ARDGLEN QUARRY

2019 Annual Environmental Management Report (AEMR)

PROJECT APPROVAL MP 06_0264

TITLE BLOCK

Table 1: Ardglen Quarry – Title block

Name of operation	Ardglen Quarry
Name of operator	Buttai Gravel Pty Ltd (Daracon Quarries)
Development consent / project approval #	Project Approval MP 06_0624 MOD 1
Name of holder of development consent / project approval	Buttai Gravel Pty Ltd (Daracon Quarries)
Annual Review start date	1st January 2019
Annual Review end date	31st December 2019
I, Luke Robinson, certify that this audit report is a true and accurate record of the compliance status of Ardglen Quarry for the period 1st January 2018 to 31st December 2019 and that I am authorised to make this statement on behalf of Buttai Gravel Pty Ltd. *Note.* *a) The Annual Review is an 'environmental audit' for the purposes of section 122B(2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, $1 million and for an individual, $250,000.* *b) The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment or $22,000, or both).*	
Name of authorised reporting officer	Luke Robinson
Title of authorised reporting officer	Systems Manager – Construction Materials
Signature of authorised reporting officer	
Date	30th March 2020

STATEMENT OF COMPLIANCE

Table 2: Ardglen Quarry – Statement of compliance

Were all of the conditions of the relevant approval complied with?	No

SUMMARY OF NON-COMPLIANCES

Table 3: Ardglen Quarry – Summary of non-compliances

Condition #	Condition / description	Compliance status – refer legend below	Comment	Where addressed in AEMR
Sch. 3 Cl. 26; SoC 8	Daracon has not provided long term security for the off-set areas as per the stipulated timeframe.		**2018 IEA NC3** - Daracon has actively engaged in discussions and exchanged information with the Biodiversity Conservation Trust NSW relating to the offset areas associated with the Ardglen quarry consent. Those discussions have confirmed that a "Conservation Agreement" (CA) is the appropriate process to secure the Biodiversity Offset Areas (BOA) detailed in the consent. Daracon is progressing well with the collection of information for the CA such as the completion of a biodiversity offset monitoring report which included baseline monitoring and establishment of permanent monitoring sites for the proposed conservation areas. Additionally, as part of this process it was noted that two agreements would be required as titles for the offset land are held by two related entities. As a result, Daracon is in the process of transferring titles from one of those entities to the other entity, thus simplifying the conservation arrangements for the future of the offset lands. We expect the entire CA process to be completed before the end of 2020.	Section 2.12

SoC 8	Daracon has not provided long term security for the off-set areas as per the stipulated timeframe.		**2018 IEA NC7** – Refer to 2018 IEA NC3 above	Section 2.12
Sch. 3 Cl. 19	Prior to commencing work in the Extension Area: (1) It is recommended that the retention volume of the final sedimentation basin necessary to capture surface waters (to ensure compliance with the EPL) be calculated. The calculation should take into account the area of dirty water catchment from the existing quarry and the extension area. (2) It is recommended that final sediment basin be surveyed to determine if it has sufficient volume to meet the volume requirements determined in (1) above. (3) It is recommended, that if the volume of the final sediment basin is not sufficient, that the ballast dumped in the basin, be removed to increase the basin volume to the required amount.		**2018 IEA NTR1** - A revised Water Management Plan, including an assessment of basin volumes is included as part of the proposed consent modification. This will be enacted prior to commencing work in the Extension Area.	Section 2.8
Sch. 3 Cl. 21	The Water Management Plan be updated to include an assessment of the reliability of the water supply to the operation. This should be completed prior to the commencement of works in the Extension Area.		**2018 IEA NTR2** - A revised Water Management Plan including an assessment of the reliability of the water supply to the operation is included as part of the proposed consent modification. This will be enacted prior to commencing work in the Extension Area.	Section 2.8
Sch. 3 Cl. 22	Operational and maintenance activities on site that could cause soil erosion and sediment generation should be identified and described for in the plan.		**2018 IEA NTR3** - Operational and maintenance activities that could cause soil erosion and sediment generation will be identified and described in the revised Water Management Plan included as part of the proposed consent modification. This will be enacted prior to commencing work in the Extension Area.	Section 2.8

