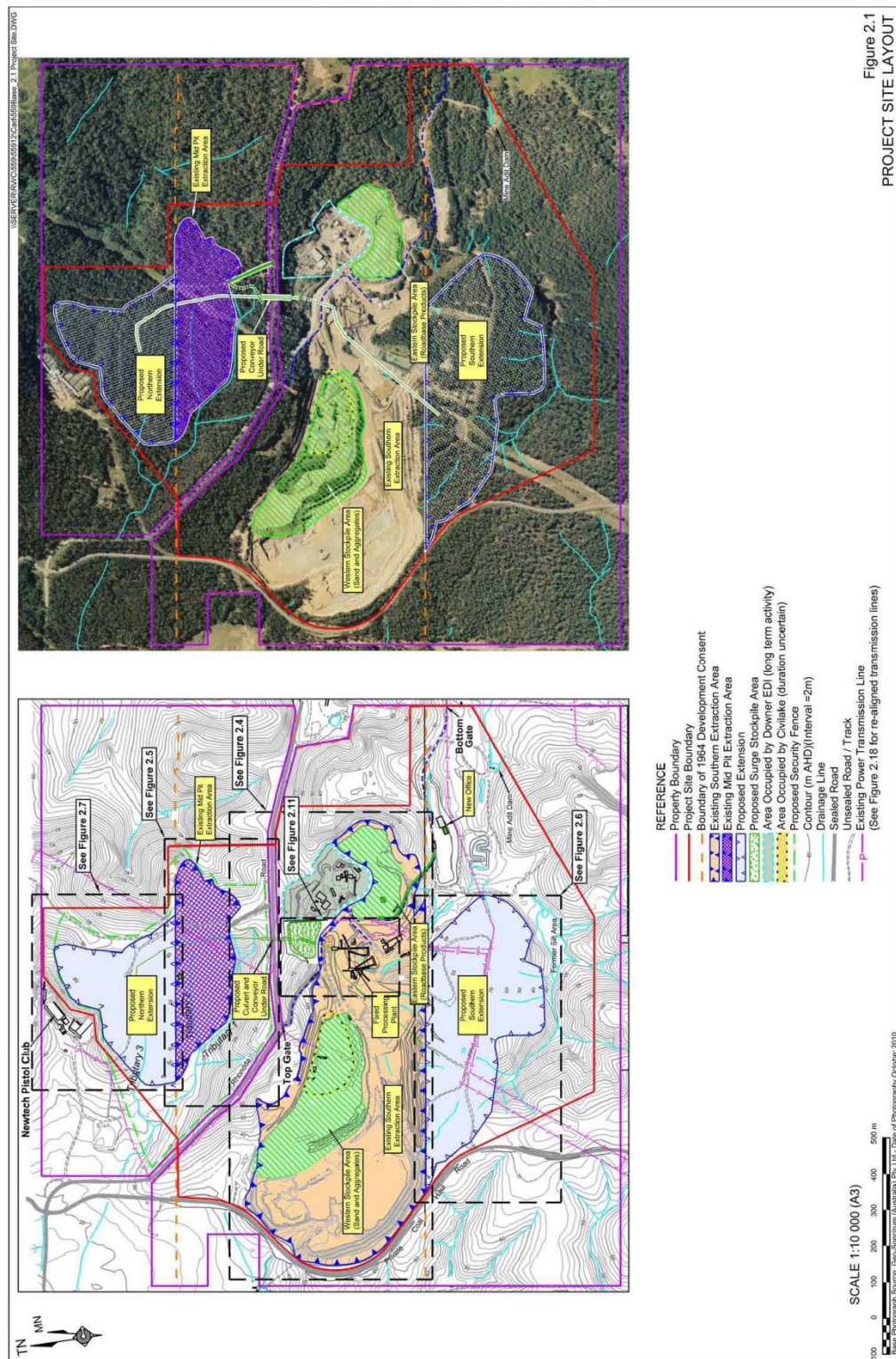


Figure 2: Site and Nearest Residential Receivers

APPENDIX 2 PROJECT LAYOUT PLANS



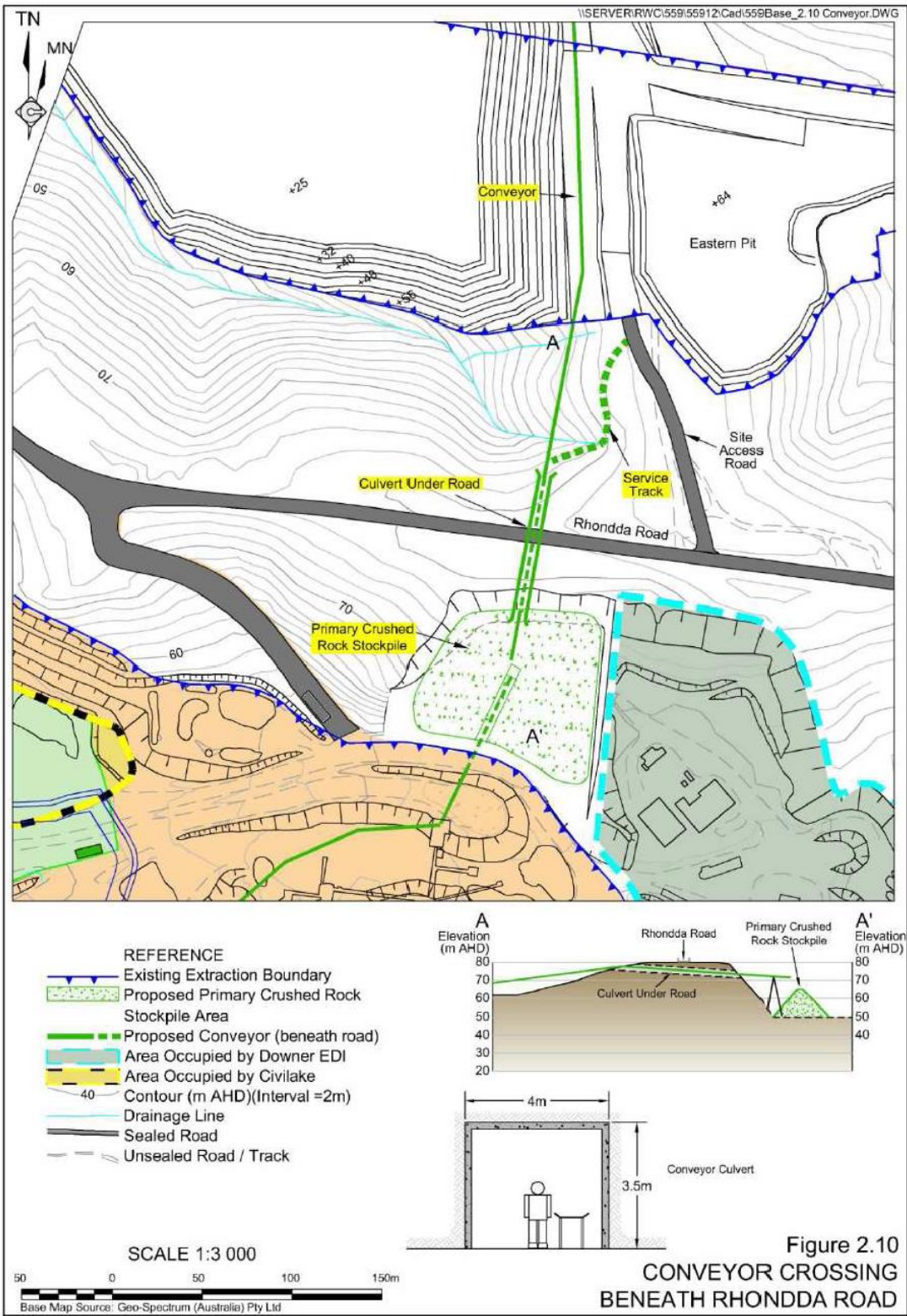


Figure 4: Conveyor crossing beneath Rhondda Road

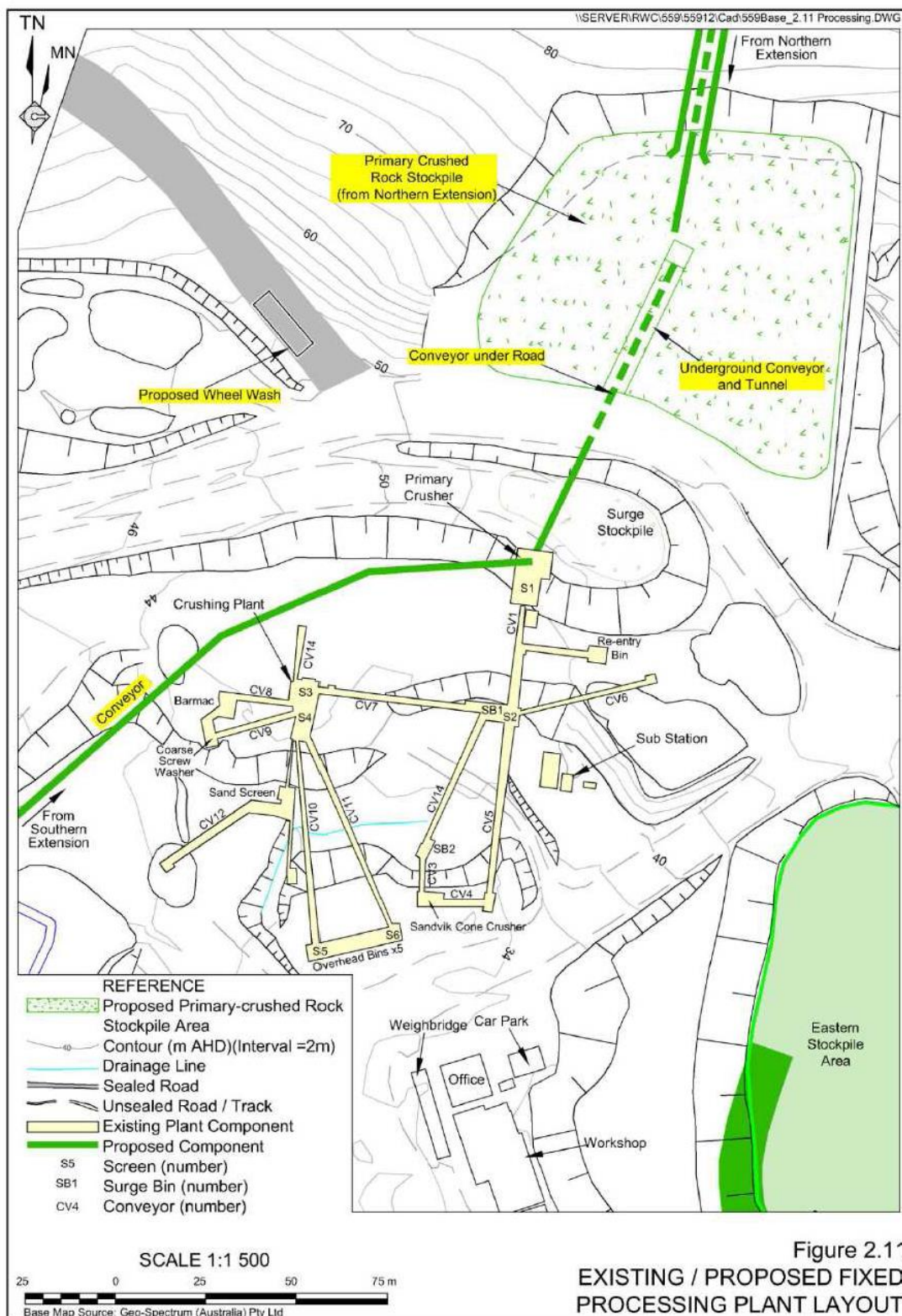


Figure 5: Existing / Proposed Fixed Processing Plant Layout

**APPENDIX 3
STATEMENT OF COMMITMENTS**

Desired Outcome	Action	Timing
1. Activities and Operations		
All approved activities are undertaken in the area(s) nominated on the approved plans and figures (unless moved slightly to avoid individual trees).	Clearly mark the boundary of each area of activity, i.e. the boundary of the Southern and Northern Extensions.	Prior to the commencement of quarrying operations.
2. Operating Hours		
Management of operations in accordance with the approved operating hours. (Note: No activities and operations are proposed on public holidays).	2.1 Undertake extraction and processing activities south of Rhondda Road between 6:00am and 8:00pm on Monday to Fridays and 6:00am to 2:00pm on Saturdays.	During operations.
	2.2 Undertake extraction and processing activities north of Rhondda Road between 7:00am and 8:00pm on Monday to Friday and 7:00am and 2:00pm on Saturdays.	During operations.
	2.3 Undertake product transportation activities 24hrs/day between 4:00am Monday to 6:00pm Saturday.	During operations.
	2.4 Undertake all blasts between 10:00am and 4:00pm Monday to Friday.	During operations.
	2.5 Restrict activities undertaken outside the hours identified in Commitments 2.1 and 2.2 to routine, low noise activities such as oil changes, minor welding and servicing of equipment.	During operations.
	2.6 The nominated operating hours above in Action 2.3 do not apply to the delivery of material if that material is requested by police, any emergency service or Council. Details of the circumstances of these requests would be provided to the Director-General and EPA within a reasonable period of the request(s).	During operations.
3. Waste Management		
Minimisation of general waste creation and maximisation of recycling, wherever possible.	3.1 Place all paper and general wastes originating from the site office, together with routine maintenance consumables from the daily servicing of equipment in garbage bins located adjacent to the site office and workshop.	Ongoing.
	3.2 Segregate waste into recyclables and non-recyclable materials for removal by a licensed contractor.	Ongoing.
Minimisation of the potential risk of environmental impact due to waste creation, storage and/or disposal.	3.3 Organise the regular collection of industrial wastes.	Monthly or as needs basis.
	3.4 Store waste oils and greases within the workshop area in either self-bunding containers or within suitably contained areas.	Ongoing.

Desired Outcome	Action	Timing
4. Security and Safety		
All members of the public are safe when near Teralba Quarry.	4.1 Construct and maintain the perimeter fence around the Northern Extension.	Prior to commencement of clearing works.
	4.2 Maintain lockable gates at all entry/exit points. Lock gates outside of operational hours.	Ongoing.
	4.3 Erect security warning signs at strategic locations around and within the Project Site. The signs would identify the presence of earthmoving equipment, deep excavations and steep slopes.	Ongoing.
	4.4 Continue to induct employees in safe working practices and hold regular follow-up safety meetings and reviews.	Ongoing.
	4.5 Install bunds along the margins of all internal haul roads where those roads are positioned adjacent to steep slopes, adjacent to the boundary of the extraction area and adjacent to all other steep slopes.	Ongoing.
	4.6 Ensure all trucks from the Project Site are driven in a safe and courteous manner in accordance with Metromix's Driver Code of Conduct.	Ongoing.
5. Rehabilitation and Biodiversity Offset Management		
Create a stable final landform able to support a range of final land uses focused upon ecological corridors and ongoing industrial uses.	5.1 Retain 142.6ha of existing vegetation and remnant understorey vegetation as a legally protected biodiversity offset.	In perpetuity
Maintenance of long term ecological values within the Final Biodiversity Offset	5.2 Ensure that 142.6ha of retained vegetation within the Biodiversity Offset is legally protected through a Conservation Agreement pursuant to Section 69B of the <i>National Parks and Wildlife Act 1974</i> .	By 30 June 2014.
6. Groundwater		
Prevention of groundwater contamination.	6.1 Securely store all hydrocarbon products within designated and bunded areas – see Action 16.11.	Ongoing
	6.2 Refuel and maintain all earthmoving equipment within designated areas – see Action 16.11.	Ongoing
	6.3 Prepare a Groundwater Management Plan, including trigger levels for actions – see Action 16.3.	Ongoing
	6.4 Prepare a Spill Management Plan to address potentially significant hydrocarbon spills – see Action 16.11.	Ongoing
Continuous monitoring of groundwater throughout the life of the Project.	6.5 Develop and implement a monitoring program as part of the Soil and Water Management Plan.	Within 6 months of the receipt of project approval.

Desired Outcome	Action	Timing
6. Groundwater (Cont'd)		
Continuous monitoring of groundwater throughout the life of the Project. (Cont'd)	6.6 Monitor water quality at the Mine Adit Dam for pH levels, electrical conductivity, suspended solids, and oil and grease.	Monthly (subject to review).
	6.7 Record flows/discharges from the Mine Adit Dam as well as quarry water usage.	Continuous.
	6.8 Review monitoring results to identify trends which may indicate impacts and allow mitigation measures to be implemented, if required.	Annually.
	6.9 Ensure all monitoring data is incorporated into each Annual Environment Management Report for the Teralba Quarry.	Annually.
7. Surface Water		
Maintenance of surface water quality.	7.1 Conduct site clearing activities in accordance with the Blue Book (Landcom, 2004) guidelines for erosion and sediment control.	Ongoing.
	7.2 Establish a regular monitoring program to review the effectiveness of all erosion and sediment control mitigation measures.	Prior to commencement of clearing works.
	7.3 Incorporate an update of the current Water Management Plan (GHD, 2007) into the Soil and Water Management Plan to take into account the proposed Southern and Northern Extensions.	Within 6 months of date of project approval.
	7.4 Ensuring any off-site discharge is monitored and reported in accordance with Environment Protection Licence 536.	As Required.
	7.5 Conduct site clearing activities in accordance with the Blue Book (Landcom, 2004) guidelines for erosion and sediment control.	Ongoing.
	7.6 Establish a regular monitoring program to review the effectiveness of all erosion and sediment control mitigation measures.	Prior to commencement of clearing works.
	7.7 Incorporate an update of the current Water Management Plan (GHD, 2007) into the Soil and Water Management Plan to take into account the proposed Southern and Northern Extensions.	Within 6 months of date of project approval.
	7.8 Ensuring any off-site discharge is monitored and reported in accordance with Environment Protection Licence 536.	As Required.
Capture of sediment-laden water flows from project-related disturbance.	7.9 Provide sufficient storage during all stages of works to prevent discharge off-site of sediment-laden water in accordance with the Blue Book (Landcom, 2004) guidelines for sediment retention dams.	Ongoing.
	7.10 Inspect all sediment dams and maintain as necessary (keep records).	Monthly or following rainfall exceeding 100mm in 2 days.

Desired Outcome	Action	Timing
7. Surface Water (Cont'd)		
Capture of sediment-laden water flows from project-related disturbance. (Cont'd)	7.11 Remove accumulated sediment from sediment dams when storage capacity reduced by 25% - document activity in maintenance records.	Following routine inspection.
Prevention of hydrocarbon contamination of water on the Project Site.	7.12 Securely store all hydrocarbon products within designated and bunded areas.	Ongoing.
	7.13 Refuel all earthmoving equipment within designated areas (with spill control).	Ongoing.
Separation of groundwater and surface water flows	7.14 Construct a drain from Dam B directly to the nearby watercourse to divert surface flows away from the Mine Adit Dam.	Within 3 months of Project Approval or following advice from NOW whichever occurs sooner.
8. Terrestrial Flora and Fauna		
Minimisation of impacts on flora and fauna within the Project Site.	8.1 Prepare and implement a Site Vegetation Management Plan (as part of the overall Landscape Management Plan – see Commitment 16.7).	Within 12 months of the receipt of project approval.
	8.2 Clearly define the <i>Tetratheca juncea</i> sub-populations to be retained.	For the life of the Project.
	8.3 Continue the established rehabilitation practices in appropriate areas.	Ongoing.
	8.4 Retain the extracted topsoil and vegetation within the immediate area of <i>Tetratheca juncea</i> populations and relocate to easement locations.	During clearing.
	8.5 Transfer biomass directly from vegetation clearing operations to rehabilitation areas. If it is not possible to transfer directly, stockpile material.	Ongoing.
	8.6 Control noxious weeds at all times in accordance with a Weed Management Plan (to be incorporated into the site Vegetation Management Plan).	Following approval of Landscape Management Plan (see Action 16.7) and then ongoing.
	8.7 Install species specific nesting boxes for fauna species displaced following clearing activities, re 20 boxes for microbats, 20 boxes for Little Lorikeets and 30 boxes for Sugar Gliders.	Prior to commencement of activities in the Northern Extension.
9. Traffic and Transport		
Transport operations are undertaken with minimal impact on other road users and residents.	9.1 Limit laden quarry-related truck movement numbers through Teralba: — 9 per hour; and — 85 per day.	Ongoing.
	9.2 Ensure that no product trucks from Teralba Quarry travel eastward through Teralba between 6:00pm and 6:00am.	

Desired Outcome	Action	Timing
9. Traffic and Transport (Cont'd)		
	<p>9.3 Ensure all vehicles exiting the Project Site pass through a wheel-wash facility to remove dust generating material.</p> <p>9.4 Provide a contribution to Lake Macquarie City Council during the ongoing life of the quarry if a suitable project approval is granted.</p> <p>9.5 Prepare, implement and enforce 'Drivers Code of Conduct' addressing:</p> <ul style="list-style-type: none"> – times that trucks can operate, especially through Teralba – speed limits; – duty of care to other drivers and pedestrians; – complaints procedure; – covering loads; and – avoidance of exhaust brakes. 	<p>Prior to removal of product from within the extensions.</p> <p>Quarterly.</p> <p>Prepare within 4 months of receipt of project approval.</p>
Transport operations are undertaken with minimal impact on other road users and residents. (Cont'd)	<p>9.6 Undertake all transport activities in accordance with the project approval and Environment Protection Licence 536.</p> <p>9.7 Ensure that only trucks owned by Metromix, or its shareholders and those of accredited contractors using airbag suspension and other noise controls are used to transport products between 10:00pm and 6:00am.</p> <p>9.8 Ensure that all project-related vehicles are regularly serviced to ensure engine efficiencies are maintained at a standard that limits truck noise.</p>	Ongoing.
10. Noise and Vibration		
The Project is designed to minimise and/or mitigate noise emissions received at surrounding residences and other sensitive receivers.	<p>10.1 Ensure all mobile earthmoving equipment used on site is not fitted with high-frequency reversing alarms and is regularly serviced.</p> <p>10.2 Ensure all earthmoving equipment used on site (including temporary equipment) have sound power levels and frequency spectra consistent with those nominated in Section 6 of Spectrum Acoustics (2011).</p>	<p>Ongoing.</p> <p>When new or temporary equipment is brought to site.</p>
All activities are undertaken in such a manner as to reduce the noise level generated and minimise impacts on surrounding landholders and/or residents.	<p>10.3 Ensure that the eastern side of the Southern Extension is extracted in such a manner that the active extraction face is retained on the eastern face thereby providing a topographic barrier between operating earthmoving equipment and residences to the east.</p> <p>10.4 Construct a 5m high bund on the eastern edge of the Mid Pit Extraction Area.</p>	<p>Ongoing throughout the extraction operations in the Southern Extension area.</p> <p>During Mid Pit Extraction operations.</p>

Desired Outcome	Action	Timing
10. Noise and Vibration (Cont'd)		
All activities are undertaken in such a manner as to reduce the noise level generated and minimise impacts on surrounding landholders and/or residents. (Cont'd)	10.5 Limit transportation noise by ensuring: <ul style="list-style-type: none"> – all transport vehicles comply with the RTA's noise limits at all times; – only trucks fitted with airbag suspension be used to transport products from the quarry between 10:00pm and 6:00am; and – drivers comply with Code of Conduct. 	Ongoing
	10.6 Commission a noise monitoring program that comprises: <ul style="list-style-type: none"> – attended noise monitoring for the Southern and Northern Extensions; and – General noise monitoring. 	Ongoing
		Within the first 3 months of operations in the Southern and Northern Extensions
		Biannually for the first year of operation in the Southern and Northern Extensions, and further monitoring when substantiated complaints are filed.
	10.7 Include a summary of all noise monitoring results in the AEMR.	Annually.
	10.8 Ensure all trucks departing the Project Site via the bottom gate travel at speeds <15km/hr.	Ongoing.
	10.9 Review blast designs and modify, if required.	When blasting within 500m of any residence.
11. Air Quality		
Site activities are undertaken without exceeding DECCW air quality criteria or goals.	11.1 Minimise clearing ahead of extraction activities	Ongoing.
	11.2 Minimise the construction of minor roads and access tracks for soil stripping, extraction operations and rehabilitation.	Ongoing.
	11.3 Operate a water truck to manage dust suppression during periods of extended dry weather and/or high winds, or when dust nuisance has the potential to occur as a result of quarrying activities.	Ongoing.
	11.4 Stockpile material in sheltered locations away from sensitive receptors	Ongoing.
	11.5 Shield and/or suppress dust on conveyors and transfer points.	Ongoing.

Desired Outcome	Action	Timing
11. Air Quality (Cont'd)		
Site activities are undertaken without exceeding DECCW air quality criteria or goals. (Cont'd)	11.6 Limit internal road dust lift off by: <ul style="list-style-type: none"> – surfacing (and grading local) roads with appropriate materials; – enforcing a 30km/hr speed limit on all internal roads; – limiting load sizes to ensure that product does not extend over truck sidewalls; and – avoiding spillage during truck loading. 	Ongoing.
	11.7 Minimise dump heights from trucks, front-end loaders and conveyors.	Ongoing.
	11.8 Schedule blasts so that they do not occur during high wind situations.	Ongoing.
	11.9 Cease or modify activities on dry windy days when dust plumes are visible.	Ongoing.
	11.10 Water exposed areas not covered by gravel under dry and windy conditions when dust plumes are visible.	Ongoing.
	11.11 Adopt a complaints management system where all complaints are dealt with through investigation and implementation of corrective treatments.	Ongoing.
	11.12 Minimise truck queuing, unnecessary idling of trucks and unnecessary trips through logistical planning, where possible.	Ongoing.
	11.13 Ensure the on-site wheel wash reduces mud tracking along Railway Street.	Ongoing.
	11.14 Remove any mud tracking on Rhondda Road as a result of quarry movements.	Ongoing.
	11.15 Prepare and implement a Dust Management Plan for the quarry.	Within 4 months of the receipt of project approval.
Reduce the impact of Greenhouse Gas emissions from project related activities.	11.16 Minimise the impacts of greenhouse gases relating from diesel consumption by: <ul style="list-style-type: none"> – minimising the use of haul trucks through use of an overland conveyor; – reduce vehicle idling time; – maintaining optimum tyre pressures; and – the optimisation of haul routes to reduce transportation distance from the extraction areas. 	Ongoing.

Desired Outcome	Action	Timing
11. Air Quality (Cont'd)		
Record and monitor the local environment regarding dust impacts.	11.17 Minimise the impacts of greenhouse gases relating from electricity consumption by: <ul style="list-style-type: none"> ensuring the most efficient crusher and other processing plant technology is used; regularly inspecting the daily operations of lighting; and implementing solar-powered lighting, where possible. 	Ongoing.
	11.18 Continue to monitor dust impacts through; <ul style="list-style-type: none"> the existing five deposited dust gauges; and on-site meteorological monitoring to record relevant parameters. 	Ongoing.
12. Visibility		
Reduce the impact of the Project on the visual amenity of private and public vantage points.	12.1 Ensure all vegetation is maintained outside the Southern and Northern Extensions to provide long term shielding.	Ongoing.
	12.2 Sequence extraction activities in the Southern Extension to limit exposure of western faces until vegetation is well established.	Years 3 to 11 (approx).
	12.3 Progressively establish vegetation on extraction faces at 50mAHD and above in western section of the Southern Extension.	Years 3 to 11 (approx).
	12.4 Advance extraction in the eastern section of the Southern Extension in strips parallel to north-south faces.	Years 22 to 30 (approx).
	12.5 Include Annual photographs of the progressive rehabilitation of quarry benches in each AEMR.	
13. Heritage		
Provide appropriate protection to existing and future identified Aboriginal artefacts.	13.1 Halt all works in the immediate area if cultural objects are found and contact a suitably qualified archaeologist and Aboriginal community representative.	Ongoing.
	13.2 Halt all works in the immediate area if human remains are found and contact NSW Police, Aboriginal community representative and OEH.	Ongoing.
	13.3 Maintain reasonable efforts to avoid impacts to Aboriginal cultural heritage values at all stages of the development works	Ongoing.
	13.4 Invite representatives of Local Aboriginal stakeholders to monitor initial ground disturbance activities.	Prior to soil stripping campaigns.
	13.5 Develop an Aboriginal Culture Educational Program for the induction of all personnel and contractors involved in the construction activities on site. Records are to be kept of which staff/contractors were inducted and when for the duration of the project. The program would be developed and implemented in collaboration with the local Aboriginal community.	Prior to first soil stripping campaign and then ongoing.