Sch. 3 Cl. 23	The water monitoring plan should be revised to include detailed protocol for investigation, notification and mitigation of water quality exceedances. Details for procedures to manage unforeseen water quality impacts should be included in the site water management plan.		**2018 IEA NTR4** - Procedures to manage unforeseen water quality impacts are included in the revised site water management plan included as part of the proposed consent modification. This will be enacted prior to commencing work in the Extension Area.	Section 2.8
Sch. 3 Cl. 44	Daracon should implement all practicable measures to mitigate impacts from off-site lighting upon recommencement of operations. Daracon should ensure that all external lighting associated with the project complies with Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting and have the satisfaction of the Director-General on record upon recommencement of operations.		**2018 IEA NTR6** - There is currently no external lighting associated with the operation of Ardglen Quarry, however if this was to change in the future, then Daracon would ensure compliance with Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting to the satisfaction of the Director-General.	Section 2.7
Sch. 3 Cl. 11	Blast SWMS should be updated to ensure that appropriate communications and fly rock protection are in place for blasting a within 500 m of adjacent land. It would be wise to make this a standard provision for all blasts since much of the quarry is with 500 m of adjacent land.		**2013 IEA 1** - No blasting has occurred during the audit period and there are no current plans for the recommencement of blasting. The SWMS will be reviewed and updated prior to blasting and/or entering the extension area.	Section 2.2
Sch. 3 Cl. 20	It is recommended that surface water quality monitoring is implemented regardless of the operational status of the quarry.		**2013 IEA 2** - A revised Water Management Plan including an assessment of basin volumes is included as part of the proposed consent modification. This will be enacted prior to commencing work in the Extension Area.	Section 2.8

Sch. 3 Cl. 26	In order to secure the offset areas a VCA or similar mechanism should be implemented as soon as practicable.		**2013 IEA 3** - Refer to 2018 IEA NC3 above.	Section 2.12
Sch. 3 Cl. 44	An assessment of external lighting against AS4282 (INT) 1995 is required to be submitted to the DG.		**2013 IEA 4** - There is currently no external lighting associated with the operation of Ardglen Quarry, however if this was to change in the future, then Daracon would ensure compliance with Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting to the satisfaction of the Director-General.	Section 2.7
SoC 8	A VCA, or similar mechanism should be implemented as soon as practicable.		**2013 IEA 8** - Refer to 2018 IEA NC3 above.	Section 2.12
SoC 9	Blast SWMS should be updated to ensure that appropriate communications and fly rock protection are in place for blasting a within 500 m of adjacent land. It would be wise to make this a standard provision for all blasts since much of the quarry is with 500 m of adjacent land.		**2013 IEA 9** - No blasting has occurred during the audit period and there are no current plans for the recommencement of blasting. The SWMS will be reviewed and updated prior to blasting and/or entering the extension area.	Section 2.2

COMPLIANCE STATUS LEGEND

Risk level	Colour code	Description
High	Non-compliant	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence
Medium	Non-compliant	Non-compliance with: • potential for serious environmental consequences, but is unlikely to occur; or • potential for moderate environmental consequences, but is likely to occur
Low	Non-compliant	Non-compliance with: • potential for moderate environmental consequences, but is unlikely to occur; or • potential for low environmental consequences, but is likely to occur
Administrative non-compliance	Non-compliant	Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later than required under approval conditions)

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1. INTRODUCTION

1.1 Scope

This report has been prepared by Daracon Quarries, in accordance with Schedule 5 Condition 4 of the Project Approval MP 06_0264 to record the activities and environmental monitoring undertaken within and surrounding Ardglen Quarry during the period 1st January 2019 to 31st December 2019.

Figure 1: Quarry Location

On 2nd December 2008 Daracon was granted approval (Project Approval MP 06_0264) under part 3A of the Environmental Planning & Assessment Act 1979 to extend the existing quarry operations in a westerly direction into Lot 218 (DP 751028). In December 2010, Modification 1 (MOD 1) for Project Approval MP 06_0264 was implemented and remains valid today.

Daracon ceased operations at Ardglen Quarry in February 2012 and the site was placed into “care and maintenance” at that time.

In August 2018, Ardglen quarry was taken out of "care and maintenance" due to the need for material at the Scone Bypass Project (SBP). This was communicated to the community and relevant regulatory authorities as part of the recommencement process. The export of material from Ardglen quarry to the SBP continued for the full duration of 2019.