Desired Outcome	Action	Timing
13. Heritage (Cont'd)		
Provide appropriate protection to any non-Aboriginal artefacts identified in operational areas.	13.6 Halt all works in the immediate area if any non-Aboriginal artefacts are found and notify the Heritage Council of NSW.	Ongoing
14. Soils		
Prevent excessive soil deterioration during stripping and transportation.	14.1 Undertake soil stripping within slightly moist condition and avoid excessively wet or dry conditions. 14.2 Place stripped soil directly onto reshaped overburden or dedicated stockpile area. 14.3 Remove soil through grading or pushing soil into windrows with graders or dozers for later collection for loading into rear dump trucks by front-end loaders.	During soil stripping operations. During soil stripping operations. During stripping and transport operations.
Retention of soil viability until use in rehabilitation.	14.4 Leave the surface of soil stockpiles in as coarsely structured a condition as possible in order to promote infiltration and minimise erosion until vegetation is established. 14.5 Maintain a maximum stockpile height of 3m. Clayey soils would be stored in lower stockpiles for shorter periods of time compared to coarser textured sandy soils. 14.6 Seed soil stockpiles with sterile cover crop (and limited fertiliser) as soon as possible where stockpiling is planned. 14.7 Maintain an inventory of available soil to ensure adequate topsoil materials are available for planned rehabilitation activities. 14.8 Assess soil stockpiles for weed infestation to determine if stockpiles require weed removal applications before being re-spread onto reshaped overburden.	Immediately following stockpile construction. During staged Rehabilitation stages. Immediately following stockpile construction. Ongoing. During staged Rehabilitation stages.
Achieve a good soil cover for long term rehabilitation.	14.9 Spread topsoil to a minimum depth range of 0.1 m (steep slopes) to 0.2m (flatter areas). Specific topsoil respreading depths for different post mining landform elements would be specified in the Landscape Management Plan.	During staged Rehabilitation stages.
15. Bushfire Hazard		
Avoidance of any fires on site, particularly in native vegetation.	15.1 Adopt appropriate controls during re-fuelling. 15.2 Ensure fire extinguishers are fitted to all site vehicles. 15.3 Incorporate a Bushfire Management Plan in the overall Emergency Response Plan for the quarry.	Ongoing. Ongoing. Within 6 months of the receipt of project approval.

Desired Outcome	Action	Timing
16. Documentation and Further Approvals		
To provide site personnel with the necessary guidance on the expectations of Metromix management and the NSW Government and LMCC to achieve the required level of environmental performance.	16.1 Environmental Management Strategy.	Within 6 months of the receipt of project approval.
	16.2 Environmental Management Plan (EMP). Focus on the next 5 years.	Within 6 months of receipt of project approval.
	16.3 Soil and Water Management Plan. (Incorporating management, monitoring and contingency plans for soils, surface water and groundwater).	Within 6 months of the receipt of project approval.
	16.4 Noise and Blast Management Plan. (Incorporating a blast and noise monitoring component.)	Within 4 months of the receipt of project approval.
	16.5 Air Quality Management Plan. (Incorporating an air quality monitoring component.)	Within 4 months of receipt of project approval.
	16.6 Transport Management Plan.	Within 4 months of receipt of project approval.
	16.7 Landscape Management Plan. (Incorporating a Vegetation Management Plan for site rehabilitation and the on-site Biodiversity offset.)	Within 12 months of the receipt of project approval.
	16.8 Extraction Management Plan (for operations within 5 vertical metres of the Great North Coal Seam).	Prior to commencing any extraction within 5 vertical metres of the Great Northern Coal Seam.
	16.9 Heritage Management Plan.	Within 4 months of the receipt of project approval.
	16.10 Annual Environmental Management Report (AEMR).	Annually (by 31 March each year covering the previous calendar month) .
	16.11 Hydrocarbon Management Plan. (Incorporating the storage and use of fuel and spill management.)	Within 6 months of receipt of approval.
	16.12 Annual Production Statistics to the DTIRIS (Division of Resources and Energy).	Annually (by 31 July).
	16.13 Geotechnical Assessments and relevant design drawings for site structures and buildings (for submission to the Mines Subsidence Board).	Prior to construction of site infrastructure and buildings.

Desired Outcome	Action	Timing
16. Documentation and Further Approvals (Cont'd)		
Ensure planning is undertaken sufficiently ahead of quarry closure to achieve a smooth transition to the subsequent land uses	16.14 Prepare a Quarry Closure and Final Land Use Plans for the land within the Project Site that is to be developed for purposes other than nature conservation. The Plans would be prepared in consultation with the Lower Macquarie City Council	3 years prior to cessation of extraction north of Rhondda Road (approximately 2031) and south of Rhondda Road (approximately 2039).

APPENDIX 4 TRANSPORT ROUTES

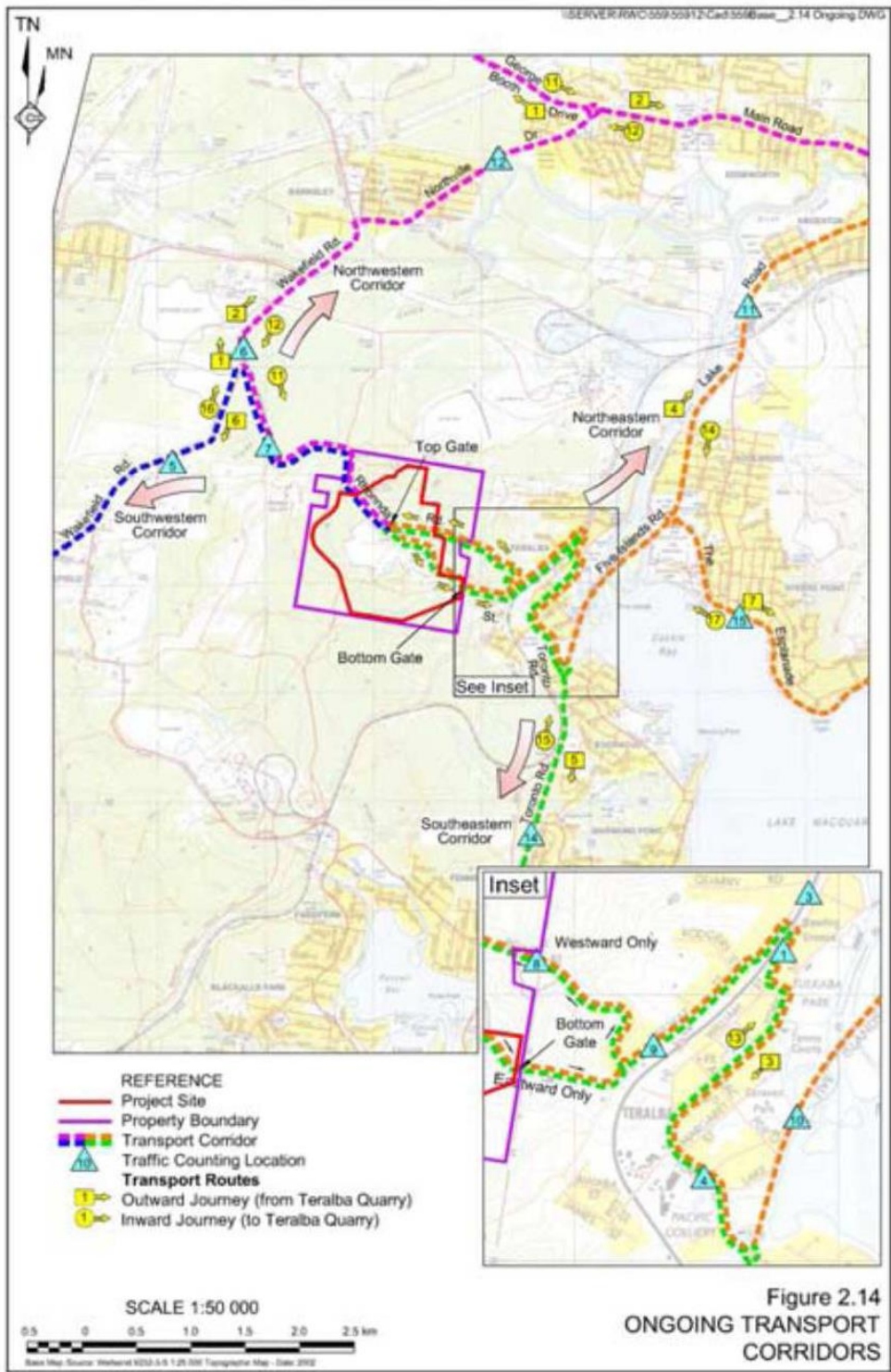


Figure 6: Transport Routes

APPENDIX 5
BIODIVERSITY OFFSET STRATEGY

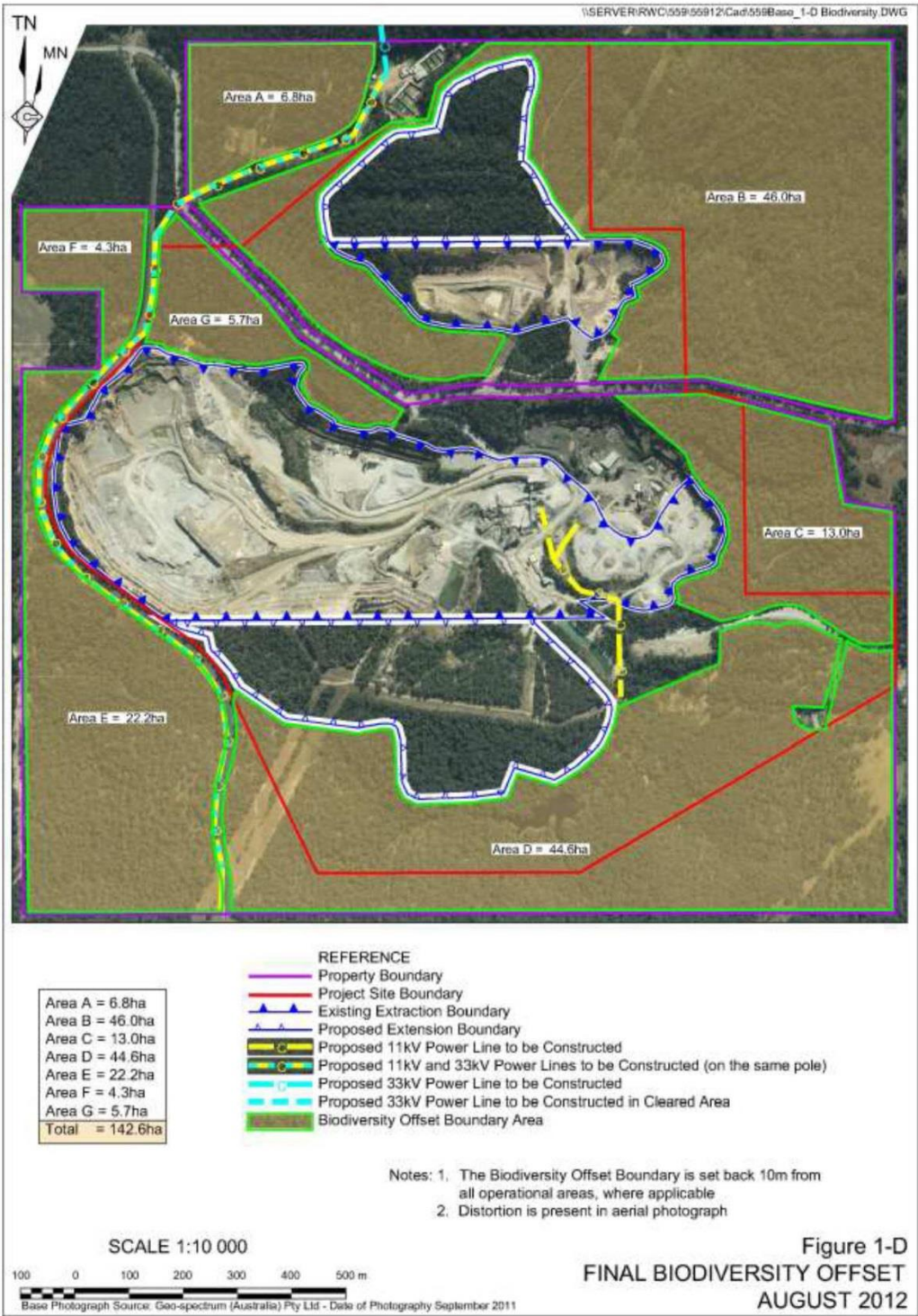


Figure 7: Biodiversity Offset

APPENDIX 6

REHABILITATION STRATEGY

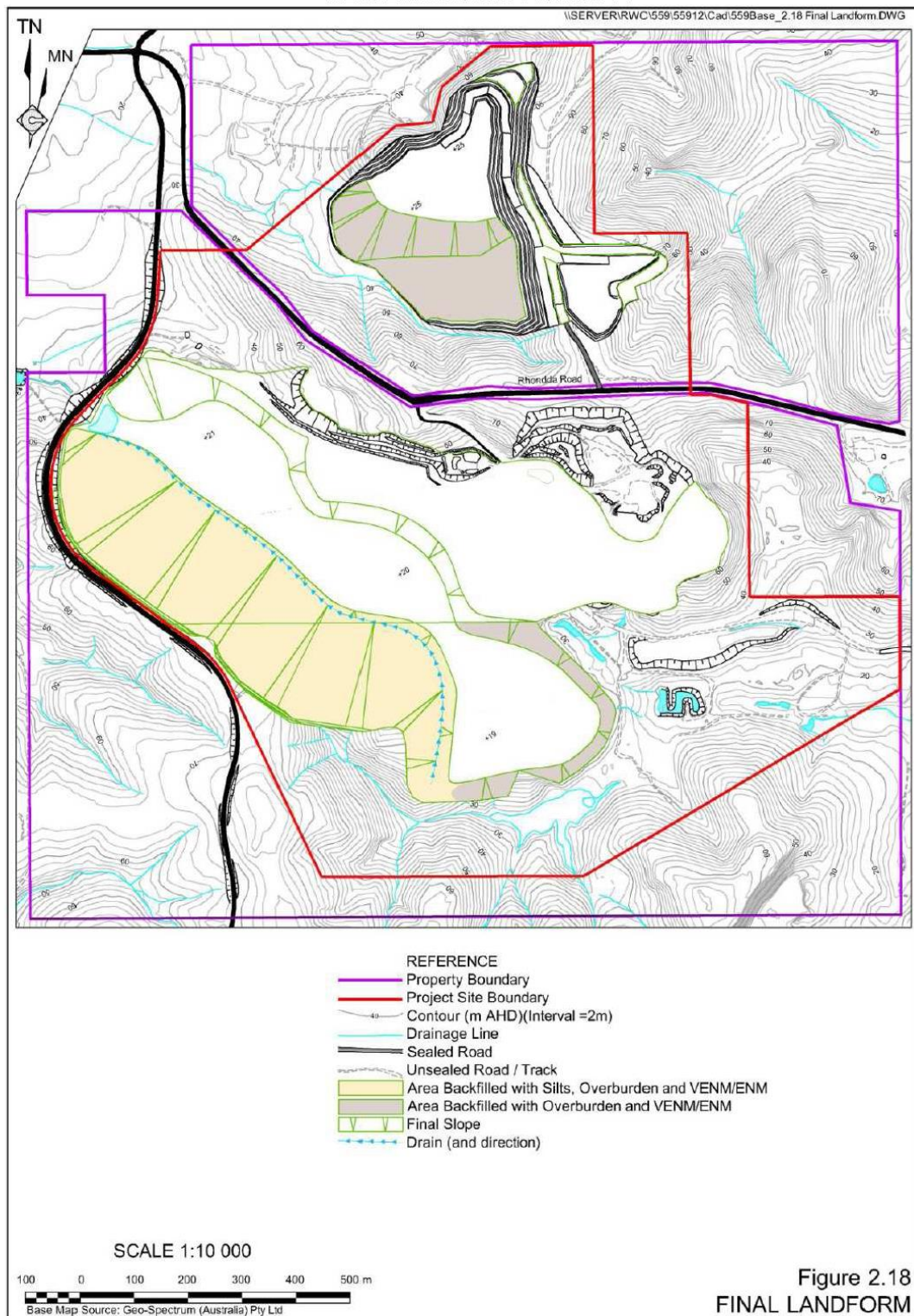


Figure 8: Indicative Final Landform

Appendix 2

Monitoring Data and Records

(Total No. of pages including blank pages = 140)

2015-2016 Annual Return for Extractive Materials.....	A2-3
2016 Transportation Movements	A2-5
2016 Air Quality Monitoring.....	A2-65
2016 Surface Water Monitoring	A2-68
2016 Daily Rainfall Monitoring	A2-74
2016 Noise Monitoring Report	A2-75
2016 Nesting Box Monitoring Report	A2-95

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Department
of Industry
Resources & Energy

Form S 1

RETURN FOR EXTRACTIVE MATERIALS: YEAR ENDED 30 JUNE 2016

Quote RIMS ID in all correspondence
Quarry Id: 1118 Rims ID: 400066

Operators Name: METROMIX PTY LTD
Address: PO BOX 1295
PARRAMATTA
NSW 2124

Email: bills@metromix.com.au,

Quarry Name: TERALBA QUARRY
Quarry Location: RHONDDA RD

Inquiries please telephone:
(02) 4931 6435
Completed or Nil Returns
Email –
mineral.royalty@industry.nsw.gov.au

Please amend name, postal
address and location of mine or
quarry if incorrect or incomplete

The return should be completed and forwarded to the STATISTICAL OFFICER, NSW DEPARTMENT OF INDUSTRY RESOURCES AND ENERGY, PO BOX 344, HUNTER REGION MAIL CENTRE NSW 2310 on or before 30 November, 2016. If completion of the return is unavoidably delayed, an application for extension of time should be requested before the due date. If no work was done during the year, a NIL return must be forwarded.

The return should relate to the above quarrying establishment, and should cover the operations of quarrying and treatment (such as crushing, screening, washing etc.) carried out at or near the quarry. A return is required even if the operations are solely of a developmental nature, and whether the area being worked is held under a mining title or otherwise.

Zane West, Royalties and Advisory Services Manager

Please complete the following information to assist in identifying the location of the Quarry

Typical Geology Conglomerate
Nearest Town to Quarry Teralba
Local Council Name Lake Macquarie
Deposited Plan and Lot Number/s of Quarry Lots 1 & 2 DP 224037
Email Address of Operator Bills@metromix.com.au
Name of Owner or Licensee Metromix
Postal Address of Licensee PO Box 1295 Parramatta NSW 2124
Licence/Lease Number/s (if any)
From Mineral Resources NSW (Industry & Investment NSW) N/A
From Department of Lands or other Department N/A
If any output was obtained from land NOT held under licence from the above Departments, state the Name/s and Address/es of the Owners of the land Graeme Kenby

- To the best of my knowledge, the particulars which have been entered in this return are correct and no blank spaces have been left where figures should have been inserted.
- SIGNATURE of PROPRIETOR or MANAGER [Signature] DATE 22/10/16
- PERSON to be contacted if queries arise regarding this return William Sanderson
- NAME (Block letters) William Sanderson Telephone 0418 479 087



SALES During 2015-2016

Production information may be published in aggregated form for statistical reporting. However, production data for individual operations is kept strictly confidential.

Product	Description	Quantity Tonnes
Virgin Materials		
• Crushed Coarse Aggregates		
Over 75mm		
Over 30mm to 75mm		
5mm to 30mm		
Under 5mm		
Natural Sand		
Manufactured Sand		
Prepared Road Base & Sub Base		
Other Unprocessed Materials		
Recycled Materials		
• Crushed Coarse Aggregates		
Over 75mm		
Over 30mm to 75mm		
5mm to 30mm		
Under 5mm		
Natural Sand		
Manufactured Sand		
Prepared Road Base & Sub Base	Recycled Roadbases	22194
Other Unprocessed Materials		
• River Gravel	Conglomerate	
Over 30mm		142124
5mm to 30mm		370675
Under 5mm		
• Construction Sand	Excluding Industrial	183905
• Industrial Sand		
Foundry, Moulding		
Glass		
Other (Specify)		
• Dimension Stone	Building, Ornamental, Monumental	
Quarried in Blocks		
Quarried in Slabs		
• Decorative Aggregate	Including Terrazzo	
• Loam	Soil for Topdressing, Garden soil, Horticultural purposes)	
• TOTAL SITE PRODUCTION		696709
• Gross Value (\$) of all Sales	14501322	22194
• Type of Material	Conglomerate	
• Number of Full-Time Equivalent (FTE) Employees	Employees: 16 Contractors: 3	

Please Note: A return for clay based products can be obtained by contacting the inquiry number.

Table 2E: Total Number of Laden Trucks

TERALBA QUARRY						Month:	Jan-16	
		Daily Total	Max Hourly Daily 6pm to 5am	Max Hourly Daily 5am to 6am	Max Hourly Daily 6am to 7am	Max Hourly Daily 7am to 6pm	Westwards Daily	Eastwards Daily
Limits								
Actuals								
1	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-
4	23	-	1	2	4	9	14	
5	14	3	1	2	2	9	5	
6	9	-	-	1	2	9	-	
7	8	3	1	4	1	6	2	
8	26	-	-	2	5	16	10	
9	-	-	-	-	-	-	-	
10	-	-	-	-	-	-	-	
11	53	2	1	3	8	36	17	
12	64	6	-	4	9	46	18	
13	94	1	4	3	13	56	38	
14	110	3	1	5	15	58	52	
15	27	3	2	2	5	19	8	
16	9	2	-	-	3	9	-	
17	-	-	-	-	-	-	-	
18	67	1	3	7	10	41	26	
19	56	4	4	4	9	32	24	
20	121	3	4	9	16	97	24	
21	136	3	2	10	20	88	48	
22	86	4	2	5	14	51	35	
23	22	3	1	3	5	19	3	
24	-	-	-	-	-	-	-	
25	70	4	1	2	11	52	18	
26	-	-	-	-	-	-	-	
27	112	3	1	5	13	53	59	
28	58	4	2	4	8	32	26	
29	83	5	2	3	12	51	32	
30	28	5	1	3	8	24	4	
31	-	-	-	-	-	-	-	

Table 2A: Number of Laden Trucks - 6:00pm to 5:00am

TERALBA QUARRY			Month:		Jan-16			
		Daily Total		Westwards			Eastwards	
				Daily	Max Hourly		Daily	Max Hourly
Limits		66		66	6		0	0
Actuals								
1		-		-	-		-	-
2		-		-	-		-	-
3		-		-	-		-	-
4		-		-	-		-	-
5		1		1	1		-	-
6		3		3	3		-	-
7		-		-	-		-	-
8		3		3	3		-	-
9		-		-	-		-	-
10		-		-	-		-	-
11		2		2	2		-	-
12		6		6	6		-	-
13		1		1	1		-	-
14		3		3	3		-	-
15		3		3	3		-	-
16		2		2	2		-	-
17		-		-	-		-	-
18		1		1	1		-	-
19		4		4	4		-	-
20		3		3	3		-	-
21		6		6	3		-	-
22		6		6	4		-	-
23		5		5	3		-	-
24		-		-	-		-	-
25		4		4	4		-	-
26		-		-	-		-	-
27		5		5	3		-	-
28		4		4	4		-	-
29		7		7	5		-	-
30		7		7	5		-	-
31		-		-	-		-	-

Table 2B: Number of Laden Trucks - 5:00am to 6:00am

TERALBA QUARRY		Month:		Jan-16
		Westwards		Eastwards
		Max Hourly		Max Hourly
Limits*		12		0
Actuals				
1		-		-
2		-		-
3		-		-
4		1		-
5		1		-
6		-		-
7		1		-
8		-		-
9		-		-
10		-		-
11		1		-
12		-		-
13		4		-
14		1		-
15		2		-
16		-		-
17		-		-
18		3		-
19		4		-
20		4		-
21		2		-
22		2		-
23		1		-
24		-		-
25		1		-
26		-		-
27		1		-
28		2		-
29		2		-
30		1		-
31		-		-

* Condition 2 (9)

Table 2C: Number of Laden Trucks - 6:00am to 7:00am

TERALBA QUARRY		Month:		Jan-16
		Westwards**		Eastwards**
		Max Hourly		Max Hourly
Limits*		28		8
Actuals				
1		-		-
2		-		-
3		-		-
4		2		-
5		2		-
6		1		-
7		4		-
8		2		-
9		-		-
10		-		-
11		2		1
12		2		2
13		3		-
14		4		1
15		1		1
16		-		-
17		-		-
18		7		-
19		4		-
20		9		-
21		7		3
22		3		2
23		2		1
24		-		-
25		1		
26		-		-
27		3		2
28		2		2
29		2		1
30		3		-
31		-		-

* Condition 2 (9)

** Combined Maximum hourly No. of laden trucks = 28

Table 2D: Number of Laden Trucks - 7:00am to 6pm

TERALBA QUARRY		Month:		Jan-16				
		Daily Total		Westwards			Eastwards	
				Daily	Max Hourly		Daily	Max Hourly
Limits				305	220		20	85
Actuals								
1	-	-	-	-	-	-	-	
2	-	-	-	-	-	-	-	
3	-	-	-	-	-	-	-	
4	20	6	2	14	3			
5	10	5	1	5	2			
6	5	5	2	-	-			
7	3	1	1	2	1			
8	21	11	3	10	3			
9	-	-	-	-	-			
10	-	-	-	-	-			
11	47	31	6	16	3			
12	54	38	8	16	4			
13	86	48	8	38	5			
14	101	50	10	51	8			
15	20	13	4	7	2			
16	7	7	3	-	-			
17	-	-	-	-	-			
18	56	30	5	26	6			
19	44	20	8	24	5			
20	105	81	12	24	5			
21	118	73	12	45	8			
22	73	40	8	33	7			
23	13	11	4	2	1			
24	-	-	-	-	-			
25	63	46	10	17	4			
26	-	-	-	-	-			
27	101	44	7	57	8			
28	48	24	8	24	5			
29	71	40	8	31	5			
30	17	13	7	4	3			
31	-	-	-	-	-			

** PLEASE NOTE: The Hilighted Max Hourly Movements Do Not Relate To Same One Hour Period

Table 2E: Total Number of Laden Trucks

TERALBA QUARRY										Month: Feb-16	
	Daily Total	Max Hourly Daily 6pm to 5am	Max Hourly Daily 5am to 6am	Max Hourly Daily 6am to 7am	Max Hourly Daily 7am to 6pm	Westwards Daily	Eastwards Daily				
Limits	326	6	12	28	20	241	85				
Actuals											
1	83	3	3	6	12	43	40				
2	94	3	4	5	14	66	28				
3	151	4	2	8	20	104	47				
4	60	4	2	9	13	38	22				
5	52	4	4	5	7	32	20				
6	21	3	2	2	4	10	11				
7	-	-	-	-	-	-	-				
8	108	4		5	16	63	45				
9	108	4	3	6	16	77	31				
10	127	4	2	4	16	72	55				
11	127	6	1	6	17	90	37				
12	101	4	2	9	13	67	34				
13	40	3	3	10	7	26	14				
14	-	-	-	-	-	-	-				
15	105	4	2	5	14	62	43				
16	103	4	3	7	13	64	39				
17	115	5	3	11	15	82	33				
18	110	5	3	6	15	88	22				
19	101	5	1	9	13	55	46				
20	26	1	4	3	5	20	6				
21	-	-	-	-	-	-	-				
22	136	4	2	10	19	77	59				
23	131	5	1	8	20	80	51				
24	91	4	1	8	12	62	29				
25	106	5	2	7	14	67	39				
26	63	3	2	5	11	35	28				
27	22	4	2	6	3	17	5				
28	-	-	-	-	-	-	-				
29	51	1	5	6	7	34	17				

Table 2A: Number of Laden Trucks - 6:00pm to 5:00am

TERALBA QUARRY			Month:		Feb-16			
		Daily Total		Westwards			Eastwards	
				Daily	Max Hourly		Daily	Max Hourly
Limits		66		66	6		0	0
Actuals								
1		3		3	3		-	-
2		3		3	3		-	-
3		7		7	4		-	-
4		6		6	4		-	-
5		4		4	4		-	-
6		3		3	3		-	-
7		-		-	-		-	-
8		4		4	4		-	-
9		6		6	4		-	-
10		6		6	4		-	-
11		7		7	6		-	-
12		6		6	4		-	-
13		5		5	3		-	-
14		-		-	-		-	-
15		6		6	4		-	-
16		4		4	4		-	-
17		5		5	5		-	-
18		5		5	5		-	-
19		8		8	5		-	-
20		2		2	1		-	-
21		-		-	-		-	-
22		6		6	4		-	-
23		7		7	5		-	-
24		7		7	4		-	-
25		7		7	5		-	-
26		6		6	3		-	-
27		7		7	4		-	-
28		-		-	-		-	-
29		1		1	1		-	-
							-	-
							-	-
							-	-

Table 2B: Number of Laden Trucks - 5:00am to 6:00am

TERALBA QUARRY		Month:		Feb-16	
		Westwards		Eastwards	
		Max Hourly		Max Hourly	
Limits*		12		0	
Actuals					
1		3		-	
2		4		-	
3		2		-	
4		2		-	
5		4		-	
6		2		-	
7		-		-	
8		2		-	
9		3		-	
10		2		-	
11		1		-	
12		2		-	
13		3		-	
14		-		-	
15		2		-	
16		3		-	
17		3		-	
18		3		-	
19		1		-	
20		4		-	
21		-		-	
22		2		-	
23		1		-	
24		1		-	
25		2		-	
26		2		-	
27		2		-	
28		-		-	
29		5		-	
				-	
				-	
				-	

* Condition 2 (9)

Table 2C: Number of Laden Trucks - 6:00am to 7:00am

TERALBA QUARRY		Month:		Feb-16	
		Westwards**		Eastwards**	
		Max Hourly		Max Hourly	
Limits*		28		8	
Actuals					
1		4		2	
2		4		1	
3		6		2	
4		5		4	
5		5		1	
6		2		-	
7		-		-	
8		5		-	
9		3		3	
10		1		3	
11		5		1	
12		8		1	
13		7		3	
14		-		-	
15		4		1	
16		5		2	
17		8		3	
18		4		2	
19		6		3	
20		3		-	
21		-		-	
22		5		5	
23		1		7	
24		6		2	
25		7		-	
26		4		1	
27		4		2	
28		-		-	
29		6		-	

* Condition 2 (9)

** Combined Maximum hourly No. of laden trucks = 28

Table 2D: Number of Laden Trucks - 7:00am to 6pm

TERALBA QUARRY			Month:		Feb-16	
		Daily Total	Westwards		Eastwards	
			Daily	Max Hourly	Daily	Max Hourly
Limits			305	220	20	85
Actuals						
1		71	33	8	38	7
2		82	55	11	27	5
3		134	89	16	45	8
4		43	25	11	18	4
5		39	20	6	19	4
6		14	3	1	11	4
7		-	-	-	-	-
8		97	52	10	45	8
9		93	65	12	28	6
10		115	63	11	52	8
11		113	77	11	36	7
12		84	51	9	33	7
13		22	11	4	11	3
14		-	-	-	-	-
15		92	50	9	42	7
16		89	52	10	37	6
17		96	66	10	30	5
18		96	76	14	20	4
19		83	40	7	43	7
20		17	11	4	6	3
21		-	-	-	-	-
22		118	64	11	54	8
23		115	71	13	44	8
24		75	48	11	27	6
25		90	51	8	39	6
26		50	23	5	27	8
27		7	4	2	3	1
28		-	-	-	-	-
29		39	22	6	17	3

** PLEASE NOTE: The Hilighted Max Hourly Movements Do Not Relate To Same One Hour Period

Table 2E: Total Number of Laden Trucks

TERALBA QUARRY						Month:		Mar-16	
		Daily Total	Max Hourly Daily	Max Hourly Daily	Max Hourly Daily	Max Hourly Daily	Westwards Daily	Eastwards Daily	
			6pm to 5am	5am to 6am	6am to 7am	7am to 6pm			
Limits		326	6	12	28	20	241	85	
Actuals									
1		137	5	2	8	17	103	34	
2		119	4	2	9	14	73	46	
3		135	5	1	10	19	95	40	
4		79	4	3	4	10	52	27	
5		28	6	-	3	5	18	10	
6		-	-	-	-	-	-	-	
7		100	3	2	8	15	55	45	
8		51	4	2	6	7	34	17	
9		81	4	3	6	11	53	28	
10		83	4	3	4	11	58	25	
11		93	6	2	4	16	65	28	
12		21	6	1	-	4	14	7	
13		-	-	-	-	-	-	-	
14		77	3	2	6	14	52	25	
15		112	3	4	8	16	65	47	
16		83	2	3	10	13	73	10	
17		74	3	5	11	9	61	13	
18		103	2	4	6	15	69	34	
19		35	4	-	1	8	15	20	
20		-	-	-	-	-	-	-	
21		55	1	2	10	8	39	16	
22		103	-	-	5	20	84	19	
23		186	-	1	13	20	146	40	
24		211	4	4	28	20	164	47	
25		-	-	-	-	-	-	-	
26		-	-	-	-	-	-	-	
27		-	-	-	-	-	-	-	
28		-	-	-	-	-	-	-	
29		123	4	-	12	17	83	40	
30		151	3	1	9	20	122	29	
31		167	5	3	17	20	105	62	

Table 2A: Number of Laden Trucks - 6:00pm to 5:00am

TERALBA QUARRY		Month:		Mar-16	
	Daily Total	Westwards		Eastwards	
		Daily	Max Hourly	Daily	Max Hourly
Limits	66	66	6	0	0
Actuals					
1	7	7	5	-	-
2	6	6	4	-	-
3	9	9	5	-	-
4	7	7	4	-	-
5	10	10	6	-	-
6	-	-	-	-	-
7	5	5	3	-	-
8	6	6	4	-	-
9	4	4	4	-	-
10	5	5	4	-	-
11	7	7	6	-	-
12	6	6	6	-	-
13	-	-	-	-	-
14	4	4	3	-	-
15	6	6	3	-	-
16	3	3	2	-	-
17	3	3	3	-	-
18	2	2	2	-	-
19	8	8	4	-	-
20	-	-	-	-	-
21	1	1	1	-	-
22	-	-	-	-	-
23	7	7	4	-	-
24	5	5	4	-	-
25	-	-	-	-	-
26	-	-	-	-	-
27	-	-	-	-	-
28	-	-	-	-	-
29	7	7	4	-	-
30	5	5	3	-	-
31	5	5	5	-	-

Table 2B: Number of Laden Trucks - 5:00am to 6:00am

TERALBA QUARRY		Month:		Mar-16
		Westwards		Eastwards
		Max Hourly		Max Hourly
Limits*		12		0
Actuals				
1		2		-
2		2		-
3		1		-
4		3		-
5		-		-
6		-		-
7		2		-
8		2		-
9		3		-
10		3		-
11		2		-
12		1		-
13		-		-
14		2		-
15		4		-
16		3		-
17		5		-
18		4		-
19		-		-
20		-		-
21		2		-
22		-		-
23		1		-
24		4		-
25		-		-
26		-		-
27		-		-
28		-		-
29		-		-
30		1		-
31		3		-

* Condition 2 (9)

Table 2C: Number of Laden Trucks - 6:00am to 7:00am

TERALBA QUARRY		Month:		Mar-16	
		Westwards**		Eastwards**	
		Max Hourly		Max Hourly	
Limits*		28		8	
Actuals					
1		6		2	
2		6		3	
3		8		2	
4		2		2	
5		1		2	
6		-		-	
7		6		2	
8		6		-	
9		5		1	
10		4		-	
11		3		1	
12		-		-	
13		-		-	
14		6		-	
15		5		3	
16		9		1	
17		10		1	
18		6		-	
19		1		-	
20		-		-	
21		9		1	
22		5		-	
23		11		2	
24		23		5	
25		-		-	
26		-		-	
27		-		-	
28		-		-	
29		11		1	
30		7		2	
31		13		4	

* Condition 2 (9)

** Combined Maximum hourly No. of laden trucks = 28

Table 2D: Number of Laden Trucks - 7:00am to 6pm

TERALBA QUARRY			Month:		Mar-16			
		Daily Total		Westwards			Eastwards	
				Daily	Max Hourly		Daily	Max Hourly
Limits				305	220		20	85
Actuals								
1		120		88	14		32	5
2		102		59	9		43	8
3		115		77	13		38	8
4		65		40	7		25	5
5		15		7	4		8	3
6		-		-	-		-	-
7		85		42	9		43	7
8		37		20	3		17	5
9		68		41	8		27	6
10		71		46	8		25	4
11		80		53	9		27	7
12		14		7	2		7	3
13		-		-	-		-	-
14		65		40	10		25	4
15		94		50	11		44	8
16		67		58	11		9	2
17		55		43	7		12	3
18		91		57	10		34	6
19		20		6	3		20	6
20		-		-	-		-	-
21		42		27	7		15	3
22		98		79	19		19	4
23		165		127	18		38	8
24		174		132	17		42	7
25		-		-	-		-	-
26		-		-	-		-	-
27		-		-	-		-	-
28		-		-	-		-	-
29		104		65	14		39	6
30		136		109	16		27	4
31		142		84	13		58	7

** PLEASE NOTE: The Hilighted Max Hourly Movements Do Not Relate To Same One Hour Period

Table 2E: Total Number of Laden Trucks

TERALBA QUARRY						Month:	Apr-16
	Daily Total	Max Hourly Daily 6pm to 5am	Max Hourly Daily 5am to 6am	Max Hourly Daily 6am to 7am	Max Hourly Daily 7am to 6pm	Westwards Daily	Eastwards Daily
Limits	326	6	12	28	20	241	85
Actuals							
1	144	3	3	9	20	106	38
2	34	5	-	4	8	24	10
3	-	-	-	-	-	-	-
4	174	4	-	18	20	120	54
5	200	-	3	24	20	133	67
6	214	3	-	25	20	172	42
7	194	4	-	15	20	161	33
8	185	4	-	20	20	157	28
9	37	4	-	3	9	22	15
10	-	-	-	-	-	-	-
11	208	-	4	22	20	173	35
12	208	2	2	19	20	173	35
13	129	5	-	15	20	92	37
14	216	4	-	27	20	180	36
15	231	5	-	23	20	175	56
16	57	4	-	10	11	49	8
17	-	-	-	-	-	-	-
18	55	3	2	6	11	37	18
19	240	6	1	28	20	197	43
20	271	4	-	28	20	225	46
21	235	5	5	28	20	166	69
22	226	5	-	26	20	187	39
23	21	3	1	4	4	19	2
24	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-
26	112	1	4	13	13	91	21
27	166	5	4	16	20	122	44
28	182	5	2	18	20	130	52
29	161	5	1	14	20	124	37
30	37	6	-	5	7	29	8
31	-	-	-	-	-	-	-

Table 2A: Number of Laden Trucks - 6:00pm to 5:00am

TERALBA QUARRY			Month:		Apr-16	
		Daily Total	Westwards		Eastwards	
			Daily	Max Hourly	Daily	Max Hourly
Limits		66	66	6	0	0
Actuals						
1		3	3	3	-	-
2		8	8	5	-	-
3		-	-	-	-	-
4		4	4	4	-	-
5		4	4	3	-	-
6		5	5	3	-	-
7		8	8	4	-	-
8		7	7	4	-	-
9		8	8	4	-	-
10		-	-	-	-	-
11		-	-	-	-	-
12		6	6	4	-	-
13		9	9	5	-	-
14		8	8	4	-	-
15		9	9	5	-	-
16		8	8	4	-	-
17		-	-	-	-	-
18		3	3	3	-	-
19		8	8	6	-	-
20		8	8	4	-	-
21		5	5	5	-	-
22		9	9	5	-	-
23		4	4	3	-	-
24		-	-	-	-	-
25		-	-	-	-	-
26		1	1	1	-	-
27		5	5	5	-	-
28		7	7	5	-	-
29		5	5	5	-	-
30		10	10	6	-	-
31		-	-	-	-	-

Table 2B: Number of Laden Trucks - 5:00am to 6:00am

TERALBA QUARRY		Month:		Apr-16
		Westwards		Eastwards
		Max Hourly		Max Hourly
Limits*		12		0
Actuals				
1		3		-
2		-		-
3		-		-
4		-		-
5		3		-
6		-		-
7		-		-
8		-		-
9		-		-
10		-		-
11		4		-
12		2		-
13		-		-
14		-		-
15		-		-
16		-		-
17		-		-
18		2		-
19		1		-
20		-		-
21		5		-
22		-		-
23		1		-
24		-		-
25		-		-
26		4		-
27		4		-
28		2		-
29		1		-
30		-		-
31		-		-

* Condition 2 (9)

Table 2C: Number of Laden Trucks - 6:00am to 7:00am

TERALBA QUARRY		Month:		Apr-16
		Westwards**		Eastwards**
		Max Hourly		Max Hourly
Limits*		28		8
Actuals				
1		8		1
2		3		1
3		-		-
4		15		3
5		22		4
6		25		-
7		12		3
8		19		1
9		2		1
10		-		-
11		21		1
12		16		3
13		13		2
14		24		3
15		18		5
16		8		2
17		-		-
18		6		-
19		27		1
20		25		3
21		24		4
22		23		3
23		4		-
24		-		-
25		-		-
26		12		1
27		14		2
28		14		4
29		13		1
30		4		1
31		-		-

* Condition 2 (9)

** Combined Maximum hourly No. of laden trucks = 28

Table 2D: Number of Laden Trucks - 7:00am to 6pm

TERALBA QUARRY			Month:		Apr-16		
		Daily Total		Westwards		Eastwards	
				Daily	Max Hourly	Daily	Max Hourly
Limits				305	220	20	85
Actuals							
1		129		92	14	37	7
2		22		13	5	9	3
3		-		-	-	-	-
4		152		101	14	51	8
5		167		104	16	63	8
6		184		142	18	42	7
7		171		141	18	30	8
8		158		131	19	27	4
9		26		12	5	14	4
10		-		-	-	-	-
11		182		148	18	34	5
12		181		149	19	32	5
13		105		70	16	35	5
14		181		148	18	33	5
15		199		148	17	51	8
16		39		33	9	6	2
17		-		-	-	-	-
18		44		26	8	18	6
19		203		161	17	42	5
20		235		192	18	43	7
21		197		132	15	65	8
22		191		155	19	36	8
23		12		10	4	2	1
24		-		-	-	-	-
25		-		-	-	-	-
26		94		74	11	20	4
27		141		99	17	42	8
28		155		107	15	48	8
29		141		105	16	36	6
30		22		15	6	7	3
31		-		-	-	-	-

** PLEASE NOTE: The Hilghted Max Hourly Movements Do Not Relate To Same One Hour Period

Table 2E: Total Number of Laden Trucks

TERALBA QUARRY						Month:	May-16
	Daily Total	Max Hourly Daily	Max Hourly Daily	Max Hourly Daily	Max Hourly Daily	Westwards Daily	Eastwards Daily
		6pm to 5am	5am to 6am	6am to 7am	7am to 6pm		
Limits		326	6	12	28	20	241
Actuals							
1	-	-	-	-	-	-	-
2	180	-	2	13	20	135	45
3	173	5	2	13	20	112	61
4	194	3	2	18	20	148	46
5	192	5	3	16	20	140	52
6	205	5	2	23	20	167	38
7	80	4	-	11	19	72	8
8	-	-	-	-	-	-	-
9	141	2	4	11	16	123	18
10	157	5	4	13	20	126	31
11	140	5	3	11	19	111	29
12	181	2	4	16	20	158	23
13	157	4	1	18	19	134	23
14	87	6	-	14	20	84	3
15	-	-	-	-	-	-	-
16	154	-	3	16	20	131	23
17	201	5	3	22	20	168	33
18	203	3	3	24	20	180	23
19	172	4	2	17	20	150	22
20	165	5	1	20	20	136	29
21	68	5	-	13	16	63	5
22	-	-	-	-	-	-	-
23	172	3	3	17	19	152	20
24	159	5	2	12	20	132	27
25	194	5	1	25	20	171	23
26	163	4	1	12	20	147	16
27	168	6	-	17	20	145	23
28	60	5	-	16	15	55	5
29	-	-	-	-	-	-	-
30	177	4	2	20	20	145	32
31	188	5	-	22	20	149	39

Table 2A: Number of Laden Trucks - 6:00pm to 5:00am

TERALBA QUARRY			Month:		May-16	
		Daily Total	Westwards		Eastwards	
			Daily	Max Hourly	Daily	Max Hourly
Limits		66	66	6	0	0
Actuals						
1		-	-	-	-	-
2		-	-	-	-	-
3		7	7	5	-	-
4		5	5	3	-	-
5		7	7	5	-	-
6		7	7	5	-	-
7		7	7	4	-	-
8		-	-	-	-	-
9		2	2	2	-	-
10		5	5	5	-	-
11		7	7	5	-	-
12		5	5	3	-	-
13		9	9	4	-	-
14		9	9	6	-	-
15		-	-	-	-	-
16		-	-	-	-	-
17		5	5	5	-	-
18		4	4	3	-	-
19		7	7	4	-	-
20		7	7	5	-	-
21		7	7	5	-	-
22		-	-	-	-	-
23		3	3	3	-	-
24		8	8	5	-	-
25		8	8	5	-	-
26		8	8	4	-	-
27		10	10	6	-	-
28		8	8	5	-	-
29		-	-	-	-	-
30		4	4	4	-	-
31		9	9	5	-	-

Table 2B: Number of Laden Trucks - 5:00am to 6:00am

TERALBA QUARRY		Month:		May-16
		Westwards		Eastwards
		Max Hourly		Max Hourly
Limits*		12		0
Actuals				
1		-		-
2		2		-
3		2		-
4		2		-
5		3		-
6		2		-
7		-		-
8		-		-
9		4		-
10		4		-
11		3		-
12		4		-
13		1		-
14		-		-
15		-		-
16		3		-
17		3		-
18		3		-
19		2		-
20		1		-
21		-		-
22		-		-
23		3		-
24		2		-
25		1		-
26		1		-
27		-		-
28		-		-
29		-		-
30		2		-
31		-		-

* Condition 2 (9)

Table 2C: Number of Laden Trucks - 6:00am to 7:00am

TERALBA QUARRY		Month:		May-16	
		Westwards**		Eastwards**	
		Max Hourly		Max Hourly	
	Limits*	28		8	
	Actuals				
	1	-		-	
	2	13		-	
	3	9		4	
	4	14		4	
	5	13		3	
	6	20		3	
	7	8		3	
	8	-		-	
	9	11		-	
	10	13		-	
	11	7		4	
	12	14		2	
	13	17		1	
	14	14		-	
	15	-		-	
	16	15		1	
	17	19		3	
	18	22		2	
	19	17		-	
	20	20		-	
	21	11		2	
	22	-		-	
	23	17		-	
	24	12		-	
	25	25		-	
	26	11		1	
	27	16		1	
	28	15		1	
	29	-		-	
	30	16		4	
	31	18		4	

* Condition 2 (9)

** Combined Maximum hourly No. of laden trucks = 28

Table 2D: Number of Laden Trucks - 7:00am to 6pm

TERALBA QUARRY			Month:		May-16			
		Daily Total		Westwards			Eastwards	
				Daily	Max Hourly		Daily	Max Hourly
Limits				305	220		20	85
Actuals								
1	-	-	-	-	-	-	-	
2	165	120	16	45	8			
3	151	94	16	57	8			
4	169	127	16	42	7			
5	166	117	17	49	8			
6	173	138	18	35	6			
7	62	57	19	5	2			
8	-	-	-	-	-			
9	124	106	16	18	4			
10	135	104	16	31	6			
11	119	94	17	25	5			
12	156	135	19	21	5			
13	129	107	15	22	5			
14	64	61	18	3	2			
15	-	-	-	-	-			
16	135	113	18	22	4			
17	171	141	19	30	6			
18	172	151	18	21	5			
19	146	124	20	22	4			
20	137	108	20	29	6			
21	48	45	15	3	1			
22	-	-	-	-	-			
23	149	129	18	20	3			
24	137	110	17	27	5			
25	160	137	18	23	4			
26	142	127	18	15	3			
27	141	119	16	22	4			
28	36	32	15	4	1			
29	-	-	-	-	-			
30	151	123	16	28	5			
31	157	122	18	35	7			

** PLEASE NOTE: The Hilighted Max Hourly Movements Do Not Relate To Same One Hour Period

Table 2E: Total Number of Laden Trucks

TERALBA QUARRY						Month:	Jun-16	
		Daily Total	Max Hourly Daily 6pm to 5am	Max Hourly Daily 5am to 6am	Max Hourly Daily 6am to 7am	Max Hourly Daily 7am to 6pm	Westwards Daily	Eastwards Daily
Limits		326	6	12	28	20	241	85
Actuals								
1		70	-	-	11	12	57	13
2		166	2	4	15	20	138	28
3		159	5	2	12	20	128	31
4		11	4	1	-	1	11	-
5		-	-	-	-	-	-	-
6		42	-	2	3	9	28	14
7		84	3	4	5	17	58	26
8		97	5	2	9	14	53	44
9		85	6	-	9	14	64	21
10		155	4	3	17	20	119	36
11		40	5	1	3	9	29	11
12		-	-	-	-	-	-	-
13		-	-	-	-	-	-	-
14		90	2	2	8	12	57	33
15		159	3	1	15	19	133	26
16		140	4	3	10	20	116	24
17		95	4	1	3	13	54	41
18		16	6	-	1	3	15	1
19		-	-	-	-	-	-	-
20		57	1	6	6	11	36	21
21		72	6	3	3	10	51	21
22		96	3	4	8	15	66	30
23		120	4	2	10	17	85	35
24		113	3	3	12	19	75	38
25		27	6	-	2	6	25	2
26		-	-	-	-	-	-	-
27		99	2	2	13	15	66	33
28		180	4	2	17	20	106	74
29		205	5	1	23	20	158	47
30		192	6	-	22	20	149	43

Table 2A: Number of Laden Trucks - 6:00pm to 5:00am

TERALBA QUARRY				Month: JUNE				
		Daily Total		Westwards			Eastwards	
				Daily	Max Hourly		Daily	Max Hourly
Limits		66		66	6		0	0
Actuals								
1		-		-	-		-	-
2		4		4	2		-	-
3		8		8	5		-	-
4		8		8	4		-	-
5		-		-	-		-	-
6		-		-	-		-	-
7		5		5	3		-	-
8		8		8	5		-	-
9		9		9	6		-	-
10		6		6	4		-	-
11		6		6	5		-	-
12		-		-	-		-	-
13		-		-	-		-	-
14		2		2	2		-	-
15		5		5	3		-	-
16		5		5	4		-	-
17		8		8	4		-	-
18		-		-	-		-	-
19		-		-	-		-	-
20		1		1	1		-	-
21		6		6	6		-	-
22		6		6	3		-	-
23		8		8	4		-	-
24		5		5	3		-	-
25		8		8	6		-	-
26		-		-	-		-	-
27		2		2	2		-	-
28		6		6	4		-	-
29		9		9	5		-	-
30		10		10	6		-	-
31		-		-	-		-	-

Table 2B: Number of Laden Trucks - 5:00am to 6:00am

TERALBA QUARRY		Month: JUNE	
		Westwards	Eastwards
		Max Hourly	Max Hourly
Limits*		12	0
Actuals			
1		-	-
2		4	-
3		2	-
4		1	-
5		-	-
6		2	-
7		4	-
8		2	-
9		-	-
10		3	-
11		1	-
12		-	-
13		-	-
14		2	-
15		1	-
16		3	-
17		1	-
18		-	-
19		-	-
20		6	-
21		3	-
22		4	-
23		2	-
24		3	-
25		-	-
26		-	-
27		2	-
28		2	-
29		1	-
30		-	-
31		-	-

* Condition 2 (9)

Table 2C: Number of Laden Trucks - 6:00am to 7:00am

TERALBA QUARRY		Month: JUNE	
		Westwards**	Eastwards**
		Max Hourly	Max Hourly
Limits*		28	8
Actuals			
1		11	-
2		13	2
3		11	1
4		-	-
5		-	-
6		3	-
7		4	1
8		8	1
9		7	2
10		13	4
11		2	1
12		-	-
13		-	-
14		7	1
15		13	2
16		10	-
17		2	1
18		1	-
19		-	-
20		5	1
21		3	-
22		7	1
23		5	5
24		11	1
25		1	1
26		-	-
27		11	2
28		13	4
29		18	5
30		16	6
31		-	-

* Condition 2 (9)

** Combined Maximum hourly No. of laden trucks = 28

Table 2D: Number of Laden Trucks - 7:00am to 6pm

TERALBA QUARRY							Month: JUNE	
	Daily Total	Westwards			Eastwards			
		Daily	Max Hourly		Daily	Max Hourly		
Limits	305	220	20		85	8		
Actuals								
1	59	46	10		13	4		
2	143	117	17		26	5		
3	137	107	18		30	6		
4	2	2	2		-	-		
5	-	-	-		-	-		
6	37	23	5		14	4		
7	70	45	9		25	8		
8	78	35	8		43	8		
9	67	48	13		19	4		
10	129	97	16		32	6		
11	30	20	5		10	4		
12	-	-	-		-	-		
13	-	-	-		-	-		
14	78	46	8		32	5		
15	138	114	17		24	6		
16	122	98	18		24	4		
17	83	43	7		40	6		
18	7	6	2		1	1		
19	-	-	-		-	-		
20	44	24	8		20	6		
21	60	39	7		21	4		
22	78	49	10		29	6		
23	100	70	12		30	5		
24	93	56	13		37	8		
25	17	16	6		1	1		
26	-	-	-		-	-		
27	82	51	10		31	5		
28	155	85	13		70	8		
29	172	130	17		42	7		
30	160	123	16		37	6		
31	-	-	-		-	-		

** PLEASE NOTE: The Hilighted Max Hourly Movements Do Not Relate To Same One Hour Period

Table 2E: Total Number of Laden Trucks

TERALBA QUARRY						Month:		Jul-16
	Daily Total	Max Hourly Daily	Max Hourly Daily	Max Hourly Daily	Max Hourly Daily	Westwards Daily	Eastwards Daily	
		6pm to 5am	5am to 6am	6am to 7am	7am to 6pm			
Limits	326	6	12	28	20	241	85	
Actuals								
1	168	6	-	18	20	129	39	
2	91	6	-	19	20	86	5	
3	-	-	-	-	-	-	-	
4	194	1	4	2	20	165	29	
5	88	4	2	8	14	43	45	
6	178	4	3	15	20	159	19	
7	130	3	3	15	20	110	20	
8	39	4	1	2	11	21	18	
9	16	3	-	-	5	11	5	
10	-	-	-	-	-	-	-	
11	197	1	2	24	20	165	32	
12	206	3	4	22	20	166	40	
13	179	2	8	16	20	146	33	
14	200	6	3	17	20	174	26	
15	154	5	-	14	20	121	33	
16	75	5	-	12	17	68	7	
17	-	-	-	-	-	-	-	
18	178	2	2	16	20	164	14	
19	179	5	-	13	20	143	36	
20	53	5	1	4	8	37	16	
21	45	3	4	1	10	32	13	
22	67	4	-	8	10	32	35	
23	28	6	-	6	4	20	8	
24	-	-	-	-	-	-	-	
25	193	1	4	18	20	149	44	
26	231	4	1	26	20	203	28	
27	244	6	1	26	20	181	63	
28	246	5	1	27	20	180	66	
29	204	5	1	20	20	151	53	
30	75	5	-	14	16	67	8	
31	-	-	-	-	-	-	-	

Table 2A: Number of Laden Trucks - 6:00pm to 5:00am

TERALBA QUARRY		Month:		Jul-16				
		Daily Total		Westwards			Eastwards	
				Daily	Max Hourly		Daily	Max Hourly
Limits				66	66		6	0
Actuals								
1	10	10	6	-	-			
2	9	9	6	-	-			
3	-	-	-	-	-			
4	1	1	1	-	-			
5	6	6	4	-	-			
6	7	7	4	-	-			
7	6	6	3	-	-			
8	6	6	4	-	-			
9	5	5	3	-	-			
10	-	-	-	-	-			
11	1	1	1	-	-			
12	4	4	3	-	-			
13	2	2	2	-	-			
14	6	6	6	-	-			
15	8	8	5	-	-			
16	8	8	5	-	-			
17	-	-	-	-	-			
18	4	4	2	-	-			
19	8	8	5	-	-			
20	8	8	5	-	-			
21	5	5	3	-	-			
22	7	7	4	-	-			
23	8	8	6	-	-			
24	-	-	-	-	-			
25	1	1	1	-	-			
26	7	7	4	-	-			
27	8	8	6	-	-			
28	8	8	5	-	-			
29	7	7	5	-	-			
30	7	7	5	-	-			
31	-	-	-	-	-			

Table 2B: Number of Laden Trucks - 5:00am to 6:00am

TERALBA QUARRY		Month:		Jul-16	
		Westwards		Eastwards	
		Max Hourly		Max Hourly	
Limits*		12		0	
Actuals					
1		-		-	
2		-		-	
3		-		-	
4		4		-	
5		2		-	
6		3		-	
7		3		-	
8		1		-	
9		-		-	
10		-		-	
11		2		-	
12		4		-	
13		8		-	
14		3		-	
15		-		-	
16		-		-	
17		-		-	
18		2		-	
19		-		-	
20		1		-	
21		4		-	
22		-		-	
23		-		-	
24		-		-	
25		4		-	
26		1		-	
27		1		-	
28		1		-	
29		1		-	
30		-		-	
31		-		-	

* Condition 2 (9)

Table 2C: Number of Laden Trucks - 6:00am to 7:00am

TERALBA QUARRY		Month:		Jul-16
		Westwards**		Eastwards**
		Max Hourly		Max Hourly
Limits*		28		8
Actuals				
1		16		2
2		18		1
3		-		-
4		19		3
5		5		3
6		14		1
7		13		2
8		2		-
9		-		-
10		-		-
11		23		1
12		19		3
13		15		1
14		15		2
15		11		3
16		11		1
17		-		-
18		16		-
19		12		1
20		2		2
21		1		-
22		5		3
23		3		3
24		-		-
25		18		-
26		24		2
27		21		5
28		22		5
29		17		3
30		13		1
31		-		-