This document provides an overview of activities and environmental monitoring that occurred within the reporting period and also activities and environmental monitoring planned for 2020. This Annual Environmental Management Report (AEMR) contains the following:

- A description of activities that were carried out in 2019;
- A review of the environmental monitoring results that were carried out in 2019;
- Results of the Independent Environmental Audit that was carried out in 2019;
- A description of measures that will be implemented throughout 2020 to improve the environmental performance of the Quarry;

1.2 Standards and Performance Measures

The owner and operator of Ardglen Quarry, Daracon Quarries (Trading as Buttai Gravel Pty Ltd) is required to operate the approved activities within the Quarry site in accordance with MP 06_0624 MOD 1 and licences listed in **Table 4.**

Table 4: Ardglen Quarry - Consents and Licences

Approval/Licence	Issue Date	Expiry Date
Project Approval MP 06_0624 MOD 1	December 2010	31 August 2038
Environment Protection Licence No.1115		1 January (anniversary date)

Relevant conditions with Project Approval MP 06_0624 which nominate specific environmental criteria are as follows:

- *Schedule 3 Condition 2:* Noise
- *Schedule 3 Condition 7:* Blasting and Vibration
- *Schedule 3 Condition 15:* Air Quality
- *Schedule 3 Condition 18:* Meteorological Monitoring
- *Schedule 3 Condition 19:* Surface and Ground Water

In addition to the specific environmental criteria, the following conditions within MP 06_0624 specifically request further information be included in each AEMR:

- *Schedule 3 Condition 33: Product Transport*
- *Schedule 3 Condition 46: Greenhouse Gas*
- *Schedule 3 Condition 47:* Waste Minimisation

1.3 Site Management And Responsibilities

The overall management of Ardglen Quarry is the responsibility of Daracon's Manager Quarries, Mr Paul Walker. While the Quarry was in "care and maintenance", environmental monitoring is arranged by Mr Luke Robinson (Systems Manager) and Mr Geoff Reeves (Quarry Supervisor). Site supervision is also ably assisted by Daniel Smith (Supervisor) and Scott Brown (Supervisor). Other companies involved with quarry related documentation and monitoring data include:

- RCA Aust. Pty Ltd Laboratories;
- Rubicon Enviro Pty Ltd;

1.4 Document Preparation

The following information and data for this report has been drawn from documents commissioned or held by Daracon.

- Environmental Management Strategy Ardglen Quarry Extension - Major Project 06/0264, September 2010, Orogen Pty Ltd;
- Ardglen Quarry Environmental Monitoring Folders;

This document has been prepared by Mr Luke Robinson of Daracon Quarries.

In response to enquiries received from DPIE and the community during the reporting period (received separately from the formal CCC meetings), **Table 5** below includes the details of specific requests for additional information as well as the relevant action taken.

Table 5: DPIE requests for additional information

DPIE requests	Action taken
EA predictions – Please provide analysis of monitoring results against predictions in the EA (Schedule 5, Condition 4f)	Please refer to **Section 4.5** of this report for further analysis of the monitoring results against predictions in the EA
Trends – Please provide trends of monitoring results over the life of the project (Schedule 5, Condition 4g)	Please refer to **Section 4.6** of this report showing trends of monitoring results over the life of the project

Complaints received via the DPIE and community members	During the reporting period, we received no pollution complaints however we did receive two operational complaints as detailed below: • A complaint was received from a member of the community (with Daracon promptly notifying DPIE) alleging excessive truck speed through the township of Ardglen. This matter was appropriately addressed and closed in consultation with the community member and DPIE; • A complaint was received from a member of the community via the NSW Department of Planning Industry and Environment (DPIE) on the 1st October 2019 alleging that a truck entered the township of Ardglen prior to 6.30am. This matter was appropriately addressed and closed in consultation with the DPIE;

2. OPERATIONS DURING THE REPORTING PERIOD

2.1 Introduction

Prior to August 2018, Ardglen quarry remained in “care and maintenance”. Ardglen quarry was taken out of "care and maintenance" during the latter part of 2018 due to the need for material at the Scone Bypass Project (SBP). **Table 6** lists the activities that did occur at Ardglen Quarry throughout 2019. Additionally, Daracon are currently working on a consent modification to streamline the operation of the quarry going forward. The details of the proposed consent modification are included in various parts of this report as applicable.