* Condition 2 (9)

** Combined Maximum hourly No. of laden trucks = 28

Table 2D: Number of Laden Trucks - 7:00am to 6pm

TERALBA QUARRY		Month:		Jul-16				
		Daily Total		Westwards			Eastwards	
				Daily	Max Hourly		Daily	Max Hourly
Limits		305		220	20		85	8
Actuals								
1		140		103	17		37	8
2		63		59	19		4	1
3		-		-	-		-	-
4		167		141	19		26	5
5		72		30	6		42	8
6		153		135	18		18	4
7		106		88	19		18	5
8		30		12	5		18	6
9		11		6	4		5	3
10		-		-	-		-	-
11		170		139	18		31	5
12		176		139	17		37	6
13		153		121	16		32	5
14		174		150	20		24	6
15		132		102	16		30	6
16		55		49	16		6	2
17		-		-	-		-	-
18		156		142	19		14	4
19		158		123	15		35	8
20		40		26	5		14	3
21		35		22	6		13	4
22		52		20	5		32	5
23		14		9	4		5	2
24		-		-	-		-	-
25		170		126	17		44	7
26		197		171	18		26	5
27		208		151	17		58	8
28		210		149	17		61	8
29		176		126	17		50	8
30		54		47	15		7	2
31		-		-	-		-	-

** PLEASE NOTE: The Highlighted Max Hourly Movements Do Not Relate To Same One Hour Period

Table 2E: Total Number of Laden Trucks

TERALBA QUARRY						Month: Aug-16	
	Daily Total	Max Hourly Daily	Max Hourly Daily	Max Hourly Daily	Max Hourly Daily	Westwards Daily	Eastwards Daily
		6pm to 5am	5am to 6am	6am to 7am	7am to 6pm		
Limits	326	6	12	28	20	241	85
Actuals							
1	209	1	6	26	20	162	47
2	226	5	2	27	20	176	50
3	29	5	-	4	7	28	31
4	34	2	2	1	10	26	8
5	44	6	-	3	11	28	16
6	7	2	2	1	1	7	-
7	-	-	-	-	-	-	-
8	157	1	2	12	20	106	51
9	199	4	1	26	20	179	20
10	204	5	1	21	20	162	42
11	188	4	1	16	20	145	43
12	175	4	-	21	20	142	33
13	40	5	-	7	10	30	10
14	-	-	-	-	-	-	-
15	103	2	2	8	15	58	45
16	167	6	1	18	19	114	53
17	95	6	-	12	13	56	39
18	155	4	4	11	19	82	73
19	104	6	2	5	12	57	47
20	28	5	-	7	5	22	6
21	-	-	-	-	-	-	-
22	114	3	2	12	17	70	44
23	69	4	1	6	10	49	20
24	43	-	6	9	6	32	11
25	71	2	5	5	11	42	29
26	90	3	-	7	14	58	32
27	21	5	-	1	6	20	1
28	-	-	-	-	-	-	-
29	101	-	1	17	12	76	25
30	125	4	2	12	18	71	54
31	112	4	1	8	15	58	54

Table 2A: Number of Laden Trucks - 6:00pm to 5:00am

TERALBA QUARRY		Month:		01-Aug				
		Daily Total		Westwards			Eastwards	
				Daily	Max Hourly		Daily	Max Hourly
Limits				66	6		0	0
Actuals								
1		1		1		-	-	
2		5		5		-	-	
3		8		8		5	-	
4		2		2		2	-	
5		8		8		6	-	
6		3		3		2	-	
7		-		-		-	-	
8		2		2		1	-	
9		5		5		4	-	
10		8		8		5	-	
11		7		7		4	-	
12		8		8		4	-	
13		7		7		5	-	
14		-		-		-	-	
15		2		2		2	-	
16		8		8		6	-	
17		10		10		6	-	
18		6		6		4	-	
19		8		8		6	-	
20		7		5		5	-	
21		-		-		-	-	
22		3		3		3	-	
23		7		7		4	-	
24		-		-		-	-	
25		2		2		2	-	
26		4		4		3	-	
27		8		8		5	-	
28		-		-		-	-	
29		-		-		-	-	
30		7		7		4	-	
31		6		6		4	-	

Table 2B: Number of Laden Trucks - 5:00am to 6:00am

TERALBA QUARRY		Month:		01-Aug
		Westwards		Eastwards
		Max Hourly		Max Hourly
Limits*		12		0
Actuals				
1		6		-
2		2		-
3		-		-
4		2		-
5		-		-
6		2		-
7		-		-
8		2		-
9		1		-
10		1		-
11		1		-
12		-		-
13		-		-
14		-		-
15		2		-
16		1		-
17		-		-
18		4		-
19		2		-
20		-		-
21		-		-
22		2		-
23		1		-
24		6		-
25		5		-
26		-		-
27		-		-
28		-		-
29		1		-
30		2		-
31		1		-

* Condition 2 (9)

Table 2C: Number of Laden Trucks - 6:00am to 7:00am

TERALBA QUARRY		Month:		01-Aug	
		Westwards**		Eastwards**	
		Max Hourly		Max Hourly	
Limits*		28		8	
Actuals					
1		24		2	
2		24		3	
3		3		1	
4		1		-	
5		3		-	
6		1		-	
7		-		-	
8		6		6	
9		24		2	
10		19		2	
11		15		1	
12		19		2	
13		7		-	
14		-		-	
15		4		4	
16		13		5	
17		10		2	
18		6		5	
19		3		2	
20		7		-	
21		-		-	
22		9		3	
23		5		1	
24		9		-	
25		4		1	
26		6		1	
27		1		-	
28		-		-	
29		17		-	
30		4		8	
31		3		5	

* Condition 2 (9)

** Combined Maximum hourly No. of laden trucks = 28

Table 2D: Number of Laden Trucks - 7:00am to 6pm

TERALBA QUARRY		Month:		01-Aug	
Limits	305	220	20	85	8
Actuals					
1	176	131	18	45	7
2	192	145	18	47	7
3	47	17	4	30	6
4	29	21	10	8	2
5	33	17	5	16	7
6	1	1	1	-	-
7	-	-	-	-	-
8	141	96	16	45	8
9	167	149	20	18	4
10	174	134	15	40	7
11	164	122	18	42	8
12	146	115	18	31	8
13	26	16	7	10	3
14	-	-	-	-	-
15	91	50	9	41	8
16	140	92	16	48	8
17	73	36	8	37	6
18	134	66	11	68	8
19	89	44	7	45	8
20	14	8	3	6	2
21	-	-	-	-	-
22	97	56	10	41	8
23	55	36	7	19	4
24	28	17	4	11	4
25	59	31	8	28	5
26	79	48	10	31	5
27	12	11	6	1	1
28	-	-	-	-	-
29	83	58	9	25	4
30	104	58	11	46	7
31	97	48	8	49	8

** PLEASE NOTE: The Hilighted Max Hourly Movements Do Not Relate To Same One Hour Period

Table 2E: Total Number of Laden Trucks

TERALBA QUARRY						Month:	Sep-16	
		Daily Total	Max Hourly Daily 6pm to 5am	Max Hourly Daily 5am to 6am	Max Hourly Daily 6am to 7am	Max Hourly Daily 7am to 6pm	Westwards Daily	Eastwards Daily
Limits								
Actuals		326	6	12	28	20	241	85
1		133	4	4	7	17	68	65
2		51	6	2	3	12	28	23
3		11	3	-	-	5	9	2
4		-	-	-	-	-	-	-
5		139	2	3	9	18	81	58
6		124	3	3	11	17	66	58
7		116	4	3	12	13	68	48
8		108	6	4	7	20	68	40
9		90	3	6	7	13	61	29
10		28	6	3	5	4	18	10
11		-	-	-	-	-	-	-
12		71	4	3	6	9	51	20
13		106	5	3	8	13	74	32
14		63	5	2	4	11	38	25
15		91	4	-	7	12	56	35
16		99	4	3	8	15	58	41
17		21	6	-	1	4	18	3
18		-	-	-	-	-	-	-
19		103	2	3	9	17	53	50
20		116	5	4	7	13	97	19
21		102	3	5	7	20	58	44
22		125	5	2	6	15	64	61
23		127	5	3	8	17	67	60
24		42	5	-	6	11	39	3
25		-	-	-	-	-	-	-
26		104	5	1	9	14	76	28
27		127	6	4	13	20	73	54
28		129	6	1	5	17	66	63
29		111	5	3	7	18	67	44
30		107	4	3	10	18	56	51
31		-	-	-	-	-	-	-

Table 2A: Number of Laden Trucks - 6:00pm to 5:00am

TERALBA QUARRY			Month: Sept				
		Daily Total		Westwards		Eastwards	
				Daily	Max Hourly	Daily	Max Hourly
Limits		66		66	6	0	0
Actuals							
1		4		4	4	-	-
2		7		7	6	-	-
3		3		3	3	-	-
4		-		-	-	-	-
5		2		2	2	-	-
6		3		3	3	-	-
7		4		4	4	-	-
8		6		6	6	-	-
9		3		3	3	-	-
10		6		6	6	-	-
11		-		-	-	-	-
12		4		4	4	-	-
13		5		5	5	-	-
14		5		5	5	-	-
15		4		4	4	-	-
16		4		4	4	-	-
17		6		6	6	-	-
18		-		-	-	-	-
19		2		2	2	-	-
20		5		5	5	-	-
21		3		3	3	-	-
22		5		5	5	-	-
23		5		5	5	-	-
24		5		5	5	-	-
25		-		-	-	-	-
26		5		5	5	-	-
27		6		6	6	-	-
28		6		6	6	-	-
29		5		5	5	-	-
30		6		6	4	-	-
31		-		-	-	-	-

Table 2B: Number of Laden Trucks - 5:00am to 6:00am

TERALBA QUARRY		Month: Sept		
		Westwards		Eastwards
		Max Hourly		Max Hourly
Limits*		12		0
Actuals				
1		4	-	
2		2	-	
3		-	-	
4		-	-	
5		3	-	
6		3	-	
7		3	-	
8		4	-	
9		6	-	
10		3	-	
11		-	-	
12		3	-	
13		3	-	
14		2	-	
15		-	-	
16		3	-	
17		-	-	
18		-	-	
19		3	-	
20		4	-	
21		5	-	
22		2	-	
23		3	-	
24		-	-	
25		-	-	
26		1	-	
27		4	-	
28		1	-	
29		3	-	
30		3	-	
31		-	-	

* Condition 2 (9)

Table 2C: Number of Laden Trucks - 6:00am to 7:00am

TERALBA QUARRY		Month: Sept	
		Westwards**	Eastwards**
		Max Hourly	Max Hourly
Limits*		28	8
Actuals			
1		3	4
2		3	-
3		-	-
4		-	-
5		9	-
6		6	5
7		10	2
8		6	1
9		7	-
10		3	2
11		-	-
12		5	1
13		6	2
14		3	1
15		6	1
16		6	2
17		1	-
18		-	-
19		8	1
20		6	1
21		2	5
22		4	2
23		6	2
24		5	1
25		-	-
26		8	1
27		8	5
28		3	2
29		7	-
30		7	3
31		-	-

* Condition 2 (9)

** Combined Maximum hourly No. of laden trucks = 28

Table 2D: Number of Laden Trucks - 7:00am to 6pm

TERALBA QUARRY			Month: Sept				
		Daily Total		Westwards		Eastwards	
				Daily	Max Hourly	Daily	Max Hourly
Limits		305		220	20	85	8
Actuals							
1		118		57	10	61	8
2		39		16	4	23	8
3		9		6	3	2	2
4		-		-	-	-	-
5		125		67	10	58	8
6		107		54	9	53	8
7		97		51	10	46	8
8		91		52	12	39	8
9		74		45	7	29	7
10		14		6	3	8	3
11		-		-	-	-	-
12		58		39	6	19	4
13		90		60	9	30	6
14		52		28	7	24	5
15		80		46	7	34	6
16		84		45	8	39	8
17		14		11	3	3	2
18		-		-	-	-	-
19		89		40	9	49	8
20		100		82	11	18	5
21		87		48	12	39	8
22		112		53	9	59	8
23		111		53	9	58	8
24		31		29	11	2	1
25		-		-	-	-	-
26		89		62	10	27	8
27		104		55	12	49	8
28		117		56	10	61	8
29		96		52	10	44	8
30		88		40	10	48	8
31		-		-	-	-	-

** PLEASE NOTE: The Hilghted Max Hourly Movements Do Not Relate To Same One Hour Period

Table 2E: Total Number of Laden Trucks

TERALBA QUARRY						Month:	OCT 16
	Daily Total	Max Hourly Daily	Max Hourly Daily	Max Hourly Daily	Max Hourly Daily	Westwards Daily	Eastwards Daily
		6pm to 5am	5am to 6am	6am to 7am	7am to 6pm		
Limits	326	6	12	28	20	241	85
Actuals							
1	24	5	1	4	6	22	2
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	76	3	-	5	10	39	37
5	105	5	3	6	15	55	50
6	139	5	-	10	20	73	66
7	107	6	-	9	16	74	33
8	43	4	1	3	8	28	15
9	-	-	-	-	-	-	-
10	65	5	1	6	12	42	23
11	116	6	1	9	16	64	52
12	139	4	4	7	15	88	51
13	120	5	-	8	18	74	46
14	78	6	-	8	11	58	20
15	29	4	-	5	5	23	6
16	-	-	-	-	-	-	-
17	183	3	4	9	20	117	66
18	193	6	3	11	20	115	78
19	164	4	1	9	20	98	66
20	139	3	5	9	19	83	56
21	114	5	1	7	18	66	48
22	20	5	-	3	4	20	-
23	-	-	-	-	-	-	-
24	112	5	2	6	15	75	37
25	132	5	-	9	18	73	59
26	122	5	2	10	15	75	47
27	168	5	2	14	19	94	74
28	143	5	2	14	20	81	62
29	22	5	-	2	3	12	10
30	-	-	-	-	-	-	-
31	88	3	4	5	13	61	27

Table 2A: Number of Laden Trucks - 6:00pm to 5:00am

TERALBA QUARRY			Month:		OCT 16	
		Daily Total	Westwards		Eastwards	
			Daily	Max Hourly	Daily	Max Hourly
Limits		66	66	6	0	0
Actuals						
1		8	8	5	-	-
2		-	-	-	-	-
3		-	-	-	-	-
4		3	3	3	-	-
5		5	5	5	-	-
6		9	9	5	-	-
7		8	8	6	-	-
8		7	7	4	-	-
9		-	-	-	-	-
10		5	5	5	-	-
11		7	7	6	-	-
12		4	4	4	-	-
13		9	9	5	-	-
14		10	10	6	-	-
15		7	7	4	-	-
16		-	-	-	-	-
17		6	6	3	-	-
18		6	6	6	-	-
19		8	8	4	-	-
20		4	4	3	-	-
21		9	9	5	-	-
22		8	8	5	-	-
23		-	-	-	-	-
24		5	5	5	-	-
25		8	8	5	-	-
26		8	8	5	-	-
27		8	8	5	-	-
28		8	8	5	-	-
29		8	9	5	-	-
30		-	-	-	-	-
31		5	5	3	-	-

Table 2B: Number of Laden Trucks - 5:00am to 6:00am

TERALBA QUARRY		Month:		OCT 16
		Westwards		Eastwards
		Max Hourly		Max Hourly
Limits*		12		0
Actuals				
1		1		-
2		-		-
3		-		-
4		-		-
5		3		-
6		-		-
7		-		-
8		1		-
9		-		-
10		1		-
11		1		-
12		4		-
13		-		-
14		-		-
15		-		-
16		-		-
17		4		-
18		3		-
19		1		-
20		5		-
21		1		-
22		-		-
23		-		-
24		2		-
25		-		-
26		2		-
27		2		-
28		2		-
29		-		-
30		-		-
31		4		-

* Condition 2 (9)

Table 2C: Number of Laden Trucks - 6:00am to 7:00am

TERALBA QUARRY		Month:		OCT 16
		Westwards**		Eastwards**
		Max Hourly		Max Hourly
Limits*		28		8
Actuals				
1		4		-
2		-		-
3		-		-
4		5		-
5		4		2
6		7		3
7		6		3
8		2		1
9		-		-
10		5		1
11		7		2
12		6		1
13		6		2
14		6		2
15		3		2
16		-		-
17		3		6
18		5		6
19		7		2
20		5		4
21		6		1
22		3		-
23		-		-
24		5		1
25		5		4
26		7		3
27		7		7
28		8		6
29		2		-
30		-		-
31		4		1

* Condition 2 (9)

** Combined Maximum hourly No. of laden trucks = 28

Table 2D: Number of Laden Trucks - 7:00am to 6pm

TERALBA QUARRY			Month:		OCT 16	
		Daily Total	Westwards		Eastwards	
			Daily	Max Hourly	Daily	Max Hourly
Limits		305	220	20	85	8
Actuals						
1		11	9	5	2	1
2		-	-	-	-	-
3		-	-	-	-	-
4		68	31	6	37	7
5		93	43	8	50	8
6		120	57	13	63	8
7		90	60	10	30	6
8		32	18	6	14	4
9		-	-	-	-	-
10		53	31	7	22	6
11		99	49	9	50	8
12		124	74	11	50	8
13		103	59	11	44	8
14		60	42	10	18	4
15		17	13	4	4	2
16		-	-	-	-	-
17		164	104	14	60	8
18		173	101	14	72	8
19		146	82	13	64	8
20		121	69	13	52	8
21		97	50	10	47	8
22		9	9	4	-	-
23		-	-	-	-	-
24		99	63	11	36	8
25		115	60	10	55	8
26		102	58	10	44	7
27		144	77	12	67	8
28		119	63	12	56	8
29		11	1	1	10	3
30		-	-	-	-	-
31		74	48	7	26	6

** PLEASE NOTE: The Hilighted Max Hourly Movements Do Not Relate To Same One Hour Period

Table 2E: Total Number of Laden Trucks

TERALBA QUARRY						Month:		Nov-16
	Daily Total	Max Hourly Daily 6pm to 5am	Max Hourly Daily 5am to 6am	Max Hourly Daily 6am to 7am	Max Hourly Daily 7am to 6pm	Westwards Daily	Eastwards Daily	
Limits	326	6	12	28	20	241	85	
Actuals								
1	104	4	1	12	13	68	36	
2	130	5	-	11	16	104	26	
3	142	4	1	7	19	83	59	
4	157	4	2	9	20	116	41	
5	28	5	2	1	7	20	8	
6	-	-	-	-	-	-	-	
7	80	3	2	7	11	44	36	
8	92	4	1	5	12	61	31	
9	80	5	1	11	10	45	35	
10	110	5	1	9	14	63	47	
11	150	6	1	12	17	84	66	
12	19	5	-	-	2	17	2	
13	-	-	-	-	-	-	-	
14	84	2	4	7	12	56	28	
15	113	6	-	6	18	76	37	
16	156	5	-	5	20	89	67	
17	134	5	-	14	16	80	54	
18	161	5	-	11	19	88	73	
19	44	6	-	6	8	25	19	
20	-	-	-	-	-	-	-	
21	127	4	3	12	15	64	63	
22	175	4	2	12	19	123	52	
23	200	4	-	11	20	139	61	
24	198	5	-	13	20	152	46	
25	185	5	-	10	20	116	69	
26	82	5	-	10	17	51	31	
27	-	-	-	-	-	-	-	
28	157	4	3	11	20	113	44	
29	151	3	1	12	20	85	66	
30	171	-	8	10	20	116	55	

Table 2A: Number of Laden Trucks - 6:00pm to 5:00am

TERALBA QUARRY			Month:		Nov-16			
		Daily Total		Westwards			Eastwards	
				Daily	Max Hourly		Daily	Max Hourly
Limits		66		66	6		0	0
Actuals								
1		7		7	4		-	-
2		9		9	5		-	-
3		8		8	4		-	-
4		6		6	4		-	-
5		6		6	5		-	-
6		-		-	-		-	-
7		6		6	3		-	-
8		7		7	4		-	-
9		7		7	5		-	-
10		7		7	5		-	-
11		9		9	6		-	-
12		9		9	5		-	-
13		-		-	-		-	-
14		4		4	2		-	-
15		10		10	6		-	-
16		9		9	5		-	-
17		8		8	5		-	-
18		9		9	5		-	-
19		8		8	6		-	-
20		-		-	-		-	-
21		4		4	4		-	-
22		5		5	4		-	-
23		7		7	4		-	-
24		8		8	5		-	-
25		9		9	5		-	-
26		9		9	5		-	-
27		-		-	-		-	-
28		6		6	4		-	-
29		6		6	3		-	-
30		-		-	-		-	-
							-	-

Table 2B: Number of Laden Trucks - 5:00am to 6:00am

TERALBA QUARRY		Month:		Nov-16
		Westwards		Eastwards
		Max Hourly		Max Hourly
Limits*		12		0
Actuals				
1		1		-
2		-		-
3		1		-
4		2		-
5		2		-
6		-		-
7		2		-
8		1		-
9		1		-
10		1		-
11		1		-
12		-		-
13		-		-
14		4		-
15		-		-
16		-		-
17		-		-
18		-		-
19		-		-
20		-		-
21		3		-
22		2		-
23		-		-
24		-		-
25		-		-
26		-		-
27		-		-
28		3		-
29		1		-
30		8		-
				-

* Condition 2 (9)

Table 2C: Number of Laden Trucks - 6:00am to 7:00am

TERALBA QUARRY		Month:		Nov-16	
		Westwards**		Eastwards**	
		Max Hourly		Max Hourly	
Limits*		28		8	
Actuals					
1		8		4	
2		9		2	
3		6		1	
4		9		-	
5		-		1	
6		-		-	
7		3		4	
8		4		1	
9		8		3	
10		5		4	
11		8		4	
12		1		-	
13		-		-	
14		6		1	
15		3		3	
16		1		4	
17		11		3	
18		7		4	
19		6		-	
20		-		-	
21		9		3	
22		10		2	
23		8		3	
24		10		3	
25		6		4	
26		6		4	
27		-		-	
28		9		2	
29		9		3	
30		9		1	

* Condition 2 (9)

** Combined Maximum hourly No. of laden trucks = 28

Table 2D: Number of Laden Trucks - 7:00am to 6pm

TERALBA QUARRY		Month:		Nov-16		
		Daily Total	Westwards		Eastwards	
			Daily	Max Hourly	Daily	Max Hourly
Limits		305	220	20	85	8
Actuals						
1		84	52	11	32	7
2		110	86	13	24	6
3		126	68	15	58	8
4		140	99	15	41	8
5		19	12	5	7	2
6		-	-	-	-	-
7		65	33	6	32	5
8		79	49	12	30	7
9		61	29	7	32	5
10		93	50	11	43	8
11		128	66	10	62	8
12		9	7	4	2	1
13		-	-	-	-	-
14		69	42	9	27	7
15		97	63	13	34	6
16		142	79	12	63	8
17		112	61	11	51	8
18		141	72	11	69	8
19		30	11	5	19	6
20		-	-	-	-	-
21		108	48	7	60	8
22		156	106	14	50	8
23		182	124	17	58	8
24		177	134	17	43	8
25		166	101	13	65	8
26		63	36	12	27	7
27		-	-	-	-	-
28		137	95	15	42	7
29		132	69	12	63	8
30		153	99	14	54	8
31						

** PLEASE NOTE: The Hilghted Max Hourly Movements Do Not Relate To Same One Hour Period

Table 2E: Total Number of Laden Trucks

TERALBA QUARRY						Month:		DEC 16
	Daily Total	Max Hourly Daily	Max Hourly Daily	Max Hourly Daily	Max Hourly Daily	Westwards Daily	Eastwards Daily	
Limits	326	6pm to 5am	5am to 6am	6am to 7am	7am to 6pm	241	85	
Actuals								
1	174	3	2	8	20	121	53	
2	166	4	2	13	20	115	51	
3	41	4	2	7	7	30	11	
4	-	-	-	-	-	-	-	
5	143	5	2	13	18	115	28	
6	146	5	4	11	20	89	57	
7	86	4	2	6	13	46	40	
8	128	4	1	6	17	79	49	
9	121	5	-	13	18	69	52	
10	28	3	-	4	6	16	12	
11	-	-	-	-	-	-	-	
12	114	3	4	7	15	66	48	
13	124	4	1	9	14	70	54	
14	108	4	1	9	13	64	44	
15	51	4	1	9	7	32	19	
16	30	4	1	2	6	14	16	
17	25	3	1	4	6	21	4	
18	-	-	-	-	-	-	-	
19	81	4	4	6	12	51	30	
20	120	4	2	14	17	63	57	
21	81	5	-	9	13	53	28	
22	55	4	1	7	7	33	22	
23	25	5	1	6	4	17	8	
24	-	-	-	-	-	-	-	
25	-	-	-	-	-	-	-	
26	-	-	-	-	-	-	-	
27	-	-	-	-	-	-	-	
28	-	-	-	-	-	-	-	
29	-	-	-	-	-	-	-	
30	-	-	-	-	-	-	-	
31	-	-	-	-	-	-	-	

Table 2A: Number of Laden Trucks - 6:00pm to 5:00am

TERALBA QUARRY		Month:		DEC 16				
		Daily Total		Westwards			Eastwards	
				Daily	Max Hourly		Daily	Max Hourly
Limits				66	6		0	0
Actuals								
1		6		6	3	-	-	
2		6		6	4	-	-	
3		6		6	4	-	-	
4		-		-	-	-	-	
5		5		5	5	-	-	
6		5		5	5	-	-	
7		4		4	4	-	-	
8		6		6	4	-	-	
9		7		7	5	-	-	
10		4		4	3	-	-	
11		-		-	-	-	-	
12		4		4	3	-	-	
13		8		8	4	-	-	
14		6		6	4	-	-	
15		7		7	4	-	-	
16		4		4	4	-	-	
17		6		6	3	-	-	
18		-		-	-	-	-	
19		4		4	4	-	-	
20		6		6	4	-	-	
21		8		8	5	-	-	
22		7		7	4	-	-	
23		6		6	5	-	-	
24		-		-	-	-	-	
25		-		-	-	-	-	
26		-		-	-	-	-	
27		-		-	-	-	-	
28		-		-	-	-	-	
29		-		-	-	-	-	
30		-		-	-	-	-	
31		-		-	-	-	-	

Table 2B: Number of Laden Trucks - 5:00am to 6:00am

TERALBA QUARRY		Month:		DEC 16	
		Westwards		Eastwards	
		Max Hourly		Max Hourly	
Limits*		12		0	
Actuals					
1		2		-	
2		2		-	
3		2		-	
4		-		-	
5		2		-	
6		4		-	
7		2		-	
8		1		-	
9		-		-	
10		-		-	
11		-		-	
12		5		-	
13		1		-	
14		1		-	
15		1		-	
16		1		-	
17		1		-	
18		-		-	
19		4		-	
20		2		-	
21		-		-	
22		1		-	
23		1		-	
24		-		-	
25		-		-	
26		-		-	
27		-		-	
28		-		-	
29		-		-	
30		-		-	
31		-		-	

* Condition 2 (9)

Table 2C: Number of Laden Trucks - 6:00am to 7:00am

TERALBA QUARRY		Month:		DEC 16
		Westwards**		Eastwards**
		Max Hourly		Max Hourly
Limits*		28		8
Actuals				
1		5		3
2		11		2
3		6		1
4		-		-
5		10		3
6		8		3
7		3		3
8		4		2
9		9		4
10		3		1
11		-		-
12		6		1
13		5		4
14		6		3
15		6		3
16		2		-
17		4		-
18		-		-
19		4		2
20		14		-
21		6		3
22		6		1
23		4		2
24		-		-
25		-		-
26		-		-
27		-		-
28		-		-
29		-		-
30		-		-
31		-		-

* Condition 2 (9)

** Combined Maximum hourly No. of laden trucks = 28

Table 2D: Number of Laden Trucks - 7:00am to 6pm

TERALBA QUARRY			Month:		DEC 16	
		Daily Total	Westwards		Eastwards	
			Daily	Max Hourly	Daily	Max Hourly
Limits		305	220	20	85	8
Actuals						
1		158	108	15	50	8
2		145	96	14	49	8
3		26	16	6	10	3
4		-	-	-	-	-
5		123	98	14	25	5
6		126	72	13	54	8
7		74	37	7	37	7
8		115	68	12	47	8
9		101	53	10	48	8
10		20	9	3	11	4
11		-	-	-	-	-
12		98	51	8	47	7
13		106	56	9	50	8
14		92	51	8	41	8
15		34	18	4	16	3
16		23	7	3	16	4
17		14	10	4	4	2
18		-	-	-	-	-
19		67	39	7	28	5
20		98	41	9	57	8
21		64	39	8	25	7
22		40	19	5	21	6
23		12	6	2	6	2
24		-	-	-	-	-
25		-	-	-	-	-
26		-	-	-	-	-
27		-	-	-	-	-
28		-	-	-	-	-
29		-	-	-	-	-
30		-	-	-	-	-
31		-	-	-	-	-

** PLEASE NOTE: The Hilighted Max Hourly Movements Do Not Relate To Same One Hour Period

Metromix Teralba Quarry - Deposited Dust Monitoring Results

	RHONDA RD				MYRTLE ST				HILLSIDE CRES				RODGERS ST				MARGARET ST			
Year	Total Insoluble Solids	Ash Fraction	% Ash	Total Insoluble Solids	Ash Fraction	% Ash	Total Insoluble Solids	Ash Fraction	% Ash	Total Insoluble Solids	Ash Fraction	% Ash	Total Insoluble Solids	Ash Fraction	% Ash	Total Insoluble Solids	Ash Fraction	% Ash		
Units	gm ² /month	gm ² /month		gm ² /month	gm ² /month		gm ² /month	gm ² /month		gm ² /month	gm ² /month		gm ² /month	gm ² /month		gm ² /month	gm ² /month			
EPA Approved Level	4.0			4.0			4.0			4.0			4.0			4.0				
2004	1.3	0.9	73	0.9	0.6	70	2.5	1.3	68											
2005	1.4	0.9	69	1.3	0.7	58	1.4	0.7	54											
2006	1.0	0.6	67	2.0	1.1	50	0.9	0.5	57											
2007	1.1	0.7	65	0.9	0.5	56	1.0	0.5	56											
2008	1.0	0.6	61	0.9	0.5	63	1.0	0.5	50											
2009	1.4	0.9	63	1.4	1.0	65	2.1	1.3	54											
2010	1.1	0.8	72	0.7	0.5	74	1.0	0.4	44											
2011	1.0	0.7	73	1.1	0.5	51	1.1	0.5	53											
2012	0.8	0.5	66	0.9	0.5	63	1.4	0.5	36											
2013	1.0	0.7	73	0.9	0.6	68	1.3	0.5	39											
2014	0.9	0.5	60	0.9	0.5	60	1.5	0.8	52											
2015	1.0	0.5	50	1.7	1.2	68	1.7	1.0	54											
Average (All Years)	1.1	0.7	66	1.1	0.7	62	1.3	0.7	51				1.2	0.8	69	1.1	0.7	66		

2016 Results																			
11-Jan-15	1.2	0.4	33	1.2	0.6	50	1.2	0.5	42				2.8	2.1	75	1.2	0.6		50
01-Feb-15	1.4	0.5	36	1.8	0.6	33	2.0	1.4	70				1.9	0.6	32	1.5	0.5		33
01-Feb-15	0.5	0.4	80	1.3	0.6	46	0.7	0.4	57				0.2	0.2	100	0.7	0.5		71
01-Mar-16	0.5	0.4	80	1.2	0.7	58	0.8	0.5	63				0.4	0.3	75	1.9	1.0		53
02-May-16	0.8	0.5	63	0.7	0.5	71	4.5	2.5	56				0.9	0.7	78	0.8	0.5		63
01-Jun-16	1.0	0.7	70	1.0	0.8	80	5.3	4.1	77				0.8	0.4	50	1.0	0.7		70
01-Jul-16	1.0	0.6	60	NA	NA	NA	1.1	0.7	64				0.5	0.3	60	1.6	1.1		69
01-Aug-16	0.7	0.5	71	0.8	0.4	50	1.2	0.7	58				0.6	0.4	67	0.9	0.6		67
01-Sep-16	1.0	0.7	70	0.9	0.8	89	0.7	0.4	57				1.0	0.8	80	0.9	0.8		89
05-Oct-16	0.7	0.3	43	1.0	0.4	40	2.0	0.9	45				1.6	0.7	44	0.8	0.7		88
04-Nov-16	0.9	0.4	44	1.4	1.1	79	0.8	0.5	63				1.0	0.6	60	1.1	0.8		73
02-Dec-16	1.0	0.7	70	0.9	0.7	78	1.8	0.9	50				0.8	0.5	63	1.3	0.8		62

Monitoring did not occur at this location until 2011.



Metromix HVAS results

all results ug/m³

Date	Metromix PM10 - 24hr	Monthly Average	Year to date Annual Average	24hr Maximum Criteria	Annual Average Maximum Criteria
06-01-16	15		15.0	50	30
12-01-16	25		20.0	50	30
18-01-16	5		15.0	50	30
24-01-16	25		17.5	50	30
30-01-16	22	18.4	18.4	50	30
05-02-16	19		18.5	50	30
11-02-16	9		17.1	50	30
17-02-16	22		17.8	50	30
23-02-16	8		16.7	50	30
29-02-16	10	13.6	16.0	50	30
06-03-16	16		16.0	50	30
12-03-16	23		16.6	50	30
18-03-16	12		16.2	50	30
24-03-16	13		16.0	50	30
30-03-16	17	16.2	16.1	50	30
05-04-16	22		16.4	50	30
11-04-16	28		17.1	50	30
17-04-16	16		17.1	50	30
23-04-16	20		17.2	50	30
29-04-16	24	22.0	17.6	50	30
05-05-16	16		17.5	50	30
11-05-16	14		17.3	50	30
17-05-16	18		17.3	50	30
23-05-16	27		17.8	50	30
29-05-16	3	15.6	17.2	50	30
04-06-16	7		16.8	50	30
10-06-16	2		16.2	50	30
16-06-16	12		16.1	50	30
22-06-16	4		15.7	50	30
28-06-16	6	6.2	15.3	50	30
04-07-16	11		15.2	50	30
10-07-16	9		15.0	50	30
16-07-16	15		15.0	50	30
22-07-16	8		14.8	50	30
28-07-16	3	9.2	14.5	50	30
03-08-16	2		14.1	50	30
09-08-16	12		14.1	50	30
15-08-16	13		14.0	50	30
21-08-16	6		13.8	50	30
27-08-16	7	8.0	13.7	50	30
02-09-16	6		13.5	50	30
08-09-16	10		13.4	50	30
14-09-16	8		13.3	50	30
20-09-16	5		13.1	50	30
26-09-16	8	7.4	13.0	50	30
02-10-16	7		12.8	50	30
08-10-16	14		12.9	50	30
14-10-16	9		12.8	50	30
20-10-16	13		12.8	50	30
26-10-16	12	11.0	12.8	50	30
01-11-16	13		12.8	50	30
07-11-16	55		13.6	50	30
13-11-16	21		13.7	50	30
19-11-16	24		13.9	50	30
25-11-16	8	24.2	13.8	50	30
01-12-16	15		13.8	50	30
07-12-16	7		13.7	50	30
13-12-16	22		13.8	50	30
19-12-16	11		13.8	50	30
25-12-16	13		13.8	50	30
31-12-16	25	15.5	14.0	50	30
Current	PM10				
Average	14.0				
Standard Deviation	8.8				
Minimum	2				
Maximum	55				
Count	61				

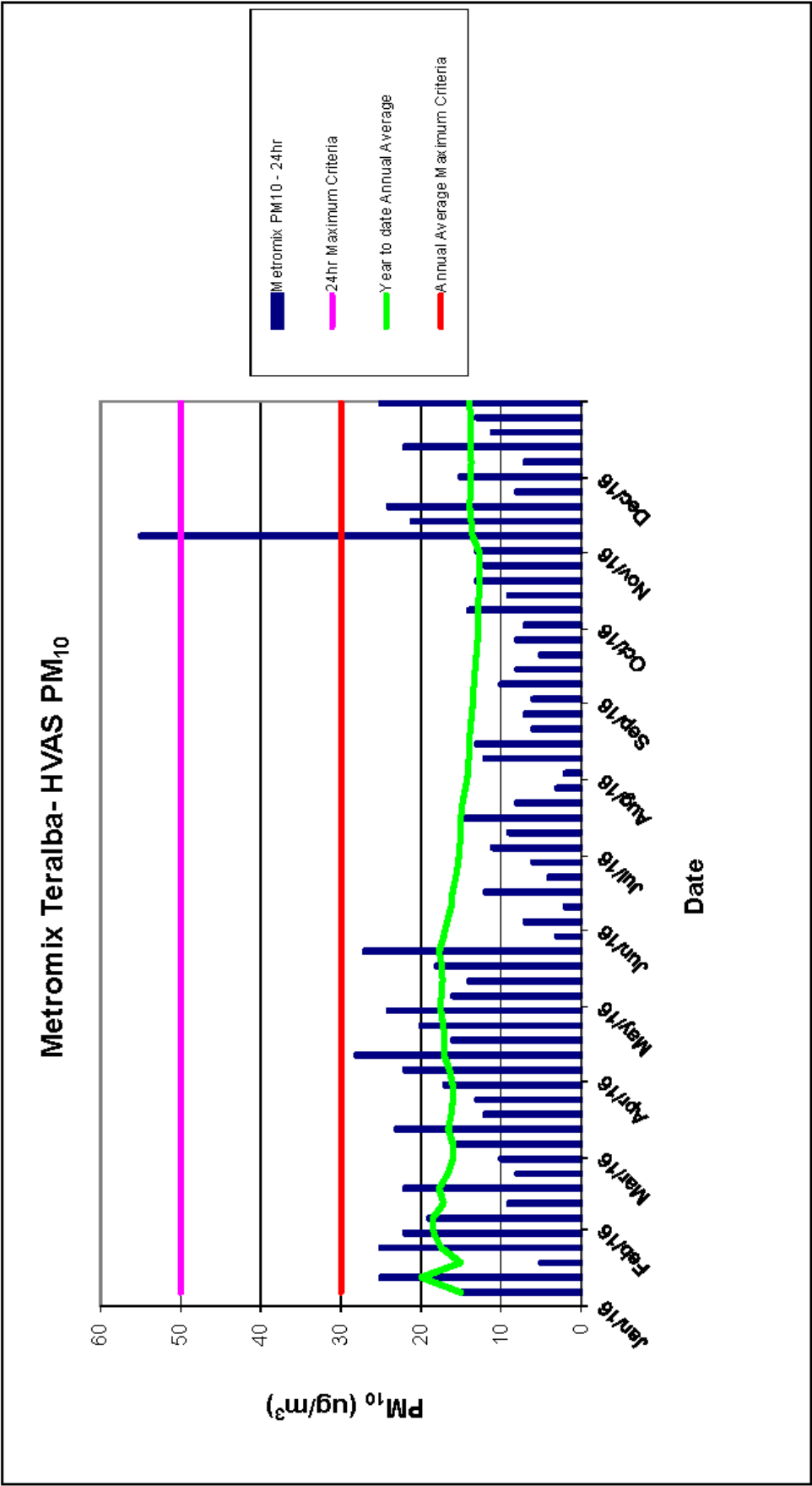


Figure 3.1: PM10 trend chart

Water Monitoring - Teralba Quarry - 2016 - EPA Point No.4 - Adit Overflow													
Sample No.	Sample	Units	123A		124A		125A		127A		129ABCDE		Guidelines
			Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	
0	pH		6.92		6.84		8.16		8.09		8.04		6.5 to 8.5 units
	Conductivity	µS/cm	1710		1790		1880		1780		1900		125 - 2200 ^b
	TSS	mg/L	12		36		<5		<5		<5		5
	Oil & Grease	mg/L	<5		<5		<5		<5		<5		5
	Aluminium	mg/L	0.42	<0.01	1.28	<0.01	0.06	<0.01	0.05	0.04	0.01	<0.01	0.2
	Ammonia as N	mg/L	<0.01		0.04				0.07		0.06		0.01
	Antimony	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA
	Arsenic	mg/L	0.002	<0.001	0.004	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.05
	Barium	mg/L	0.031	0.028	0.054	0.041	0.041	0.041	0.048	0.045	0.051	0.048	1
	Beryllium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA
	Boron	mg/L	0.18	0.2	0.22	0.15	0.17	0.17	0.22	0.17	0.16	0.14	1
	Cadmium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.005
	Calcium	mg/L	44		42				57		50		1000 ^c
	Chromium	mg/L	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.05
	Cobalt	mg/L	<0.001	<0.001	0.004	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1000
	Copper	mg/L	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1
	Iron	mg/L	0.49	<0.05	2.84	0.06	0.11	<0.05	0.11	<0.05	0.13	<0.05	0.3
	Lead	mg/L	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.05
	Lithium	mg/L	0.036	0.036	0.04	0.037	0.039	0.037	0.032	0.031	0.031	0.032	0.075 ^d
	Magnesium	mg/L	50	43	44	50	48	46	53	52	49	46	NA
	Manganese	mg/L	0.228	0.2	0.408	0.361	0.035	0.023	0.046	0.030	0.052	0.034	0.1
	Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.001
	Molybdenum	mg/L	0.003	0.004	0.003	0.001	0.003	0.003	0.003	0.003	0.002	0.003	0.15 ^c
	Nickel	mg/L	0.004	0.003	0.01	0.007	0.004	0.003	0.002	0.003	0.003	0.002	0.1
	Phosphorous as P	mg/L	<0.01		0.04		0.02		0.02		0.02		NA
	Potassium	mg/L	8		9		7		9		6		NA
	Selenium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
	Silica as SiO ₂	mg/L	18.4	18.4	19.2	14.4	16	18.5	18.5	18.2	18.6	14.9	NA
	Silver	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.05
	Sulfur as S	mg/L	78	78	72	72	77	77	70		65	68	NA
	Tin	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA
	Titanium	mg/L	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	NA
	Vanadium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NA
	Zinc	mg/L	0.006	<0.005	0.014	<0.005	0.007	0.007	0.006	0.008	0.007	<0.005	NA

Indicates results that varied between filtered and unfiltered samples

ND = Not Determined

NA = Not Applicable

^a Based on ANZECC Guidelines for Fresh and Marine Water Quality - Recreational Water Quality (ANZECC 2000) except where indicated

^b Based on ANZECC Guidelines slightly disturbed lowland river ecosystems in south-east Australia (ANZECC 2000)

^c Based on ANZECC Guidelines for Fresh and Marine Water Quality - Livestock Water Quality (ANZECC 2000)

^d Based on ANZECC Guidelines for Fresh and Marine Water Quality - Irrigation Water Quality (ANZECC 2000)

Water Monitoring - Teralba Quarry - 2016 - EPA Point No.4 - Adit Overflow																				
Sample	Sample No. Dates	130ABCDE July 2016.			131ABCDE August 2016.			132 September 2016.			133 October 2016.			134ABCDE November 2016.			135ABCDE December 2016.			Guidelines
		Total (Unfiltered)	Dissolved (Filtered)		Total (Unfiltered)	Dissolved (Filtered)		Total (Unfiltered)	Dissolved (Filtered)		Total (Unfiltered)	Dissolved (Filtered)		Total (Unfiltered)	Dissolved (Filtered)		Total (Unfiltered)	Dissolved (Filtered)		
Sample	Units																			
pH	PH Unit	8.08																		
Conductivity	µS/cm	1700																		
TSS	mg/L	6																		
Oil & Grease	mg/L	<5																		
Aluminium	mg/L	0.05	0.04		0.06	<0.01														
Ammonia as N	mg/L	0.12			0.02															
Antimony	mg/L	<0.001	<0.001		<0.001	<0.001														
Arsenic	mg/L	<0.001	0.001		0.002	0.002														
Barium	mg/L	0.041	0.038		0.044	0.033														
Beryllium	mg/L	<0.001	<0.001		<0.001	<0.001														
Boron	mg/L	0.15	0.15		0.18	0.18														
Cadmium	mg/L	<0.0001	0.0001		<0.0001	0.0002														
Calcium	mg/L	44			48															
Chromium	mg/L	0.001	<0.001		<0.001	<0.001														
Cobalt	mg/L	<0.001	<0.001		<0.001	<0.001														
Copper	mg/L	<0.001	<0.001		<0.001	<0.001														
Iron	mg/L	0.23	<0.05		0.14	<0.05														
Lead	mg/L	<0.001	<0.001		<0.001	<0.001														
Lithium	mg/L	0.029	0.031		0.041	0.038														
Magnesium	mg/L	46	45		55	54														
Manganese	mg/L	0.088	0.032		0.092	0.075														
Mercury	mg/L	<0.0001	<0.0001		<0.0001	<0.0001														
Molybdenum	mg/L	0.002	0.002		0.003	0.002														
Nickel	mg/L	0.002	0.002		0.004	0.003														
Phosphorous as P	mg/L	<0.01			<0.01															
Potassium	mg/L	6			8															
Selenium	mg/L	<0.01	<0.01		<0.01	<0.01														
Silicon as SiO2	mg/L	13.9	16.3		13.7	13.4														
Silver	mg/L	<0.001	<0.001		<0.001	<0.001														
Sulfur as S	mg/L	66			80															
Tin	mg/L	0.002	<0.001		<0.001	<0.001														
Titanium	mg/L	<0.01	<0.01		<0.01	<0.01														
Vanadium	mg/L	<0.01	<0.01		<0.01	<0.01														
Zinc	mg/L	0.006	<0.005		<0.005	<0.005														

Water Monitoring - Teralba Quarry - 2016 - EPA Point No.5 - Overflow Dam B																	
Sample No.	Sample Dates	Units	216		January 2016.		February 2016.		March 2016.		April 2016.		May 2016.		June 2016.		Guidelines
			Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)			
Sample	0	Units	7.48														6.5 to 8.5 units
pH		µS/cm	940														125 - 2200 ^b
Conductivity		mS/cm	<5														<50
TSS		mg/L	<5														5
Oil & Grease		mg/L	0.05	<0.01													0.2
Aluminium		mg/L	0.03														0.01
Ammonia as N		mg/L	<0.001	<0.001													NA
Antimony		mg/L	<0.001	<0.001													NA
Arsenic		mg/L	0.037	0.035													0.05
Barium		mg/L	<0.001	<0.001													1
Beryllium		mg/L	0.11	0.08													NA
Boron		mg/L	<0.0001	<0.0001													1
Cadmium		mg/L	33														0.005
Calcium		mg/L	<0.001	<0.001													1000 ^c
Chromium		mg/L	<0.001	<0.001													0.05
Cobalt		mg/L	0.001	0.001													1000
Copper		mg/L	0.15	<0.05													1
Iron		mg/L	<0.001	<0.001													0.3
Lead		mg/L	0.014	0.013													0.05
Lithium		mg/L	35	35													0.075 ^d
Magnesium		mg/L	0.086	0.078													NA
Manganese		mg/L	<0.0001	<0.0001													NA
Mercury		mg/L	0.002	0.001													0.001
Molybdenum		mg/L	0.004	0.004													0.15 ^e
Nickel		mg/L	<0.01														0.1
Phosphorous as P		mg/L	<0.01														NA
Potassium		mg/L	<0.01	5													NA
Selenium		mg/L	14.2	15.8													0.01
Silica as SiO2		mg/L	<0.001	<0.001													NA
Silver		mg/L	44														NA
Sulfur as S		mg/L	<0.001	<0.001													0.05
Tin		mg/L	<0.01	<0.01													NA
Titanium		mg/L	<0.01	<0.01													NA
Vanadium		mg/L	<0.01	<0.01													NA
Zinc		mg/L	<0.005	0.006													NA

Indicates results that varied between filtered and unfiltered samples

ND = Not Determined

NA = Not Applicable

^a Based on ANZECC Guidelines for Fresh and Marine Water Quality - Recreational Water Quality (ANZECC 2000) except where indicated

^b Based on ANZECC Guidelines slightly disturbed lowland river ecosystems in south-east Australia (ANZECC 2000)

^c Based on ANZECC Guidelines for Fresh and Marine Water Quality - Livestock Water Quality (ANZECC 2000)

^d Based on ANZECC Guidelines for Fresh and Marine Water Quality - Irrigation Water Quality (ANZECC 2000)

Water Monitoring - Teralba Quarry - 2016 - EPA Point No.5 - Overflow Dam B												
	Sample No.	July 2016		August 2016		September 2016		October 2016		November 2016		December 2016
	Dates	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Total (Unfiltered)	Dissolved (Filtered)	Dissolved (Filtered)
Sample	Units	No Discharge		No Discharge		No Discharge		No Discharge		No Discharge		Guidelines
pH	µS/cm											
Conductivity	mg/L											6.5 to 8.5 units
TSS	mg/L											125 - 2200 ^b
Oil & Grease	mg/L											<50
Aluminium	mg/L											5
Ammonia as N	mg/L											0.2
Antimony	mg/L											0.01
Arsenic	mg/L											NA
Barium	mg/L											0.05
Beryllium	mg/L											1
Boron	mg/L											NA
Cadmium	mg/L											1
Calcium	mg/L											0.005
Chromium	mg/L											1000 ^c
Cobalt	mg/L											0.05
Copper	mg/L											1000
Iron	mg/L											1
Lead	mg/L											0.3
Lithium	mg/L											0.05
Magnesium	mg/L											0.075 ^d
Manganese	mg/L											NA
Mercury	mg/L											0.1
Molybdenum	mg/L											0.001
Nickel	mg/L											0.15 ^e
Phosphorous as P	mg/L											0.1
Potassium	mg/L											NA
Selenium	mg/L											NA
Silica as SiO2	mg/L											0.01
Silver	mg/L											NA
Sulfur as S	mg/L											0.05
Tin	mg/L											NA
Titanium	mg/L											NA
Vanadium	mg/L											NA
Zinc	mg/L											NA

Indicates results that varied between filtered and unfiltered samples

ND = Not Determined

NA = Not Applicable

^a Based on ANZECC Guidelines for Fresh and Marine Water Quality - Recreational Water Quality (ANZECC 2000) except where indicated

^b Based on ANZECC Guidelines slightly disturbed lowland river ecosystems in south-east Australia (ANZECC 2000)

^c Based on ANZECC Guidelines for Fresh and Marine Water Quality - Livestock Water Quality (ANZECC 2000)

^d Based on ANZECC Guidelines for Fresh and Marine Water Quality - Irrigation Water Quality (ANZECC 2000)

Date	Metromix Sample No.	pH	Suspended Solids (mg/L)	Comments
Jan-16	No Water Discharge at EPA Point 6			
Feb-16	No Water Discharge at EPA Point 6			
Mar-16	No Water Discharge at EPA Point 6			
Apr-16	No Water Discharge at EPA Point 6			
May-16	No Water Discharge at EPA Point 6			
Jun-16	No Water Discharge at EPA Point 6			
Jul-16	No Water Discharge at EPA Point 6			
Aug-16	No Water Discharge at EPA Point 6			
Sep-16	No Water Discharge at EPA Point 6			
Oct-16	No Water Discharge at EPA Point 6			
Nov-16	No Water Discharge at EPA Point 6			
Dec-16	No Water Discharge at EPA Point 6			

Date	Metromix Sample No.	pH	Suspended Solids (mg/L)	Comments
Jan-16	No Water Discharge at EPA Point 7			
Feb-16	No Water Discharge at EPA Point 7			
Mar-16	No Water Discharge at EPA Point 7			
Apr-16	No Water Discharge at EPA Point 7			
May-16	No Water Discharge at EPA Point 7			
Jun-16	No Water Discharge at EPA Point 7			
Jul-16	No Water Discharge at EPA Point 7			
Aug-16	No Water Discharge at EPA Point 7			
Sep-16	No Water Discharge at EPA Point 7			
Oct-16	No Water Discharge at EPA Point 7			
Nov-16	No Water Discharge at EPA Point 7			
Dec-16	No Water Discharge at EPA Point 7			

Metromix Teralba Quarry Daily Rainfall 2016

Date	Daily Rainfall (mm)											
	January	February	March	April	May	June	July	August	September	October	November	December
1	0	0	0	0	9.2	4.4	0	0	0	0	0	0
2	0	0	0	0	0	0	0	17.8	16.4	0	0	0
3	16.2	0	0	0	0	0	0	21	0.4	0	0	0
4	43.6	22.2	0	0	0	36.2	0	5.8	0	0	0	0
5	131.6	2	0	0	0	58.6	2.6	3	0	0	0	0
6	94.8	2.4	0	0	0	0.2	0	1	0	0	0	3.4
7	3.8	0	0	0.2	0	0	11	1.6	0	0	0	8.4
8	0	0	0	0.8	0	0	14.2	0	0	0	2	2.6
9	0	0.6	0	0.2	0.8	0	0.2	0	0	0.2	1.2	0.2
10	0	0	0	0	0	0	0	0.8	1.2	3.6	0	0.6
11	8.6	0	0	0	0	0	0	0.2	0	2	0	0
12	0	0	0	0	0	0	0	0	0	0	23.4	0
13	0	0	0	3	0	1	0	0	1.8	8.2	0	0
14	34.4	0	0	0.6	0	0	0	0	2.6	0	3	0
15	42.2	9	0	0	0	0	0	0	2	0	2.8	15.8
16	0.6	0.8	13.4	0	0	0	2.6	0	0.4	0	0	16
17	8	0.2	1.8	31.4	0	0	0.6	0	0	3.4	0	0.2
18	0	0	3.8	1	0	2	0.2	0	2.4	0	0	0
19	0	0	0	0.2	0	51.2	1.6	0	0	0	0	0.6
20	0	0	19	0	0	0.8	32.4	0	20.8	0	0	0
21	8.8	0	2.2	0.2	0	0	0.2	0	2.2	1.8	0	0
22	19.6	0	1.4	3.4	0	0	0	3.2	0	30	0	0
23	4.8	0	0	2	0	0	3.4	0	0	0.2	4.2	0
24	0.2	0	0	8.6	0	0.2	0	3.6	0	0	0	4.6
25	0	0	0	0	0	0	0	1.8	1.4	0	0	0
26	0	0	0	1	2.2	0	0	8.2	0	0	0	0
27	0	0	0	0	0	0	0	2.6	0	0	0	0
28	2.4	0	0	0	0	0	0	0	0	3.8	0	0
29	0	0	0.8	0	0	0	0	0	5.6	0	0	0
30	0	0	0.6	0.4	0	0	0	0	0	3.6	0.6	0
31	0	0	0	0	5.8	0	0	0	0	0.2	0	0
Monthly Total	419.6	37.2	43.0	53.0	18.0	154.6	69.0	70.6	57.2	57.0	37.2	52.4
											Annual Total:	1068.8



13 September 2016

Ref: 8413/6661

Metromix Pty Ltd
150 Rhondda Road
Teralba NSW 2284

AUGUST 2016 NOISE MONITORING RESULTS – TERALBA QUARRY

This letter report presents the results of attended noise monitoring conducted for the Metromix operated Teralba Quarry (TQ) commencing on Monday 15th through to Wednesday 17th of August, 2016. Noise monitoring was carried out in accordance with the conditions of the TQ Noise Management Plan (NMP) as shown in extract on page 2 (referenced from EPL 0536).

Although the project approval nominates noise criteria at nine locations, Metromix recognises that meaningful monitoring data will continue to be collected from the closest locations to the active operational areas. As a result of this, and as outlined within the approved NMP, for periods when operations are confined to areas south of Rhondda Road, noise monitoring will be undertaken at Locations EPL-A, B, D, E and H.

Further to this, location EPL-C and EPL-F have been omitted from the noise monitoring programme given they are not required as other monitoring locations are nearby. **Table 1** lists the address and coordinates of each noise monitoring location, with the relevant monitoring locations that were monitored during the August 2016 period highlighted in **bold**. The locations are shown on the figure in **Appendix I**.

Table 1 Noise Monitoring Locations (from PA 10-0183)			
Location in EPL	Address	Easting	Northing
EPL-A	Awaba Street, Teralba	369080	3651470
EPL-B	Rhondda Road, Teralba	369250	6351915
EPL-C	Rhondda Road, Teralba ¹	369205	6352015
EPL-D	Rhondda Road, Teralba	369150	6352135
EPL-E	Victoria Avenue, Teralba	369060	6352620
EPL-F	Victoria Avenue, Teralba ¹	369130	6352945
EPL-H	School Road, Wakefield	366210	6352520

1. Metromix has obtained permission for this monitoring location to be omitted.



Teralba Quarry Noise Monitoring – August 2016

It is noted that during the period when monitoring is undertaken at Location B, Metromix is required to provide a spotter to record the number of trucks departing from the Quarry and not the Teralba Business Park. Spectrum Acoustics personnel undertook identification of quarry trucks as part of the noise monitoring procedure.

Condition	Requirement				
L4.1	The licensee must ensure that noise generated by the activities within the premises do not exceed the following criteria measured by dB(A) at any residence or privately owned land.				
	Location	Day Shoulder 6:00am - 7:00am	Day 7:00am - 6:00pm	Evening 6:00pm - 10:00pm	Night 10:00pm - 6:00am
		L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)
	A-	38	38	37	L _{A1} (1min) 35
	B-	42	46	36	45
	C-	42	42	35	35
	D,E,G,H,I	35	35	35	45
	F	37	38	38	35
					45
	Note: The licensee may provide to the EPA written evidence of any agreement with a landholder which is subject to the above noise limits. The written evidence may be submitted with a licence variation to remove the landholder from the above table.				