Table 6: Operations during the Reporting Period

January	Weekly Site Inspections and exporting of previously processed earth fill to the Scone Bypass Project
February	Weekly Site Inspections and exporting of previously processed earth fill to the Scone Bypass Project
March	Weekly Site Inspections and exporting of previously processed earth fill to the Scone Bypass Project
April	Weekly Site Inspections and exporting of previously processed earth fill to the Scone Bypass Project
May	Weekly Site Inspections and exporting of previously processed earth fill to the Scone Bypass Project
June	Weekly Site Inspections and exporting of previously processed earth fill to the Scone Bypass Project
July	Weekly Site Inspections and exporting of previously processed earth fill to the Scone Bypass Project
August	Weekly Site Inspections and exporting of previously processed earth fill to the Scone Bypass Project
September	Weekly Site Inspections and exporting of previously processed earth fill to the Scone Bypass Project
October	Weekly Site Inspections and exporting of previously processed earth fill to the Scone Bypass Project
November	Weekly Site Inspections and exporting of previously processed earth fill to the Scone Bypass Project
December	Weekly Site Inspections and exporting of previously processed earth fill to the Scone Bypass Project

2.2 Extraction And Clearing Operations

Table 7 displays the monthly/annual sales of various products exported from Ardglen Quarry during 2019.

Table 7: Ardglen Quarry Sales (tonnes)

Month - 2019	Aggregates	Road Pavements	Other	Total
January	0	0	872	872
February	0	0	6,946	6,946
March	0	0	15,870	15,870
April	0	0	10,320	10,320
May	0	0	7,916	7,916
June	0	0	8,819	8,819
July	0	0	5,087	5,087
August	0	0	5,006	5,006
September	0	0	2,508	2,508
October	0	0	1,299	1,299
November	0	0	3,396	3,396
December	0	0	2,648	2,648
Total	**0**	**0**	**70,687**	**70,687**
Source: Ardglen tracking records				

Although 70,687 tonnes of earth fill (general and select fill) was exported from Ardglen Quarry during the reporting period, no blasting, quarrying or extraction operations took place during the reporting period to obtain this material as it remained in stockpile from previous operations before the quarry was placed in "care and maintenance" in 2012.

Subject to the approval of the current consent modification, the status of blasting, quarrying and extraction operations will remain unchanged unless otherwise advised.

2.3 Processing Operations

Nil processing operations took place during 2019.

2.4 Overburden and Silt Management

Nil overburden was removed during 2019.
Nil silt removal occurred during 2019.

2.5 Waste Management

Although there was material exported to the SBP, no production took place during 2019 which meant that there was no production waste generated as follows:

- General Demolition Waste – Nil;
- Recyclable Concrete – Nil;
- Paper & Cardboard – Nil;
- Scrap Steel – Nil;
- Recyclables – Nil;
- Waste Oil – Nil;
- Waste Oil Filters – Nil;
- Empty Drums – Nil;
- Grease – Nil;
- Oily Water – Nil;
- Batteries – Nil;
- Asbestos Containing Material – Nil;

It is worth noting however, that a small quantity of general landfill waste was generated as part of the operation of the site. This was disposed of via general waste bins, collected and disposed via appropriate means. A waste register was completed for this small quantity of general landfill waste and it is included in Appendix 7.

2.6 Emissions

Daracon is committed to ongoing emission reduction strategies as part of the operation of Ardglen Quarry. The current mitigation measures currently employed on site to ensure particulate matter emissions are minimised include:

- Sealing the haul road to the wheel wash / weighbridge;
- Limiting the speed limit on unpaved surfaces to 15 km/hr;
- High level watering of unpaved road surfaces (greater than 2L/m2/hr);
- Covering all loads leaving the site;
- Building a wheel wash at the end of the unpaved section of the haul road;
- Wet suppression of static stockpiles;

Additionally, the proposed mitigation measures to ensure particulate matter emissions are minimised include:

- Revegetation of exposed surfaces where available;
- Regular inspection and fault reporting for mobile plant and equipment;
- Prompt rectification of reported faults associated with mobile plant and equipment;
- As part of the forward planning for site, considering the use of renewable energy sources including solar, wind and battery storage for example;
- Analysing the regular NGERS / NPI reports for trends and potential avenues for emission reductions;
- Minimise energy consumption on site by:
  - Shutting down plant and equipment when not used;
  - Regular servicing of plant and equipment;
  - Walking in preference to vehicular use where possible;

2.7 Site Infrastructure And Services

Ardglen quarry was taken out of "care and maintenance" during the latter part of 2018 due to the need for material at the Scone Bypass Project (SBP). As part of this process, a number of activities occurred on site:

- The weighbridge was recommissioned in 2018 and utilised for the entire reporting period;
- A wheel wash was installed during 2018 and remained operational for the entire reporting period;
- Following the decommissioning of the electrical substation, there is currently no external lighting associated with the operation of Ardglen Quarry, however if this was to change in the future, then Daracon would ensure compliance with Australian Standard AS4282 (INT) 1995;

2.8 Water Management

Figure 2 displays the current water management system in place at Ardglen Quarry. During the reporting period there was some minor maintenance to the various drainage and sedimentation control structures on site.