Condition	Requirement			
L4.2	The licensee must comply with the operating hours set out in the following table:			
	Day	Receipt of Concrete or VENM* or ENM**	Loading and Dispatch of Quarry Trucks	Extraction and Processing
	Monday - Friday	7:00am to 5:00pm	4:00am Monday to midnight Friday	7:00am to 7:00pm
	Saturday	7:00am to 2:00pm	Midnight Friday to 6:00pm Saturday	7:00am to 2:00pm
	Sundays and Public Holidays	None	None	none
	Note: Maintenance activities may occur at any time provided they are inaudible at privately-owned residence. *VENM = Virgin Excavated Natural Material **ENM = Excavated Natural Material			
L4.3	The noise limits set out in conditions L4.1 apply under all meteorological conditions except for anyone of the following: a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or b) Stability category F temperature inversion conditions and wind speeds greater the 2 metres/second at 10 metres above ground level; or c) Stability category G temperature inversion conditions.			
L4.4	For the purpose of condition L4.3: a) the meteorological data to be used for determining meteorological conditions is the data recorded at the meteorological station identified in this licence as EPA Identification Point W1. b) Stability category temperature inversion conditions are to be determined by the sigma-theta method referred to in Part E4 of Appendix E to the <i>NSW Industrial Noise Policy (EPA 2000)</i> Note: The weather station must be designed, commissioned and operated in a manner to obtain the necessary parameters required under the above condition.			
L4.5	For the purpose of determining the noise generated at the premises the licensee must use a Class 1 or Class 2 noise monitoring device as defined by AS IEC61672.1 and AS IEC61672.2-2004, or other noise monitoring equipment accepted by the EPA in writing.			
L4.6	To determine compliance: 1. With the L _{Aeq} (15 min) noise limits in condition L4.1, the licensee must locate noise monitoring equipment; a) within 30 metres of a dwelling facade (but not closer than 3 metres) where any dwelling on the property is situated more than 30 metres from the property boundary that is closest to the premises; b) approximately on the boundary where any dwelling is situated 30 metres or less from the property boundary that is closest to the premises, or, where applicable, c) within approximately 50 metres if the boundary of a national park or nature reserve. 2. With the L _{A1} (1 minute) noise limits in condition L4.1, the noise monitoring equipment must be located within 1 metre of a dwelling facade. 3. With the noise limits in condition L4.1, the noise monitoring equipment must be located; a) at the most affected point at a location where there is no dwelling at the location, or b) at the most affected point within an area at a location prescribed by conditions L4.6 1(a) or L4.6 1(b).			





NOISE MEASUREMENTS

Attended noise monitoring was conducted with Brüel & Kjær Type 2250 Precision Sound Analysers. This instrument has Type 1 characteristics as defined in AS1259-1982 "Sound Level Meters" and has current NATA calibration. Field calibration was carried out at the start and end of each monitoring period.

The noise monitoring was conducted in general accordance with the requirements of Section 9 of the NMP (Noise Monitoring Protocol and Evaluation of Compliance) as follows;

"Metromix proposes to adopt a noise monitoring protocol that provides feedback on the effectiveness of the noise control measures and demonstrate compliance with the conditions within the Project Approval 10_0183 and Environment Protection Licence 0536.

The approach to monitoring compliance is based substantially upon Metromix's experience to date which has identified the on-site activities have not been the source of noise complaints or any recorded non-compliance. Hence, it is considered the monitoring program needs to reflect this fact."

A-weighted noise levels were measured over 15 minute monitoring periods with data acquired at 1 second statistical intervals and the meter set to "fast" response. Each 1 second measurement is accompanied by a third-octave band spectrum from 20 - 20k Hz which is required for analysing INP 'modifying factors'. Time based field notes allow for determination of the relative contributions to the overall noise level of all significant noise sources.

The worst case 15 minute Leq noise level for each monitoring period is shown in the tables below. Where the noise from TQ was audible, Bruel & Kjaer "Evaluator" analysis software was used to quantify the contributions of the quarry and other significant noise sources to the overall level. Quarry noise from TQ is shown in the tables in bold type. Where noise from TQ is listed as faintly audible, this means the noise levels from the quarry were at least 10 dB below the ambient level during the measurement and not measurable.

Noise levels were recorded for each of the L10, Leq, Lmax, L1, L90 and Lmin percentiles. All noise levels shown in the tables of results are in dB(A) Leq (15 min). Levels for the other percentiles are not shown as they have no compliance criteria for comparison but are available on request.

Meteorological data used in this report was obtained from the quarry-operated weather station at the site.

Noise Compliance Assessment

The results of the noise measurements undertaken throughout the various time periods are provided in **Tables 2 to 13**. EPL 536 refers to the various time periods as follows:

- a) Day-Shoulder is defined as the period between 6am to 7am Monday to Saturday.





Teralba Quarry Noise Monitoring – August 2016

- b) Day is defined as:
- (i) the period from 7am to 6pm Monday to Saturday; and
 - (ii) the period from 8am to 6pm Sundays and Public Holidays.
- c) Evening is defined as the period from 6pm to 10pm.
- d) Night is defined as:
- (i) the period from 10pm to 7am Monday to Saturday; and
 - (ii) the period from 10pm to 8am Sundays and Public Holidays.

Table 2 Teralba Quarry Noise Monitoring Results – 15 August 2016 Night					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	5:41 am	48	35	1.1 m/s 345°	Traffic (46), trains (41), birds (40), TQ inaudible
B	4:32 am	61	35	0.9 m/s 42°	Traffic (60), trains (53), TQ inaudible ¹
D	4:30 am	49	35	0.9 m/s 42°	Traffic (49), trains (36), TQ (27)
E	5:38 am	45	35	1.1 m/s 13°	Birds (44), traffic (38), TQ inaudible
H	5:00 am	43	35	1.0 m/s 33°	Traffic (42), birds & frogs (35), TQ inaudible

Note: ¹ See text description and analysis

Table 3 Teralba Quarry Noise Monitoring Results – 15 August 2016 Day Shoulder					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	6:42 am	54	38	1.6 m/s 345°	Traffic (53), birds (46), TQ (24)
B	6:22 am	49	42	0.9 m/s 345°	Traffic (45), trains (42), birds (43), industrial noise (40), TQ inaudible
D	6:42 am	50	35	1.6 m/s 345°	Traffic (47), birds (45), batch plant (41), industrial noise (40), TQ inaudible
E	6:43 am	49	35	1.6 m/s 345°	Birds (48), traffic (41), trains (29), TQ inaudible
H	6:01 am	48	35	1.3 m/s 22°	Birds (46), traffic (43), TQ inaudible

Note: ¹ See text description and analysis

Table 4 Teralba Quarry Noise Monitoring Results – 15 August 2016 Day					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	9:38 pm	49	38	1.7 m/s 31°	Traffic (46), birds (44), industrial noise (37), TQ (33)
B	8:00 am	63	46	1.1 m/s 31°	Traffic (63), industrial noise (40), birds (38), TQ inaudible ¹
D	8:08 am	52	35	1.1 m/s 28°	Traffic (52), birds (40), industrial noise (31), TQ (28)
E	9:45 am	44	35	1.7 m/s 33°	Birds (41), traffic (41), TQ inaudible
H	4:21 pm	40	35	1.2 m/s 73°	Birds (39), traffic (32), TQ inaudible

Note: ¹ See text description and analysis





Teralba Quarry Noise Monitoring – August 2016

Table 5 Teralba Quarry Noise Monitoring Results – 15 August 2016 Evening					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	6:37 pm	47	37	0.6 m/s 36°	Traffic (47), trains (32), TQ inaudible
B	6:00 pm	57	36	0.7 m/s 80°	Traffic (57), trains (41), TQ inaudible
D	6:00 pm	44	35	0.7 m/s 80°	Traffic (44), trains (29), TQ inaudible
E	6:36 pm	43	35	0.6 m/s 36°	Traffic (41), frogs (39), TQ inaudible
H	6:05 pm	37	35	0.7 m/s 79°	Insects (35), traffic (32), TQ inaudible
Note: ¹ See text description and analysis					

Table 6 Teralba Quarry Noise Monitoring Results – 16 August 2016 Night					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	5:42 am	49	35	0.6 m/s 304°	Traffic (48), birds (41), train (31), TQ inaudible
B	4:30 am	46	35	0.6 m/s 53°	Traffic (45), trains (39), TQ inaudible
D	4:31 am	37	35	0.6 m/s 53°	Traffic (35), trains (32), TQ inaudible
E	5:40 am	46	35	0.6 m/s 304°	Traffic (45), birds (39), TQ inaudible
H	4:55 am	46	35	0.6 m/s 57°	Traffic (45), birds (40), TQ inaudible
Note: ¹ See text description and analysis					

Table 7 Teralba Quarry Noise Monitoring Results – 16 August 2016 Day Shoulder					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	6:43 am	52	38	0.4 m/s 188°	Traffic (52), birds (40), trains (29), TQ (25)
B	6:21 am	53	42	0.8 m/s 298°	Industrial noise (50), traffic (47), birds (45), train (38), TQ inaudible
D	6:38 am	51	35	0.4 m/s 225°	Birds (48), traffic (45), batch plant (43), industrial noise (40), trains (35), TQ (24)
E	6:43 am	48	35	0.4 m/s 188°	Traffic (46), birds (43), TQ inaudible
H	6:00 am	50	35	0.5 m/s 314°	Birds (48), traffic (46), TQ inaudible
Note: ¹ See text description and analysis					





Teralba Quarry Noise Monitoring – August 2016

Table 8 Teralba Quarry Noise Monitoring Results – 16 August 2016 Day					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	9:34 am	47	38	1.2 m/s 336°	Traffic (43), birds (43), industrial noise (39), TQ (29)
B	7:56 am	68	46	0.8 m/s 60°	Traffic (68), birds (40), industrial noise (39), train (32), TQ inaudible
D	7:43 am	60	35	0.7 m/s 57°	Traffic (60), birds (43), industrial noise (37), TQ (29)
E	4:25 pm	46	35	1.3 m/s 51°	Birds & frogs (44), traffic (41), TQ inaudible
H	9:24 am	47	35	1.1 m/s 334°	Birds (47), traffic (33), TQ inaudible
Note: * See text description and analysis					

Table 9 Teralba Quarry Noise Monitoring Results – 16 August 2016 Evening					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	7:11 pm	46	37	2.4 m/s 21°	Traffic (46), frogs (26), TQ inaudible
B	6:34 pm	47	36	2.5 m/s 30°	Traffic (47), frogs (28), TQ inaudible
D	6:00 pm	48	35	2.1 m/s 25°	Traffic (48), TQ inaudible
E	6:39 pm	44	35	2.5 m/s 30°	Traffic (43), frogs (36), domestic (30), TQ inaudible
H	6:00 pm	40	35	2.1 m/s 25°	Traffic (38), frogs (35), TQ (32)
Note: * See text description and analysis					

Table 10 Teralba Quarry Noise Monitoring Results – 17 August 2016 Night					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	5:40 am	53	35	2.0 m/s 344°	Traffic (53), trains (35), birds (31), TQ (24) ,
B	4:33 am	51	35	1.8 m/s 337°	Traffic (50), trains (43), TQ inaudible
D	5:40 am	45	35	2.0 m/s 344°	Traffic (44), batch plant (38), wind (32), TQ (26)
E	4:32 am	38	35	1.8 m/s 337°	Traffic (37), frogs (30), mine (25), TQ inaudible
H	4:57 am	42	35	2.0 m/s 340°	Traffic (42), frogs (28), TQ inaudible
Note: * See text description and analysis					





Teralba Quarry Noise Monitoring – August 2016

Table 11 Teralba Quarry Noise Monitoring Results – 17 August 2016 Day Shoulder					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	6:32 am	51	38	1.8 m/s 345°	Traffic (50), industrial noise (42), birds (32), TQ (28)
B	6:22 am	52	42	2.2 m/s 346°	Industrial noise (50), birds (45), traffic (42), TQ inaudible
D	6:41 am	53	35	1.1 m/s 338°	Traffic (53), batch plant (41), birds (36), TQ (26)
E	6:40 am	50	35	1.1 m/s 338°	Birds (49), traffic (42), TQ inaudible
H	6:00 am	52	35	2.0 m/s 344°	Birds (50), traffic (48), TQ inaudible

Note: ¹ See text description and analysis

Table 12 Teralba Quarry Noise Monitoring Results – 17 August 2016 Day					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	4:25 pm	46	38	1.6 m/s 338°	Traffic (45), birds (34), trains (34), industrial noise (32), TQ inaudible
B	8:46 am	63	46	1.7 m/s 349°	Traffic (63), industrial noise (35), trains (34), birds (30), TQ inaudible
D	10:22 am	48	35	1.8 m/s 329°	Traffic (48), birds (33), wind (28), industrial noise (28), TQ (25)
E	9:10 am	46	35	2.3 m/s 347°	Birds (44), traffic (41), TQ inaudible
H	7:31 am	54	35	0.9 m/s 340°	Birds (54), traffic (36), TQ (26)

Note: ¹ See text description and analysis

Table 13 Teralba Quarry Noise Monitoring Results – 17 August 2016 Evening					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	6:00 pm	49	37	1.6 m/s 345°	Traffic (47), trains (45), TQ inaudible
B	6:39 pm	51	36	1.2 m/s 334°	Traffic (51), train (36), TQ inaudible
D	6:00 pm	46	35	1.6 m/s 345°	Traffic (46), TQ (28), frogs (27)
E	6:37 pm	49	35	1.2 m/s 334°	Traffic (49), frogs (29), TQ inaudible
H	6:00 pm	41	35	1.6 m/s 345°	Traffic (40), frogs (35), TQ (22)

Note: ¹ See text description and analysis

The results shown in **Tables 2 to 13** show that, under the operational and atmospheric conditions at the time of monitoring, noise emissions from TQ did not exceed the relevant criterion at any monitoring location during any part of the survey.

Monitoring location EPL-B is situated close to the corner of Rhondda Road and Railway Street. This monitoring location is included predominantly to measure quarry noise from emissions from trucks exiting the site along the private section of the access road (through the Teralba Business Park). From the monitoring location it was possible to determine which trucks were associated with the quarry and a dedicated spotter was not required during this monitoring period.





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When measuring noise at the EPL-B location, the noise emissions from the exiting quarry trucks (whilst on the private section of the access road) were inaudible due to industrial noise and other traffic within the vicinity overriding this noise source.

At location EPL-D the acoustic environment is significantly influenced by noise from traffic on Rhondda Rd, trains and other industries within the vicinity. Noise emissions from the batching plant which is located adjacent to TQ was a major contributor to received noise during some monitoring periods.

Data from those times where TQ operations were audible were analysed using the "Evaluator" software. This analysis showed the noise did not contain any tonal, impulsive or low frequency components as per definitions of "modifying factor corrections" in the NSW Industrial Noise Policy.

In addition to the operational noise, the noise from TQ must not exceed **45 dB(A) L1 (1 min)** within the night-time period i.e. between the hours of 10 pm and 7 am, in accordance with *Condition L4.1* of EPL 536. This is to minimise the potential for sleep disturbance as a result of individual loud noises from the quarry. The compliance measurement locations are different for each of the operational and sleep disturbance noise. That is, the sleep disturbance criterion is typically applicable at 1m from the façade of a bedroom window.

To avoid undue disturbance to residents, the L1 (1 min) noise level from the operational measurements are used to show general compliance with the sleep disturbance criterion. That is, as the distance between the noise source and the operational noise monitoring location is significantly greater than the distance between the operational noise monitoring location and the sleep disturbance monitoring location (i.e. 1m from the facade of the house) there will be little variation in L1 (1 min) levels between the two monitoring locations. It must be noted, however, that the sleep disturbance criterion is to be measured near a bedroom window. As the internal layout of each residence is not known, to consider a worst case, a bedroom window is assumed to be facing the operational noise monitoring location.

As shown in **Table 5**, during the night time measurement circuit TQ was inaudible and, therefore, the L1 (1 min) noise did not exceed 45 dB(A) at any monitoring location.

We trust this report fulfils your requirements at this time, however, should you require additional information or assistance please contact the undersigned on 4954 2276.

Yours faithfully,

SPECTRUM ACOUSTICS PTY LIMITED

Author:

A handwritten signature in black ink, appearing to read "T. McCormick".

Tristan McCormick
Acoustical Consultant

Review:

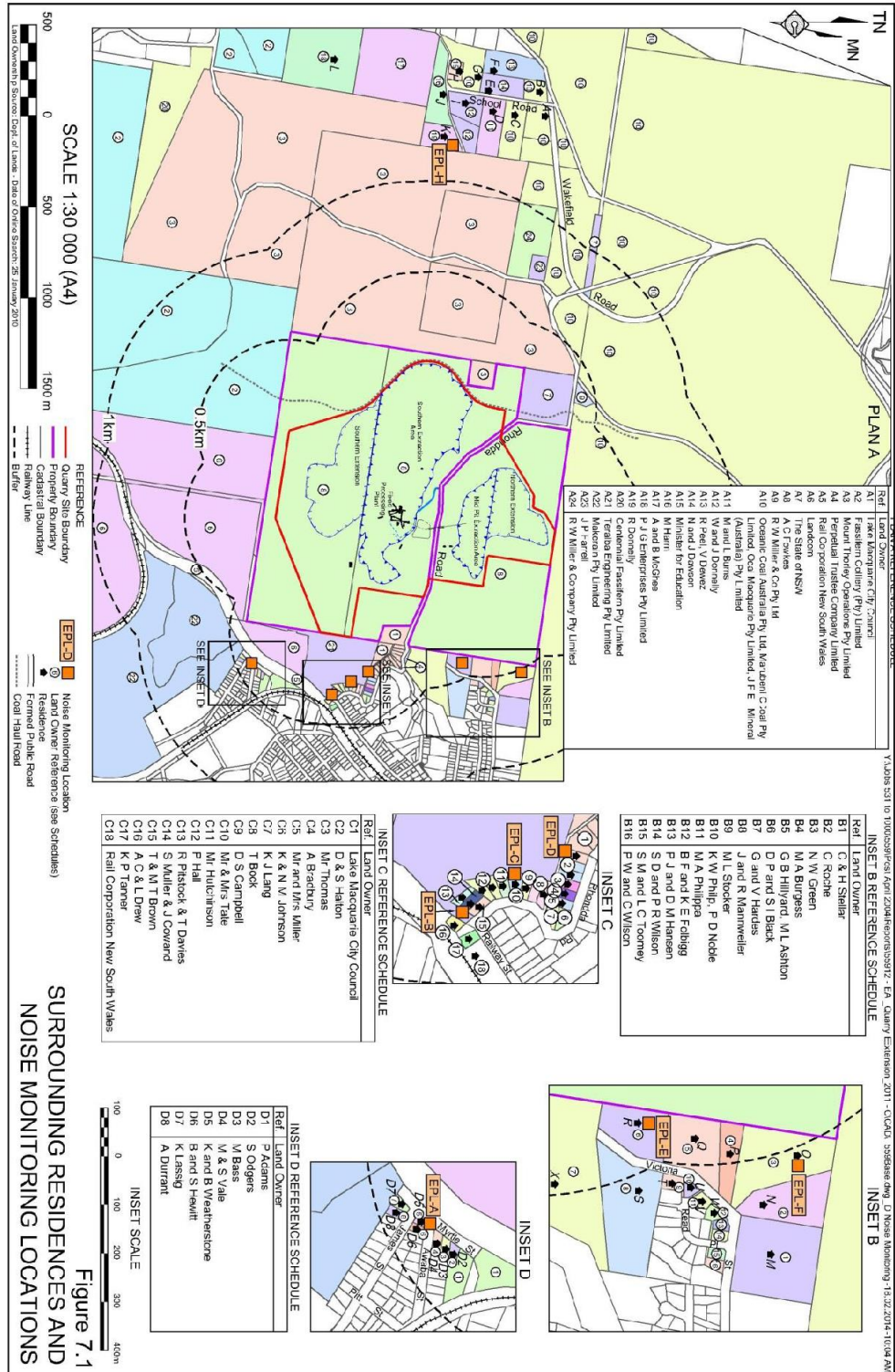
A handwritten signature in black ink, appearing to read "Neil Pennington".

Neil Pennington
Acoustical Consultant





Teralba Quarry Noise Monitoring – August 2016





16 December 2016

Ref: 8413/6885

Metromix Pty Ltd
150 Rhondda Road
Teralba NSW 2284

NOVEMBER 2016 NOISE MONITORING RESULTS – TERALBA QUARRY

This letter report presents the results of attended noise monitoring conducted for the Metromix operated Teralba Quarry (TQ) commencing on Wednesday 16th through to Friday 18th of November, 2016. Noise monitoring was carried out in accordance with the conditions of the TQ Noise Management Plan (NMP) as shown in extract on page 2 (referenced from EPL 0536).

Although the project approval nominates noise criteria at nine locations, Metromix recognises that meaningful monitoring data will continue to be collected from the closest locations to the active operational areas. As a result of this, and as outlined within the approved NMP, for periods when operations are confined to areas south of Rhondda Road, noise monitoring will be undertaken at Locations EPL-A, B, D, E and H.

Further to this, location EPL-C and EPL-F have been omitted from the noise monitoring programme given they are not required as other monitoring locations are nearby. Table 1 lists the address and coordinates of each noise monitoring location, with the relevant monitoring locations that were monitored during the August 2016 period highlighted in bold. The locations are shown on the figure in Appendix I.

Table 1 Noise Monitoring Locations (from PA 10-0183)			
Location in EPL	Address	Easting	Northing
EPL-A	Awaba Street, Teralba	369080	3651470
EPL-B	Rhondda Road, Teralba	369250	6351915
EPL-C	Rhondda Road, Teralba ¹	369205	6352015
EPL-D	Rhondda Road, Teralba	369150	6352135
EPL-E	Victoria Avenue, Teralba	369060	6352620
EPL-F	Victoria Avenue, Teralba ¹	369130	6352945
EPL-H	School Road, Wakefield	366210	6352520

1. Metromix has obtained permission for this monitoring location to be omitted.



Teralba Quarry Noise Monitoring – November 2016

It is noted that during the period when monitoring is undertaken at Location B, Metromix is required to provide a spotter to record the number of trucks departing from the Quarry and not the Teralba Business Park. Spectrum Acoustics personnel undertook identification of quarry trucks as part of the noise monitoring procedure.

Condition	Requirement				
L4.1	The licensee must ensure that noise generated by the activities within the premises do not exceed the following criteria measured by dB(A) at any residence or privately owned land.				
	Location	Day Shoulder 6:00am - 7:00am	Day 7:00am - 6:00pm	Evening 6:00pm - 10:00pm	Night 10:00pm - 6:00am
		L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)
	A-	38	38	37	35
	B-	42	46	36	45
	C-	42	42	35	35
	D,E,G,H,I	35	35	35	35
	F	37	38	38	35
Note: The licensee may provide to the EPA written evidence of any agreement with a landholder which is subject to the above noise limits. The written evidence may be submitted with a licence variation to remove the landholder from the above table.					

Condition	Requirement			
L4.2	The licensee must comply with the operating hours set out in the following table:			
	Day	Receipt of Concrete or VENM* or ENM**	Loading and Dispatch of Quarry Trucks	Extraction and Processing
	Monday - Friday	7:00am to 5:00pm	4:00am Monday to midnight Friday	7:00am to 7:00pm
	Saturday	7:00am to 2:00pm	Midnight Friday to 6:00pm Saturday	7:00am to 2:00pm
	Sundays and Public Holidays	None	None	none
Note: Maintenance activities may occur at any time provided they are inaudible at privately-owned residence. *VENM = Virgin Excavated Natural Material **ENM = Excavated Natural Material				
L4.3	The noise limits set out in conditions L4.1 apply under all meteorological conditions except for anyone of the following: a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or b) Stability category F temperature inversion conditions and wind speeds greater the 2 metres/second at 10 metres above ground level; or c) Stability category G temperature inversion conditions.			
L4.4	For the purpose of condition L4.3: a) the meteorological data to be used for determining meteorological conditions is the data recorded at the meteorological station identified in this licence as EPA Identification Point W1. b) Stability category temperature inversion conditions are to be determined by the sigma-theta method referred to in Part E4 of Appendix E to the <i>NSW industrial Noise Policy (EPA 2000)</i> Note: The weather station must be designed, commissioned and operated in a manner to obtain the necessary parameters required under the above condition.			
L4.5	For the purpose of determining the noise generated at the premises the licensee must use a Class 1 or Class 2 noise monitoring device as defined by AS IEC61672.1 and AS IEC61672.2-2004, or other noise monitoring equipment accepted by the EPA in writing.			
L4.6	To determine compliance: 1. With the L _{Aeq} (15 min) noise limits in condition L4.1, the licensee must locate noise monitoring equipment; a) within 30 metres of a dwelling facade (but not closer than 3 metres) where any dwelling on the property is situated more than 30 metres from the property boundary that is closest to the premises; b) approximately on the boundary where any dwelling is situated 30 metres or less from the property boundary that is closest to the premises, or, where applicable, c) within approximately 50 metres if the boundary of a national park or nature reserve. 2. With the LA1(1 minute) noise limits in condition L4.1, the noise monitoring equipment must be located within 1 metre of a dwelling facade. 3. With the noise limits in condition L4.1, the noise monitoring equipment must be located; a) at the most affected point at a location where there is no dwelling at the location, or b) at the most affected point within an area at a location prescribed by conditions L4.6 1(a) or L4.6 1(b).			





NOISE MEASUREMENTS

Attended noise monitoring was conducted with Brüel & Kjær Type 2250 Precision Sound Analysers. This instrument has Type 1 characteristics as defined in AS1259-1982 "Sound Level Meters" and has current NATA calibration. Field calibration was carried out at the start and end of each monitoring period.

The noise monitoring was conducted in general accordance with the requirements of Section 9 of the NMP (Noise Monitoring Protocol and Evaluation of Compliance) as follows;

"Metromix proposes to adopt a noise monitoring protocol that provides feedback on the effectiveness of the noise control measures and demonstrate compliance with the conditions within the Project Approval 10_0183 and Environment Protection Licence 0536.

The approach to monitoring compliance is based substantially upon Metromix's experience to date which has identified the on-site activities have not been the source of noise complaints or any recorded non-compliance. Hence, it is considered the monitoring program needs to reflect this fact."

A-weighted noise levels were measured over 15 minute monitoring periods with data acquired at 1 second statistical intervals and the meter set to "fast" response. Each 1 second measurement is accompanied by a third-octave band spectrum from 20 - 20k Hz which is required for analysing INP 'modifying factors'. Time based field notes allow for determination of the relative contributions to the overall noise level of all significant noise sources.

The worst case 15 minute Leq noise level for each monitoring period is shown in the tables below. Where the noise from TQ was audible, Bruel & Kjaer "Evaluator" analysis software was used to quantify the contributions of the quarry and other significant noise sources to the overall level. Quarry noise from TQ is shown in the tables in bold type. Where noise from TQ is listed as faintly audible, this means the noise levels from the quarry were at least 10 dB below the ambient level during the measurement and not measurable.

Noise levels were recorded for each of the L10, Leq, Lmax, L1, L90 and Lmin percentiles. All noise levels shown in the tables of results are in dB(A) Leq (15 min). Levels for the other percentiles are not shown as they have no compliance criteria for comparison but are available on request.

Meteorological data used in this report was obtained from the quarry-operated weather station at the site.

Noise Compliance Assessment

The results of the noise measurements undertaken throughout the various time periods are provided in **Tables 2 to 13**. EPL 536 refers to the various time periods as follows:

- a) Day-Shoulder is defined as the period between 6am to 7am Monday to Saturday.





Teralba Quarry Noise Monitoring – November 2016

- b) Day is defined as:
- (i) the period from 7am to 6pm Monday to Saturday; and
 - (ii) the period from 8am to 6pm Sundays and Public Holidays.
- c) Evening is defined as the period from 6pm to 10pm.
- d) Night is defined as:
- (i) the period from 10pm to 7am Monday to Saturday; and
 - (ii) the period from 10pm to 8am Sundays and Public Holidays.

Table 2 Teralba Quarry Noise Monitoring Results – 16 November 2016 Night					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min)
A	5:40 am	50	35	1.0 m/s 343°	Birds (47), traffic (46), industrial noise (40), power lines (31), TQ (24)
B	4:30 am	49	35	1.2 m/s 341°	Traffic (49), birds & insects (33), TQ inaudible ¹
D	4:30 am	43	35	1.2 m/s 341°	Traffic (41), birds (38), TQ (26)
E	5:37 am	50	35	1.0 m/s 343°	Birds (50), traffic (32), TQ inaudible
H	4:55 am	42	35	1.4 m/s 347°	Traffic (40), birds (38), TQ inaudible
Note: ¹ See text description and analysis					

Table 3 Teralba Quarry Noise Monitoring Results – 16 November 2016 Day Shoulder					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min)
A	6:41 am	52	38	0.9 m/s 318°	Trains (48), traffic (46), birds (46), industrial noise (42), power lines (31), TQ (25)
B	6:05 am	48	42	0.9 m/s 345°	Traffic (44), birds (43), industrial noise (41), trains (32), TQ inaudible ¹
D	6:23 am	52	35	0.9 m/s 328°	Traffic (50), birds (45), industrial noise (45), TQ (35)
E	6:40 am	50	35	0.9 m/s 318°	Birds (49), traffic (42), industrial noise (26), TQ inaudible
H	6:44 am	46	35	0.8 m/s 316°	Birds (45), traffic (41), TQ inaudible
Note: ¹ See text description and analysis					





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Table 4 Teralba Quarry Noise Monitoring Results – 16 November 2016 Day					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	7:34 am	47	38	1.1 m/s 291°	Industrial noise (44), birds (43), traffic (39), train (30), TQ (24)
B	9:52 am	60	46	1.8 m/s 155°	Traffic (60), industrial noise (41), birds (32), TQ inaudible
D	9:21 am	52	35	1.6 m/s 168°	Traffic (51), birds (45), QT (30) , industrial noise (27)
E	4:17 pm	47	35	2.3 m/s 149°	Birds (47), wind (31), traffic (27), TQ inaudible
H	7:39 am	48	35	1.0 m/s 289°	Birds (48), traffic (27), TQ (23)
Note: * See text description and analysis					

Table 5 Teralba Quarry Noise Monitoring Results – 16 November 2016 Evening					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	6:38 pm	50	37	1.7 m/s 146°	Traffic (49), birds & insects (43), TQ inaudible
B	6:00 pm	58	36	1.8 m/s 140°	Traffic (58), birds (28), TQ inaudible
D	6:35 pm	57	35	1.6 m/s 140°	Traffic (57), birds (34), wind (31), TQ (24)
E	6:00 pm	45	35	1.8 m/s 140°	Birds (44), wind (34), traffic (29), domestic (29), TQ inaudible
H	6:20 pm	47	35	1.4 m/s 134°	Birds & insects (47), domestic (33), traffic (28), TQ inaudible
Note: * See text description and analysis					

Table 6 Teralba Quarry Noise Monitoring Results – 17 November 2016 Night					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	5:39 am	41	35	0.6 m/s 293°	Birds (41), TQ (30) , industrial noise (27), traffic (27)
B	4:30 am	52	35	0.5 m/s 269°	Train (49), traffic (47), birds (41), industrial (30), TQ inaudible
D	4:30 am	38	35	0.5 m/s 269°	Birds (37), traffic (30), industrial noise (26), TQ inaudible
E	5:36 am	44	35	0.6 m/s 293°	Birds (44), traffic (29), TQ inaudible
H	4:50 am	42	35	0.5 m/s 280°	Birds (40), traffic (38), TQ inaudible
Note: * See text description and analysis					





Teralba Quarry Noise Monitoring – November 2016

Table 7 Teralba Quarry Noise Monitoring Results – 17 November 2016 Day Shoulder					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	6:40 am	44	38	0.7 m/s 295°	Birds & insects (43), industrial noise (35), TQ (30), traffic (25), train (26)
B	6:00 am	68	42	0.6 m/s 291°	Traffic (68), birds (41), industrial (39), TQ (28) ¹
D	6:20 am	44	35	0.8 m/s 254°	Traffic (42), industrial noise (38), birds (35), TQ (30)
E	6:37 am	44	35	0.9 m/s 295°	Birds (44), traffic (29), industrial (25), TQ inaudible
H	6:43 am	44	35	0.7 m/s 295°	Birds (43), traffic (36), TQ (30)
Note: ¹ See text description and analysis					

Table 8 Teralba Quarry Noise Monitoring Results – 17 November 2016 Day					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	7:03 am	48	38	0.9 m/s 211°	Industrial noise (46), birds (41), traffic (37), power lines (30), TQ inaudible
B	8:40 am	60	46	0.8 m/s 195°	Traffic (59), industrial noise (52), birds (36), TQ inaudible
D	7:14 am	48	35	0.8 m/s 207°	Traffic (46), birds (43), batch plant (33), industrial noise (31), TQ (29)
E	8:58 am	50	35	0.9 m/s 291°	Birds (50), traffic (31), industrial noise (25), TQ inaudible
H	11:28 am	44	35	1.5 m/s 109°	Birds (44), domestic (31), traffic (24), TQ (23)
Note: ¹ See text description and analysis					

Table 9 Teralba Quarry Noise Monitoring Results – 17 November 2016 Evening					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	6:00 pm	49	37	1.7 m/s 59°	Traffic (48), birds (38), trains (36), TQ inaudible
B	6:34 pm	52	36	1.5 m/s 52°	Traffic (49), train (48), domestic (37), birds (34), TQ inaudible
D	6:00 pm	48	35	1.7 m/s 59°	Traffic (46), birds (41), train (39), TQ inaudible
E	6:36 pm	41	35	1.5 m/s 52°	Birds (40), traffic (34), TQ inaudible
H	6:00 pm	46	35	1.7 m/s 59°	Birds (46), domestic (31), traffic (28), TQ inaudible
Note: ¹ See text description and analysis					





Teralba Quarry Noise Monitoring – November 2016

Table 10 Teralba Quarry Noise Monitoring Results – 18 November 2016 Night					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	5:38 am	52	35	1.7 m/s 34°	Train (50), industrial noise (47), birds (40), power lines (32), traffic (29), TQ inaudible
B	4:30 am	59	35	2.6 m/s 22°	Train (57), traffic (55), industrial noise (36), insects (34), TQ inaudible
D	4:30 am	39	35	2.6 m/s 22°	Traffic (38), birds (30), train (26), TQ inaudible
E	5:36 am	44	35	1.7 m/s 32°	Birds (44), traffic (31), TQ inaudible
H	4:52 am	47	35	2.5 m/s 30°	Birds (46), traffic (40), TQ inaudible
Note: * See text description and analysis					

Table 11 Teralba Quarry Noise Monitoring Results – 18 November 2016 Day Shoulder					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	6:39 am	48	38	1.8 m/s 343°	Industrial noise (45), birds (43), train (36), power lines (32), traffic (31), TQ inaudible
B	6:21 am	49	42	1.6 m/s 17°	Industrial noise (46), traffic (42), train (41), TQ (37)
D	6:03 am	45	35	1.7 m/s 26°	Traffic (43), birds (38), trains (30), TQ (28) , industrial noise (25)
E	6:38 am	45	35	1.8 m/s 343°	Birds (44), traffic (36), industrial (26), TQ inaudible
H	6:41 am	48	35	1.8 m/s 343°	Birds (46), traffic (42), TQ inaudible
Note: * See text description and analysis					

Table 12 Teralba Quarry Noise Monitoring Results – 18 November 2016 Day					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	7:31 am	50	38	1.9 m/s 349°	Birds (48), industrial noise (44), traffic (36), train (33), power lines (32), TQ inaudible
B	9:08 am	64	46	2.2 m/s 265°	Traffic (64), birds (41), industrial noise (39), TQ inaudible
D	7:27 am	52	35	1.9 m/s 346°	Traffic (51), birds (46), TQ (29) , industrial noise (28)
E	9:12 am	43	35	2.2 m/s 266°	Birds (43), traffic (30), industrial noise (25), TQ inaudible
H	10:57 am	51	35	2.3 m/s 331°	Birds (51), traffic (25), TQ inaudible
Note: * See text description and analysis					





Teralba Quarry Noise Monitoring – November 2016

Table 13 Teralba Quarry Noise Monitoring Results – 18 November 2016 Evening					
Location	Start Time	Total noise dB(A) Leq	Criterion dB(A) Leq	Wind speed/ direction	Identified Noise Sources (Leq (15 min))
A	6:00 pm	49	37	1.9 m/s 68°	Birds (47), trains (45), TQ inaudible
B	6:35 pm	54	36	2.4 m/s 47°	Traffic (54), birds (39), TQ inaudible
D	6:00 pm	47	35	1.9 m/s 68°	Traffic (47), birds (32), wind (30), industrial noise (27), TQ inaudible
E	6:34 pm	44	35	2.4 m/s 47°	Birds (42), wind (39), traffic (29), TQ inaudible
H	6:02 pm	54	35	1.9 m/s 68°	Birds (54), traffic (26), TQ inaudible
Note: ¹ See text description and analysis					

Table 14 Teralba Quarry (L1 1min) Noise Monitoring Results – 16 November 2016 (Night)					
Location	Time	dB(A), L ₁ (1 minute)	Wind speed/ direction	LA ₁ source	Identified Quarry Sources (L ₁ (1 min))
A	5:40 am	59	1.0 m/s 343°	Birds	27 (Quarry trucks)
B	4:30 am	61	1.2 m/s 341°	Traffic	n/a
D	4:30 am	56	1.2 m/s 341°	Traffic	28 (General operations)
E	5:37 am	58	1.0 m/s 343°	Birds	n/a
H	4:55 am	46	1.4 m/s 347°	Birds	n/a

Table 15 Teralba Quarry (L1 1min) Noise Monitoring Results – 17 November 2016 (Night)					
Location	Time	dB(A), L ₁ (1 minute)	Wind speed/ direction	LA ₁ source	Identified Quarry Sources (L ₁ (1 min))
A	5:39 am	50	0.6 m/s 293°	Birds	38 (Quarry trucks)
B	4:30 am	63	0.5 m/s 269°	Train	n/a
D	4:30 am	45	0.5 m/s 269°	Birds	n/a
E	5:36 am	52	0.6 m/s 293°	Birds	n/a
H	4:50 am	49	0.5 m/s 280°	Birds	n/a

Table 16 Teralba Quarry (L1 1min) Noise Monitoring Results – 18 November 2016 (Night)					
Location	Time	dB(A), L ₁ (1 minute)	Wind speed/ direction	LA ₁ source	Identified Quarry Sources (L ₁ (1 min))
A	5:38 am	66	1.7 m/s 34°	Train	n/a
B	4:30 am	68	2.6 m/s 22°	Train	42 (Quarry trucks)
D	4:30 am	49	2.6 m/s 22°	Traffic	31 (General operations)
E	5:36 am	55	1.7 m/s 32°	Birds	n/a
H	4:52 am	57	2.5 m/s 30°	Birds	n/a

The results shown in **Tables 2 to 13** show that, under the operational and atmospheric conditions at the time of monitoring, noise emissions from TQ did not exceed the relevant criterion at any monitoring location during any part of the survey.

Monitoring location EPL-B is situated close to the corner of Rhondda Road and Railway Street. This monitoring location is included predominantly to measure quarry noise from emissions from trucks exiting the site along the private section of the access road (through the Teralba Business Park). From the monitoring location it was possible to determine which trucks were associated with the quarry and a dedicated spotter was not required during this monitoring period.





Teralba Quarry Noise Monitoring – November 2016

When measuring noise at the EPL-B location, the noise emissions from the exiting quarry trucks (whilst on the private section of the access road) were inaudible due to industrial noise and other traffic within the vicinity overriding this noise source.

At location EPL-D the acoustic environment is significantly influenced by noise from traffic on Rhondra Rd, trains and other industries within the vicinity. Noise emissions from the batching plant which is located adjacent to TQ contributed to the received noise during some monitoring periods.

Data from those times where TQ operations were audible were analysed using the "Evaluator" software. This analysis showed the noise did not contain any tonal, impulsive or low frequency components as per definitions of "modifying factor corrections" in the NSW Industrial Noise Policy.

In addition to the operational noise, the noise from TQ must not exceed **45 dB(A) L1 (1 min)** within the night-time period i.e. between the hours of 10 pm and 7 am, in accordance with *Condition L4.1* of EPL 536. This is to minimise the potential for sleep disturbance as a result of individual loud noises from the quarry. The compliance measurement locations are different for each of the operational and sleep disturbance noise. That is, the sleep disturbance criterion is typically applicable at 1m from the façade of a bedroom window.

To avoid undue disturbance to residents, the L1 (1 min) noise level from the operational measurements are used to show general compliance with the sleep disturbance criterion. That is, as the distance between the noise source and the operational noise monitoring location is significantly greater than the distance between the operational noise monitoring location and the sleep disturbance monitoring location (i.e. 1m from the facade of the house) there will be little variation in L1 (1 min) levels between the two monitoring locations. It must be noted, however, that the sleep disturbance criterion is to be measured near a bedroom window. As the internal layout of each residence is not known, to consider a worst case, a bedroom window is assumed to be facing the operational noise monitoring location.

As shown in **Tables 14 - 16**, during the night time measurement circuits the L1 (1 min) noise from TQ did not exceed 45 dB(A) at any monitoring location.

We trust this report fulfils your requirements at this time, however, should you require additional information or assistance please contact the undersigned on 4954 2276.

Yours faithfully,

SPECTRUM ACOUSTICS PTY LIMITED

Author:

A handwritten signature in black ink, appearing to read 'T. McCormick'.

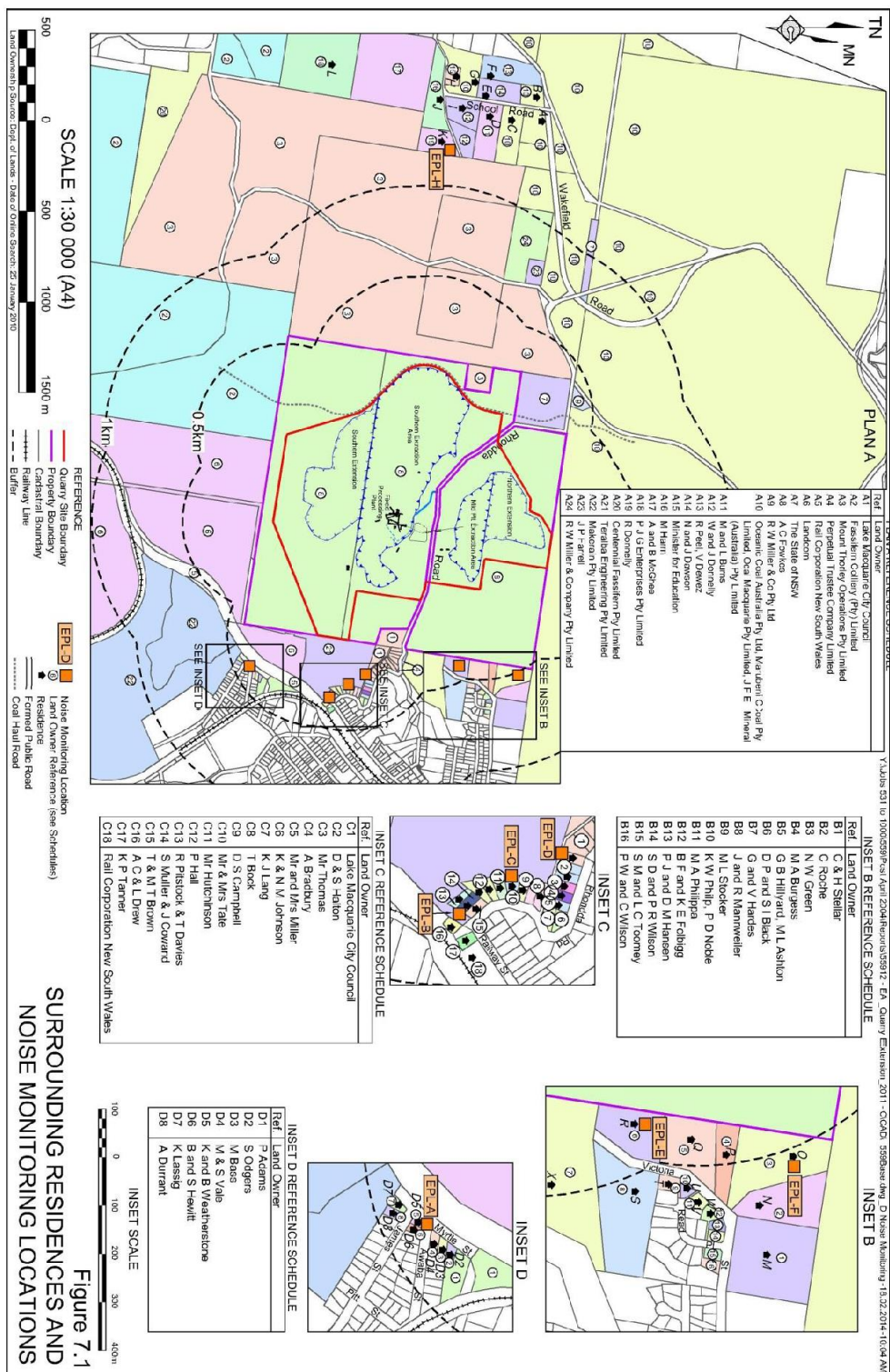
Tristan McCormick
Acoustical Consultant

Review:

A handwritten signature in black ink, appearing to read 'Neil Pennington'.

Neil Pennington
Acoustical Consultant





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Teralba Quarry Extension Project Approval 50 - Nesting Box Installation and First annual Inspection

Prepared by

**Kendall & Kendall
Ecological Services Pty Ltd**

November 2016

Introduction

Kendall & Kendall Ecological Services Pty Ltd was engaged by Metromix Pty Ltd to install 70 nest boxes at the Teralba Quarry. The requirement to install the boxes is a condition (Condition 50) of the project approval issued by the Minister for Planning and Infrastructure on 22nd February 2013. This report refers to the second annual field inspection.

The Condition

Condition 50 of the project approval states:

- The Proponent shall install 20 nest boxes for microbats, 20 nest boxes for Little Lorikeets and 30 nest boxes for Sugar Gliders. These boxes must be monitored and maintained regularly over the life of the project, and re-located or replaced if not used by targeted fauna for a period of 12 months.

The Boxes

Three types of boxes were installed, these being suitable for:

- Little Lorikeet (20 boxes);
- Squirrel Glider (30 boxes); and
- Microbats (20)

During the field work conducted for the project assessment Little Lorikeets were observed flying over the study area, one species of hollow-dependant threatened microbat was recorded within the study area. The field surveys did not record the Squirrel Glider within the study area however they are known to occur in the locality.

The boxes were installed on the following dates:

- 28/04/2014 & 31/4/2014;
- 22/9/14, 24 & 25/9/2014.

Nesting Box Installation and Location

The maps in Appendix 1 indicate the location of the installed boxes. The numbers on the maps refer to the Way Points recorded using a GPS. The Way Points provided a GDA map reference.

Appendix 2 includes details of each of the nesting boxes inspected (not including missing boxes), each box has been given a number which relates to the number for that box on the maps provided in Appendix 1.

First Annual Nesting Box Inspection

No Squirrel Gliders, Little Lorikeets or microbats or positive evidence of use of these species was observed in the nesting boxes.

A number of boxes were being used by Sugar Gliders and other boxes contained eucalypt leaves that had been placed in the boxes by animals some of the leaves contained nesting depressions. Two of the boxes have been colonised by feral honey bees.

Of concern 16 of the boxes placed in the vicinity of the Newtech Pistol Club were missing.

Second Annual Nesting Box Inspection

Appendix 1 provides maps of the nesting boxes inspected; the maps do not include those boxes that are missing. The maps are also intended to be an aid in the finding the boxes during subsequent inspections.

Appendix 3 provides the observations of the second annual nesting box inspection.

The nesting boxes were inspected over the period of 26/10/16 to 27/10/16.

No Squirrel Gliders, Little Lorikeets or microbats or positive evidence of use of these species was observed in the nesting boxes.

Feral honey bees had abandoned hives that they had established in two of the boxes as observed during the first annual nesting box inspection.

A number of boxes were being used by Sugar Gliders and other boxes contained eucalypt leaves that had been placed in the boxes by animals some of the leaves contained nesting depressions. A brown antechinus was observed in one of the boxes that had been filled with leaves.

In addition to the 16 missing boxes noted during the first inspection a further two boxes are now missing and are assumed to have been destroyed during a recent bush fire. There are 14 Little Lorikeet Boxes missing and 4 Squirrel Glider boxes missing.

Recommendations

1. That the eighteen missing boxes be replaced.

2. The need to re-located or replaced boxes if they are not used by targeted fauna for a period of 12 months is reviewed.
3. In light of the fact that:
 - No target species has yet to be observed using the nesting boxes; and
 - Squirrel Gliders were not recorded within the project area during the environmental assessment fauna surveys and that Little Lorikeets were only observed flying over the project area and not foraging, sheltering or nesting within the project area. The intent of the installation of the Squirrel Glider and Little Lorikeet boxes was to enhance habitat values and subsequently connectivity across the project area.

It is therefore recommended that inspections of the use of the nesting boxes be conducted biannually and that every other alternate year the integrity of the boxes be observed from the ground. Furthermore it is recommended that if in the future inspections the target species are still absent from the project area that the need for further inspections be reviewed.

4. That a set of five nesting boxes for each target species be stored on site so that if a box is found to be missing or damaged during the inspections it can be readily be replaced.
5. That a numbered metal tag be nailed to each tree to assist in locating each nesting box during inspections.
6. That a dangerous tree be removed now leaning over box No. 29.