A revised Water Management Plan, including the following, is included as part of the proposed consent modification. Subject to approval, this will be enacted prior to commencing work in the Extension Area.

- An assessment of basin volumes is included as part of the proposed consent modification;
- An assessment of the reliability of the water supply to the operation is included as part of the proposed consent modification;
- Operational and maintenance activities that could cause soil erosion and sediment generation will be identified and described;
- Procedures to manage unforeseen water quality impacts;
- Water treatment processes to enable discharge as required (subject to the approval of a variation to the site EPL);

Figure 2: Water Management

2.9 Bushfire Management

No bushfire prevention activities occurred during this reporting period.

2.10 Hazardous Materials Management

Hazardous materials within the Quarry site are appropriately managed with incidental quantities of fuels and oils located in an appropriately bunded area. During this reporting period there was no bulk diesel fuel stored onsite. Incidental quantities of aerosols and weed poison are also stored within the appropriately bunded area.

2.11 Product Transportation

The transportation of products, both imported and exported is identified in Schedule 3 Condition 33.
Condition 33 - *The Proponent shall:*
(a) keep records of the:

- *amount of quarry materials imported onto the site each year – Refer to commentary below;*
- *amount of product transported from the site each year – Refer to Table 7;*
- *number of truck movements generated by the project, on a weekly basis - Refer to table 8;*
- *number of train movements generated by the project, on a weekly basis - Refer to commentary below;*
- *date and time of each train movement generated by the project - Refer to commentary below;*

(b) provide annual production data to the DPI using the standard form for that purpose – Completed via separate submission to the DPI; and
(c) include these records in the AEMR – Included here.

During the reporting period there was no material imported to site or material exported by rail transport. Details of truck movements generated by the project during the reporting period are shown in **Table 8**.

Table 8: Truck movements generated by the project

Dates	Maximum loaded truck movements per day during period	Average loaded truck movements for the period
Week ending 27/01/19	27	27
Week ending 17/02/19	27	27
Week ending 24/02/19	27	27
Week ending 03/03/19	27	27
Week ending 10/03/19	27	23.4
Week ending 17/03/19	27	27
Week ending 24/03/19	27	27
Week ending 31/03/19	27	25.7
Week ending 07/04/19	27	26.3
Week ending 14/04/19	27	27
Week ending 21/04/19	27	26.8
Week ending 05/05/19	27	27
Week ending 19/05/19	27	27
Week ending 26/05/19	27	27
Week ending 02/06/19	27	27
Week ending 16/06/19	27	27
Week ending 23/06/19	27	27
Week ending 30/06/19	27	27
Week ending 21/07/19	27	26
Week ending 28/07/19	27	27
Week ending 04/08/19	27	27
Week ending 18/08/19	23	22
Week ending 01/09/19	27	27
Week ending 15/09/19	27	25
Week ending 06/10/19	27	27
Week ending 20/10/19	12	12
Week ending 10/11/19	27	26.5
Week ending 17/11/19	26	25.5
Week ending 22/12/19	27	27
For entire reporting period	**27**	**26.2**
Source: Ardglen tracking records		

Additionally, the Road Safety Audit (RSA) completed during 2018 was submitted to DPIE on the 18th February 2019 and a copy is included in Appendix 8. Work on the proposed agreed remedial actions commenced during early 2019 and are mostly complete apart from those detailed and explained in the attachment shown in Appendix 8.

Finally, as part of the proposed MOD 2 currently in process, we hope to modify the transportation methods for site which, subject to the approval of MOD 2 would improve the efficiency and viability of the site going forward.

2.12 Rehabilitation

Significant rehabilitation work occurred during the reporting period as detailed in the revised Landscape Management Plan (LMP).

With respect to the specific aspects of the actual rehabilitation and landscape activities that occurred during the reporting period, we provide the following status updates:

- The Offset Strategy (S3_C25) – Daracon has actively engaged in discussions and exchanged information with the Biodiversity Conservation Trust NSW relating to the offset areas associated with the Ardglen quarry consent. Those discussions have confirmed that a "Conservation Agreement" (CA) is the appropriate process to secure the Biodiversity Offset Areas (BOA) detailed in the consent. Daracon is progressing well with the collection of information for the CA such as the completion of a biodiversity offset monitoring report which included baseline monitoring and establishment of permanent monitoring sites for the proposed conservation areas. Additionally, as part of this process it was noted that two agreements would be required as titles for the offset land are held by two related entities. As a result, Daracon is in the process of transferring titles from one of those entities to the other entity, thus simplifying the conservation arrangements for the future of the offset lands. We expect the entire CA process to be completed before the end of 2020.
- The Landscape Management Plan (S3_C27) – The Landscape Management Plan was updated and submitted to the DPIE during the course of 2019. We're also currently undertaking a 2020 update to the LMP following the completion of the biodiversity offset monitoring inspection in late 2019;
- The Doughboy Hollow Creek Rehabilitation Strategy (S3_C28) – Due to the fact that this particular strategy "shall commence prior to the start of quarry operations into the approved extension area", this strategy remains incomplete at this stage. This strategy will be finalised as part of the planning processes to enter the extension area; subject to the approval of the proposed consent modification;
- The Rehabilitation and Biodiversity Offset Management Plan (S3_C29) – The Rehabilitation and Biodiversity Offset Management Plan forms an integral component of the revised LMP which is currently undergoing a 2020 review as detailed above. We will submit the revised LMP to the DPIE shortly;

Also refer to Table 3 for a summary of the non-compliances arising from the Independent Environmental Audit undertaken by Pitt and Sherry in 2018.

2.13 Closure

The revised LMP includes information regarding the proposed closure arrangements.

3. COMMUNITY RELATIONS

3.1 Surrounding Communities

Figure 3 displays the land ownership and residence surrounding the quarry. During the reporting period, it is understood that there were no changes to the land ownership within the area. Informal discussions have occurred with a number of residents in the area during the reporting period.

Figure 3: Land Ownership and Residents

Table 9: Land Owners and Residents

Land Owners and Residents	
County Property Holdings Pty Limited	Mr R G & Mrs A R Maxwell
County Property Holdings Pty Ltd	Mr R K Best & Ms T M Hall
E & J Taylor	Mr R S Blomeley
Land and Property Management Authority	Mr R W Hancock
Mr A W Harris	Mr W E & Mrs E A Avery
Mr D J Bates	Mrs J Taylor
Mr D J Burraston	Ms A Bojba-Lis
Mr G B Smith & Ms N E Ryder	Ms C M Thompson
Mr G N & Mrs M A Lewins	Ms E G Russell
Mr J Orr	Ms M Taylor
Mr K J & Mrs J Martin	Ms P Purtell & Mr S Harms
Mr P A Bojba	The State of New South Wales
Mr P Colbert	Hunter Industrial Rental Equipment Pty Ltd

3.2 Community Consultative Committee Meetings

In mid-2015 Daracon sought approval for an Independent Community Consultative Committee Chairperson. Approval was granted for PEP Consulting to undertake the Independent Chairperson position. Following the appointment, PEP Consulting engaged with the community to re-establish a Community Consultative Committee (CCC) and establish community representatives. This process was finally resolved in July 2016 with the first CCC meeting held 23rd August 2016. Refer to Section 3.4 for more information.

3.3 Environmental Complaints

Daracon received no pollution complaints during the reporting period, however we did receive two complaints as detailed in Appendix 4.

3.4 Community Involvement

During the reporting period, PEP Consulting facilitated two meetings between Daracon and the CCC representatives. The first meeting occurred on the 7th May 2019 and the second meeting occurred on the 26th November 2019 with both the "agreed" and "draft" meeting minutes included in Appendix 3. All matters raised in the CCC meeting minutes are either resolved or currently in progress.

Furthermore, both PEP Consulting and Daracon circulated a community newsletter in early 2019 to provide additional information to the local residents regarding the CCC and planned activities associated with the operation of Ardglen Quarry.

Daracon also updated the CCC presentation to include compliance criteria level to make it simpler for the community to understand the information presented.