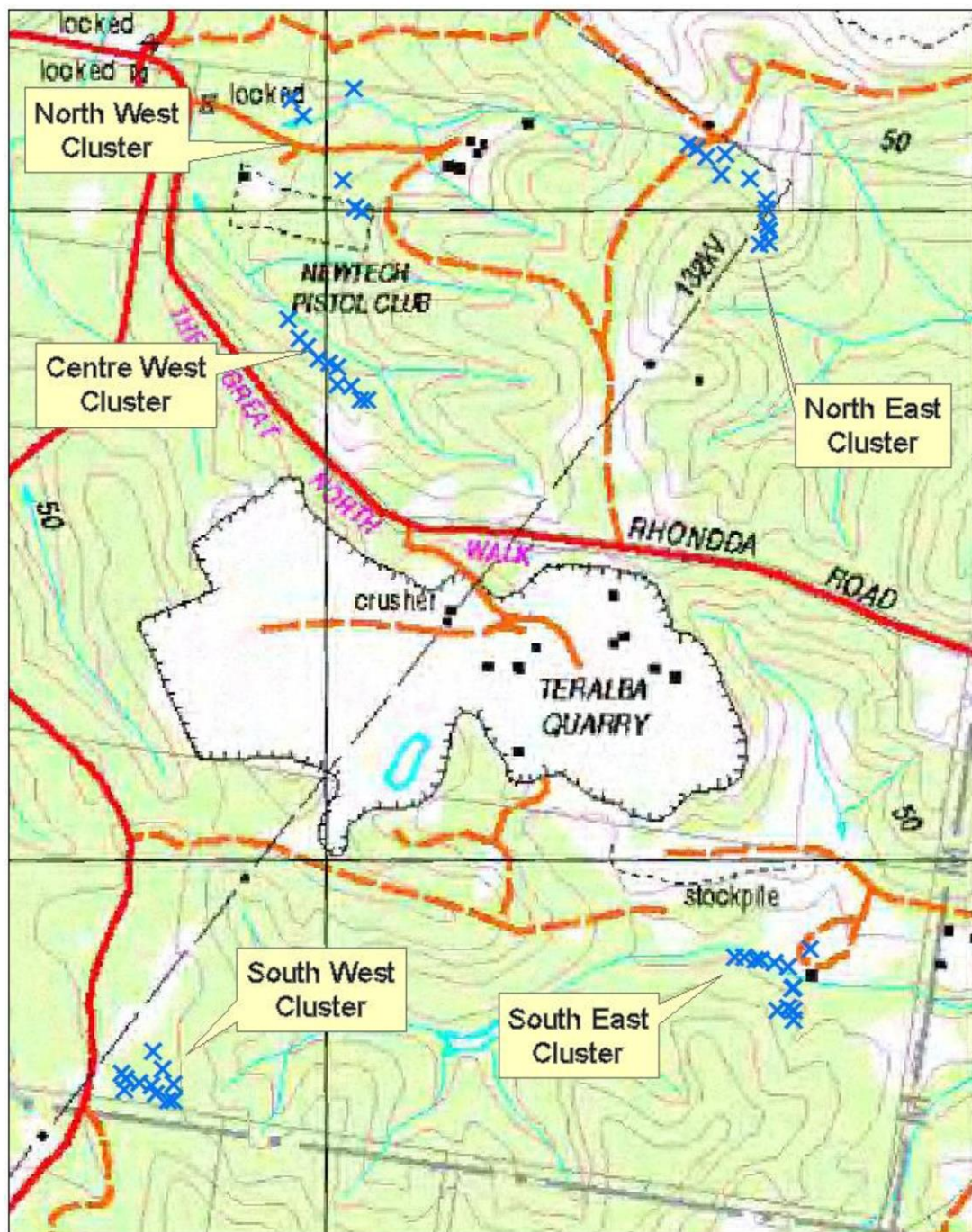
Keith Kendall

Kendall & Kendall Ecological Services Pty Ltd

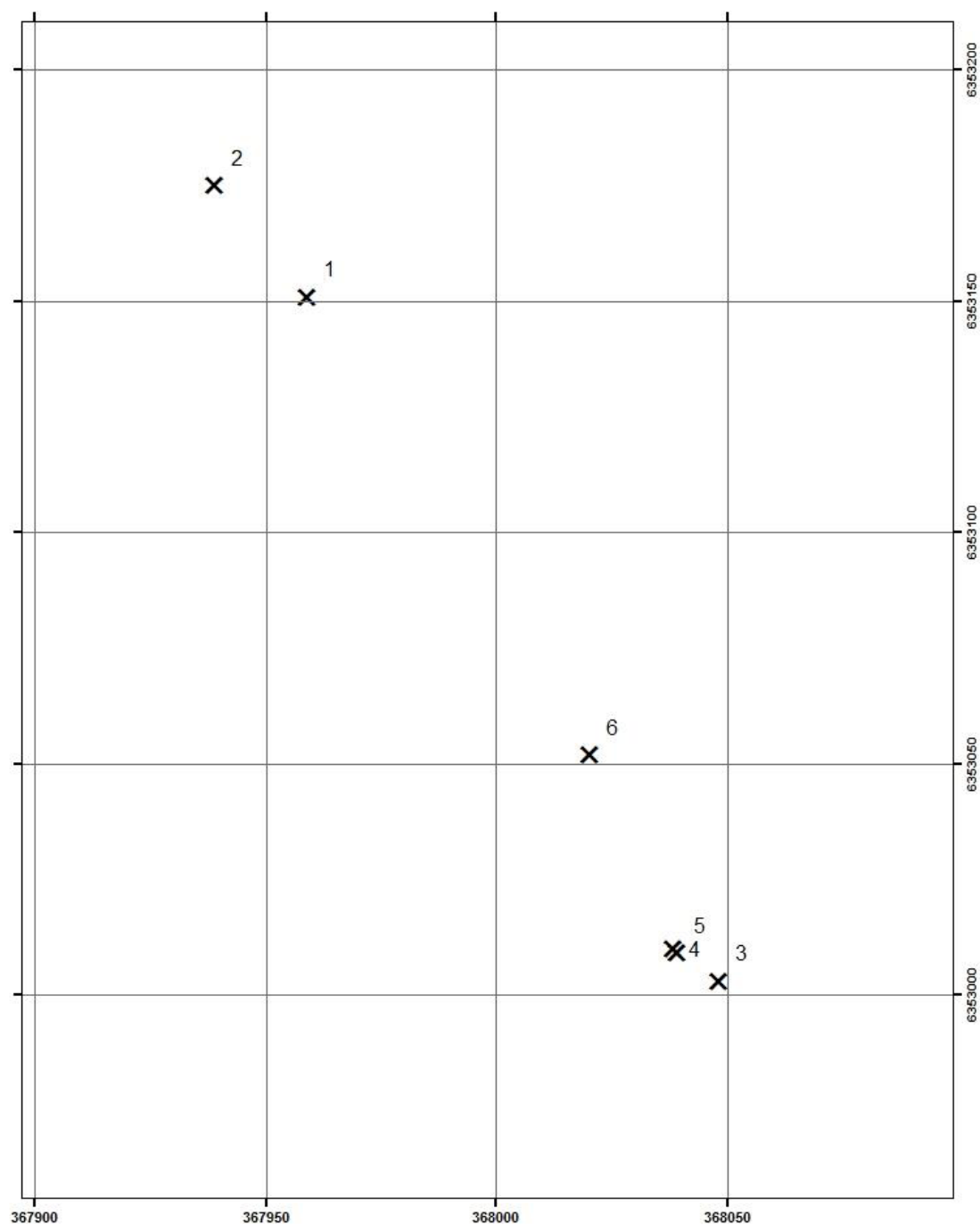
6th November 2016

Appendix 1 - Nesting Box Location Maps



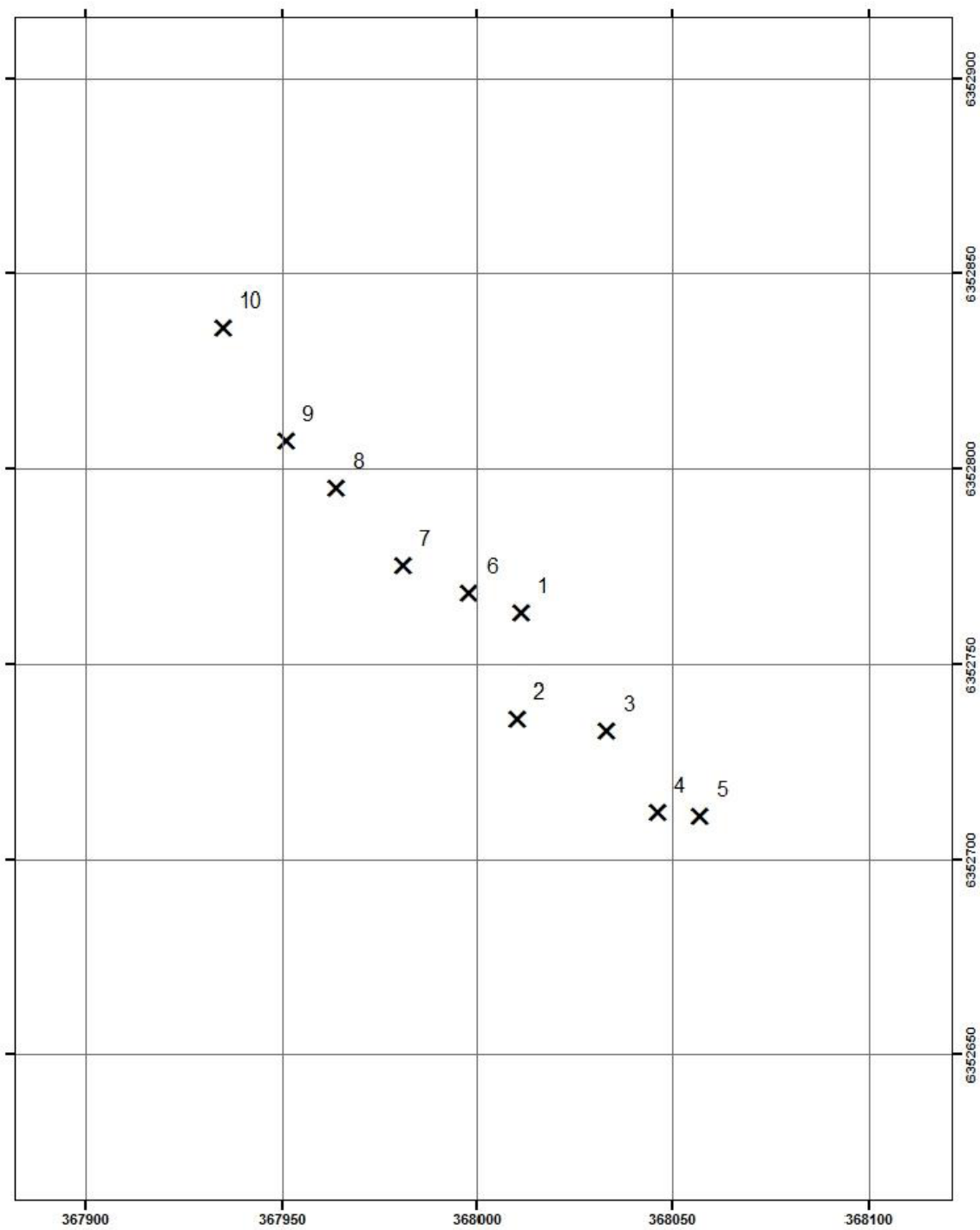


Nest Boxes
November 16



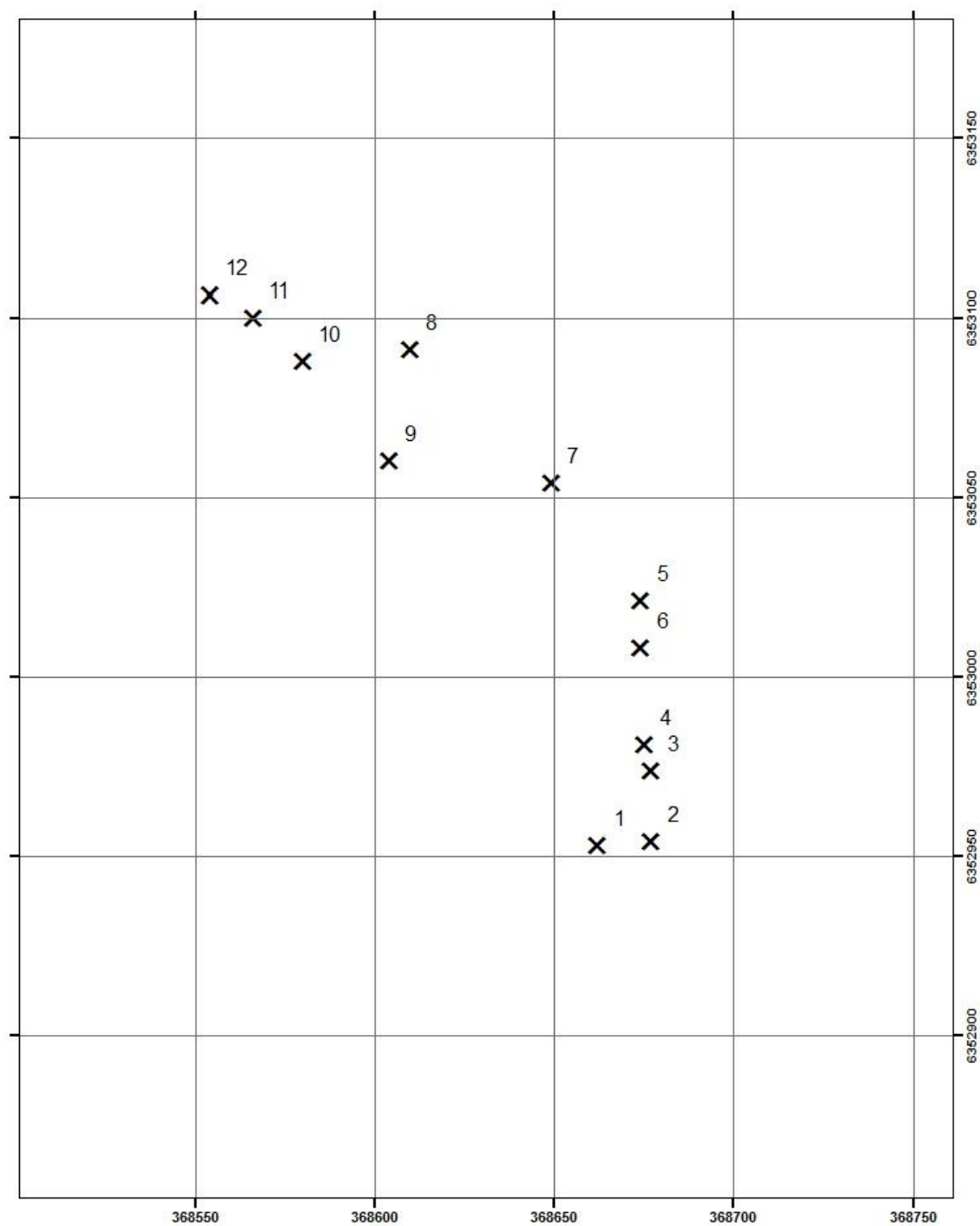
0 10 20 40 60 Meters

Nest Boxes
North West
Cluster



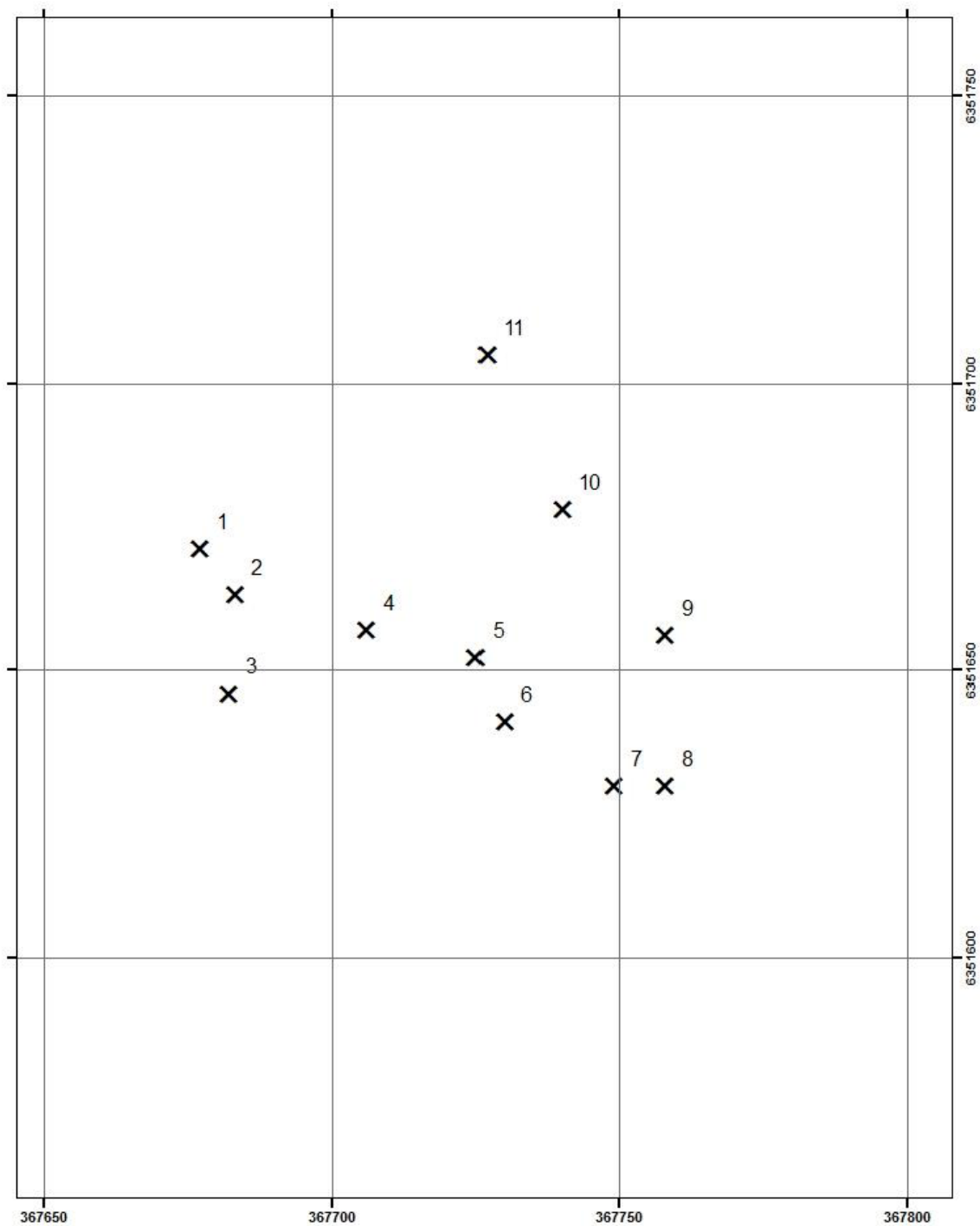
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Nest Boxes
Central West
Cluster



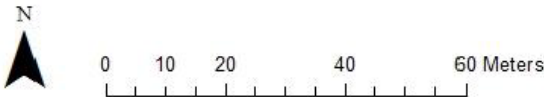
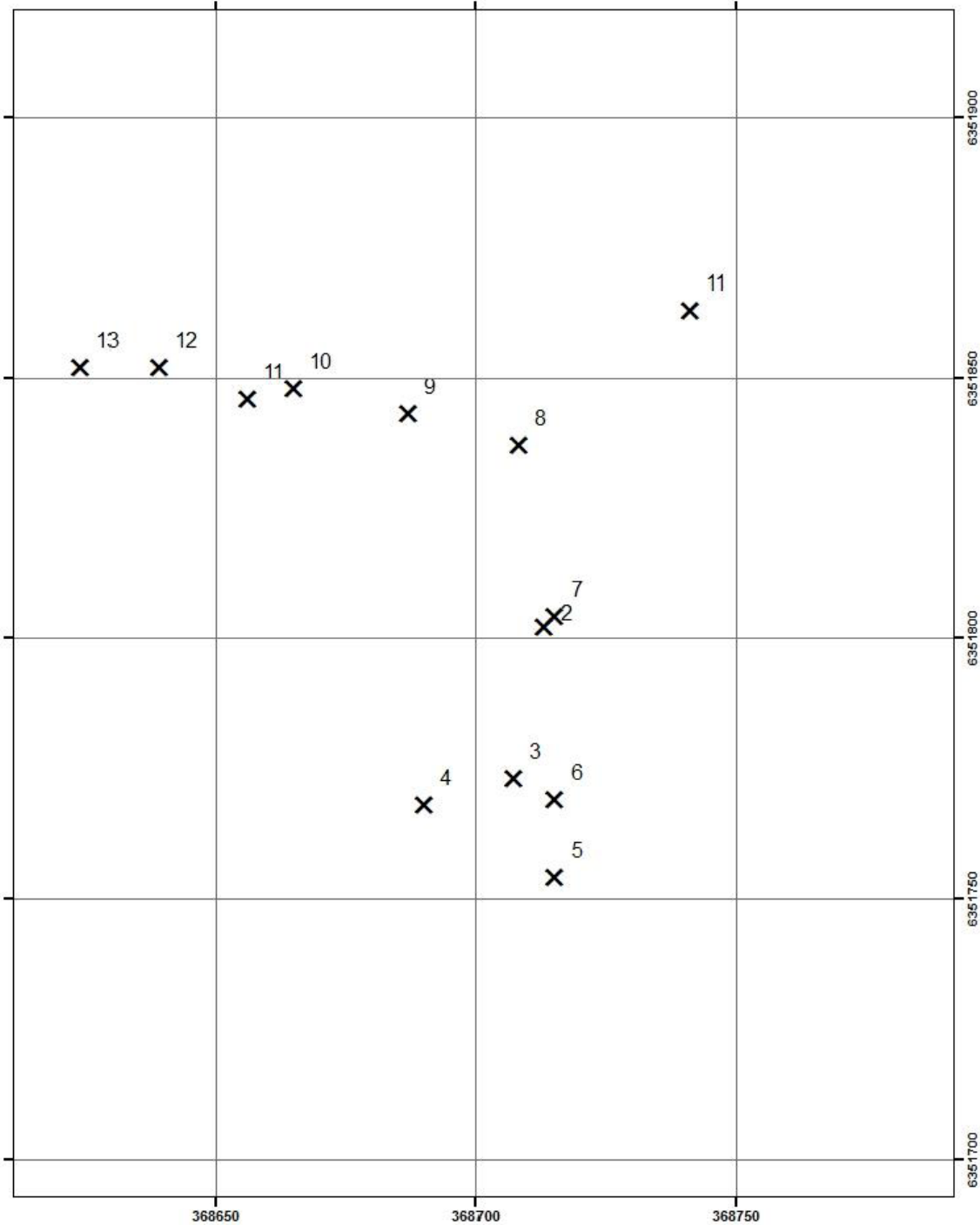
0 10 20 40 60 Meters

Nest Boxes
North East
Cluster



0 10 20 40 60 Meters

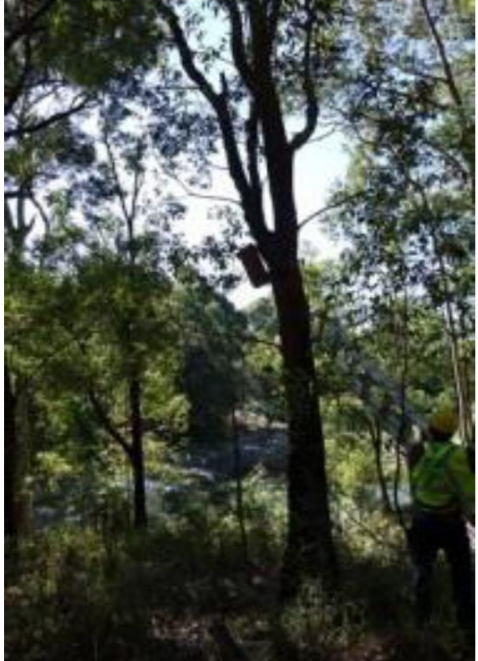
Nest Boxes
South West
Cluster



Nest Boxes
North East
Cluster

Appendix 2 - Nesting Box Details

Southeast Cluster Number 11 Squirrel Glider Box in Grey Gum GDA 368741 6351863	No photo
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Southeast Cluster Number 2 Squirrel Glider Box in Stringybark GDA 368713 6351802	
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Southeast Cluster
Number 3
Squirrel Glider Box in Tallowwood
GDA 368707 6351773



Southeast Cluster
Number 4
Squirrel Glider Box in Spotted Gum
GDA 368690 6351768





Southeast Cluster
Number 7
Microbat Box in Stringybark
GDA 368715 6351804



Southeast Cluster
Number 8
Microbat Box in Stringybark
GDA 368708 6351837



Southeast Cluster
Number 9
Squirrel Glider Box in Grey Gum
GDA 368687 6351843



Southeast Cluster
Number 39
Microbat Box in Stringybark
GDA 368665 6351848



Southeast Cluster
Number 10
Squirrel Glider Box in Tallowwood
GDA 368656 6351846



Southeast Cluster
Number 11
Squirrel Glider Box in Tallowwood
GDA 368656 6351846



Southeast Cluster
Number 12
Microbat Box in Tallowwood
GDA 368639 6351852



Southeast Cluster
Number 13
Squirrel Glider Box in Tallowwood
GDA 368624 6351852



Southwest Cluster
Number 1
Squirrel Glider Box in Stringybark
GDA 367677 6351671



Southwest Cluster
Number 3
Microbat Box in Bloodwood
GDA 367682 6351646



Southwest Cluster
Number 4
Squirrel Glider Box in Stringybark
GDA 367706 6351657





Southwest Cluster
Number 7
Squirrel Glider Box in Bloodwood
GDA 367749 6351630



Southwest Cluster
Number 8
Microbat Box in Bloodwood
GDA 367758 6351630



Southwest Cluster
Number 9
Squirrel Glider Box in Stringybark
GDA 367758 6351656



Southwest Cluster
Number 10
Microbat Box in Bloodwood
GDA 367740 6351678



Southwest Cluster
Number 11
Squirrel Glider Box in Bloodwood
GDA 367727 6351705



Centre West Cluster
Number 1
Microbat Box (tree species not
recorded)
GDA 368011 6352763



Centre West Cluster
Number 2
Microbat Box (tree species not
recorded)
GDA 368010 6352736



Centre West Cluster
Number 3
Microbat Box (tree species not
recorded)
GDA 368033 6352733



Centre West Cluster
Number 4
Microbat Box (tree species not
recorded)
GDA 368046 6352712



Centre West Cluster
Number 5
Microbat Box (tree species not
recorded)
GDA 368057 6352711



Centre West Cluster
Number 6
Microbat Box (tree species not
recorded)
GDA 367998 6352768



Centre West Cluster
Number 7
Microbat Box (tree species not
recorded)
GDA 367981 6352775

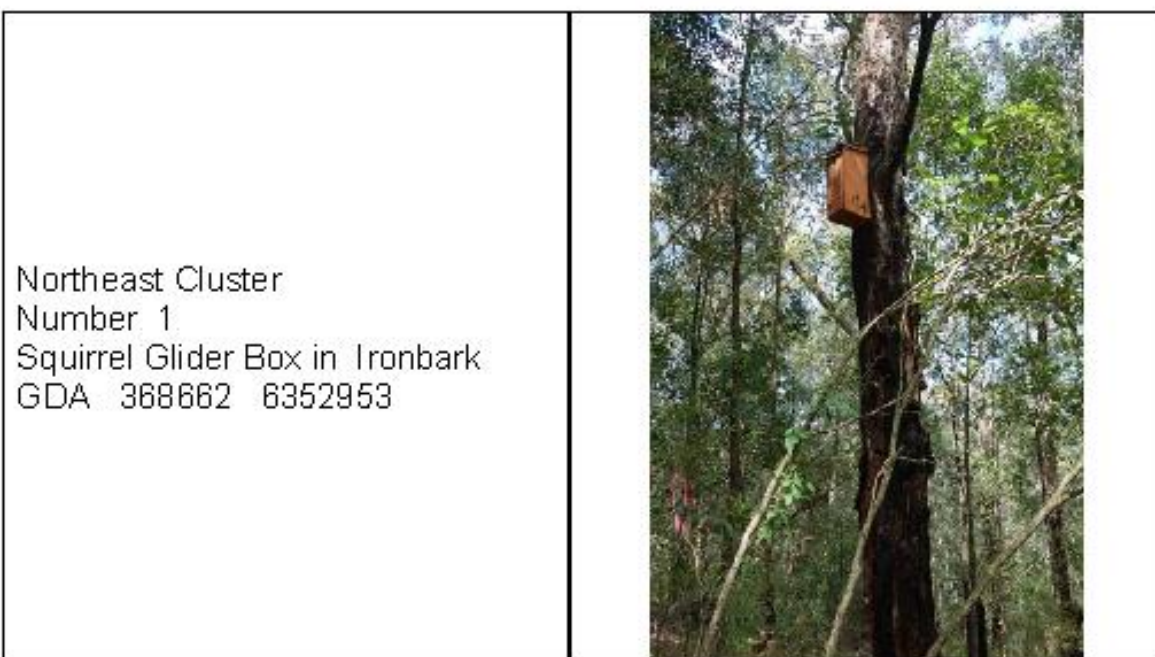


Centre West Cluster
Number 8
Microbat Box (tree species not
recorded)
GDA 367964 6352795



Centre West Cluster
Number 9
Microbat Box (tree species not
recorded)
GDA 367951 6352807





Northeast Cluster
Number 2
Squirrel Glider Box in Ironbark
GDA 368677 6352954



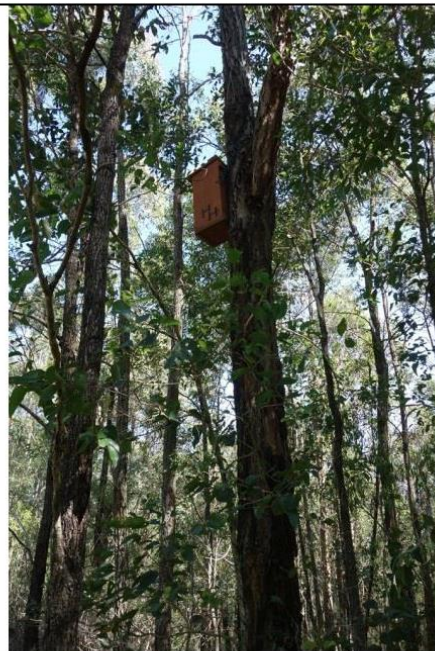
Northeast Cluster
Number 3
Squirrel Glider Box in Tallowwood
GDA 368677 6352974



Northeast Cluster
Number 4
Squirrel Glider Box in Tallowwood
GDA 368675 6352981



Northeast Cluster
Number 5
Squirrel Glider Box in Ironbark
GDA 368674 6353021



Northeast Cluster
Number 6
Squirrel Glider Box in Ironbark
GDA 368674 6353008



Northeast Cluster
Number 7
Squirrel Glider Box in Stringybark
GDA 368649 6353054



Northeast Cluster
Number 8
Squirrel Glider Box in Tallowwood
GDA 368610 6353091



Northeast Cluster
Number 9
Squirrel Glider Box in Ironbark
GDA 368604 6353060



Northeast Cluster
Number 10
Squirrel Glider Box in Spotted Gum
GDA 368580 6353088



Northeast Cluster
Number 11
Squirrel Glider Box in Spotted Gum
GDA 368566 6353100



Northeast Cluster
Number 12
Squirrel Glider Box in Stringybark
GDA 368554 6353106



Northwest Cluster
Number 1
Little Lorikeet Box in Spotted Gum
GDA 367959 6353151



Northwest Cluster
Number 2
Little Lorikeet Box in Stringybark
GDA 367938 6353174



Northwest Cluster
Number 3
Little Lorikeet Box in Spotted Gum
GDA 368047 6353003



Northwest Cluster
Number 4
Little Lorikeet Box in Spotted Gum
GDA 368038 6353010



Northwest Cluster
Number 5
Little Lorikeet Box in Spotted Gum
GDA 368039 6353008



Northwest Cluster
Number 6
Little Lorikeet Box in Spotted Gum
GDA 368020 6353052



Appendix 3 - Second Annual Nesting Box Inspection



Cluster	Number	East	North	Box Type	Tree Species	Observation
South-east	11	368741	6351863	Squirrel Glider	Grey Gum	Old leaves
South-east	1	368037	6353192	Squirrel Glider	Stringybark	Nil
South-east	2	368713	6351802	Squirrel Glider	Stringybark	Sugar Glider
South-east	3	368707	6351773	Squirrel Glider	Tallowwood	Old leaves
South-east	4	368690	6351768	Squirrel Glider	Spotted Gum	Sugar Glider
South-east	5	368715	6351754	Squirrel Glider	Ironbark	Leaves
South-east	6	368715	6351769	Microbat	Spotted Gum	Nil
South-east	7	368715	6351804	Microbat	Stringybark	Nil
South-east	8	368708	6351837	Microbat	Stringybark	No leaves
South-east	9	368687	6351843	Squirrel Glider	Grey Gum	Leaves
South-east	10	368665	6351848	Microbat	Stringybark	Brown Antechinus and Leaves
South-east	11	368656	6351846	Squirrel Glider	Tallowwood	Sugar Glider
South-east	12	368639	6351852	Microbat	Tallowwood	Nil
South-east	13	368624	6351852	Squirrel Glider	Tallowwood	Leaves
South-west	1	367677	6351671	Squirrel Glider	Stringybark	Old bits of bark

Cluster	Number	East	North	Box Type	Tree Species	Observation
South-west	3	367682	6351646	Squirrel Glider	Bloodwood	Old bits of bark
South-west	4	367706	6351657	Microbat	Stringybark	Nil
South-west	5	367725	6351652	Squirrel Glider	Stringybark	Nil
South-west	6	367730	6351641	Microbat	Bloodwood	Nil
South-west	7	367749	6351630	Squirrel Glider	Bloodwood	Nil
South-west	8	367758	6351630	Microbat	Bloodwood	Nil
South-west	9	367758	6351656	Squirrel Glider	Stringybark	Old bits of bark
South-west	10	367740	6351678	Microbat	Bloodwood	Nil
South-west	11	367727	6351705	Squirrel Glider	Bloodwood	Nil
North-west	1	368011	6352763	Microbat	not recorded	Nil
North-west	2	368010	6352736	Microbat	not recorded	Nil
North-west	3	368033	6352733	Microbat	not recorded	Nil
North-west	4	368046	6352712	Microbat	not recorded	Nil
North-west	5	368057	6352711	Microbat	not recorded	Nil
North-west	6	367998	6352768	Microbat	not recorded	Nil
North-west	7	367981	6352775	Microbat	not recorded	Nil
North-west	8	367964	6352795	Microbat	not recorded	Nil

Cluster	Number	East	North	Box Type	Tree Species	Observation
west						
North-west	9	367951	6352807	Microbat	not recorded	Nil
North-west	10	367935	6352836	Microbat	not recorded	Nil
North-east	1	368662	6352953	Squirrel Glider	Ironbark	Old leaves
North-east	2	368677	6352954	Squirrel Glider	Ironbark	Nil
North-east	3	368677	6352974	Squirrel Glider	Tallowwood	Abandoned Bee hive, now leaves
North-east	4	368675	6352981	Squirrel Glider	Tallowwood	Leaves
North-east	5	368674	6353021	Squirrel Glider	Ironbark	Leaves
North-east	6	368674	6353008	Squirrel Glider	Ironbark	Leaves
North-east	7	368649	6353054	Squirrel Glider	Stringybark	Leaves
North-east	8	368610	6353091	Squirrel Glider	Tallowwood	Abandoned Bee hive, now leaves
North-east	9	368604	6353060	Squirrel Glider	Ironbark	Sugar Glider (1+)
North-east	10	368580	6353088	Squirrel Glider	Spotted Gum	Leaves
North-east	11	368566	6353100	Squirrel Glider	Spotted Gum	Sugar Glider
North-east	12	368554	6353106	Squirrel Glider	Stringybark	Leaves
North-west	1	367959	6353151	Little Lorikeet	Spotted Gum	Leaves with depression
North-west	2	367939	6353175	Little Lorikeet	Stringybark	Leaves with depression

Cluster	Number	East	North	Box Type	Tree Species	Observation
North-west	3	368048	6353003	Little Lorikeet	Spotted Gum	Leaves
North-west	4	368038	6353010	Little Lorikeet	Spotted Gum	Leaves
North-west	5	368039	6353009	Little Lorikeet	Spotted Gum	Leaves
North-west	6	368020	6353052	Little Lorikeet	Spotted Gum	Leaves with depression

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