4. ENVIRONMENTAL MONITORING

4.1 Water Quality

4.1.1 Introduction

Ardglen Quarry operates under an approved Site Water Management Plan. The purpose of this plan is to ensure that Ardglen Quarry does not pollute any waters it may discharge into, in accordance with Environmental Protection Licence No. 1115. The water monitoring plan proposes that prior to any discharge from the sediment basin, the water be tested for turbidity using a probe and visually assessed for the presence of oil and grease.

Ardglen Quarry has two sediment basins onsite, the in-pit sump which is approximately 30ML and a final sediment basin which is approximately 3ML. Currently all water from the disturbed area is directed towards the in-pit sump and when this becomes full, water is then directed to the smaller (3ML) sediment basin for storage and re-use.

Additionally, as part of the proposed MOD 2 currently in process, we plan to make a number of critical improvements to the water management processes on site to permit the appropriate discharge of water. This would also involve a variation to the EPL which would be sought subject to the approval of MOD 2.

4.1.2 Conclusion

During the reporting period, nil water was discharged from site.

4.2 Noise and Blasting

4.2.1 Introduction

Ardglen Quarry operates under an approved Noise Monitoring Program and Blast Monitoring program. These programs outline the measures which will mitigate the environmental effects of noise and blasting of the quarry activities on our neighbours; proposes noise monitoring programs to assess and report the levels of impact, in compliance with Schedule 3 of the Project Approval and provides a mechanism whereby any noise complaints can be dealt with quickly and effectively.

The Blast Monitoring program requires monitoring to take place at specified locations as shown in **Figure 4**. The Noise Monitoring Plan calls for quarterly attended noise monitoring to be completed and take place at specified noise monitoring locations as shown in **Figure 5.**

Figure 4: Blast Monitoring Locations

Figure 5: Noise Monitoring Locations

4.2.2 Noise Criteria

Table 10: Noise Criteria

NOISE IMPACT ASSESSMENT CRITERIA dB(A)				
Land	*Day Leq (15 min)*	*Evening Leq (15 min)*	*Night*	
			Leq (15 min)	*L1 (1 min)*
1 Burraston	*35*	*35*	*35*	*45*
3 Rose	*35*	*35*	*35*	*45*
4 C M Thompson	*44*	*35*	*35*	*45*
5 M Taylor	*45*	*35*	*35*	*45*
6 S Thompson	*45*	*35*	*35*	*45*
9 Bates	*37*	*35*	*35*	*45*
10 Avery	*38*	*35*	*35*	*45*
11 Shipman	*37*	*35*	*35*	*45*
12 Hall	*36*	*35*	*35*	*45*
13 McGhie	*35*	*35*	*35*	*45*
14 Purtell	*36*	*35*	*35*	*45*
15 J Taylor	*43*	*35*	*35*	*45*
16 Bojba	*40*	*35*	*35*	*45*
All other privately owned land	*35*	*35*	*35*	*45*

4.2.3 Noise Monitoring Results

Due to the fact that Ardglen quarry was non-operational, limited noise monitoring was undertaken prior to 2018. During 2019, quarterly noise monitoring of the site recommenced in earnest and the results of the recently recommenced quarterly noise monitoring are summarised in Table 11, Table 12, Table 13 and Table 14.

Table 11: Noise monitoring 12th February 2019

Ardglen Quarry noise monitoring results – 12th February 2019 (day)				
Location	**Time**	**dB(A),Leq**	**Wind speed/ direction**	**Identified Noise Sources**
4. Thompson	9: 05 am	55	1.5 m/s NE	Traffic (55), birds (30), **AQ_1 barely audible**
13. McGhie	10:05 am	40	2.5 m/s NW	Birds (39), traffic (32), **AQ inaudible**
14. Purtell	9:40 am	46	1.5 m/s N	Traffic (45), birds (37), **AQ_1 (30)**
16. Bojba	8:45 am	54	1.0 m/s NE	Traffic (54), birds (40), **AQ inaudible**

Table 12: Noise monitoring 15th May 2019

Ardglen Quarry noise monitoring results – 15th May 2019 (day)				
Location	**Time**	**dB(A),Leq**	**Wind speed/ direction**	**Identified Noise Sources**
4. Thompson	1:45 pm	50	2.5 m/s SE	Traffic (50), wind in trees (35), birds (20), **AQ inaudible**
13. McGhie	2:06 pm	45	2.7 m/s SE	Birds (44), traffic (36), **AQ inaudible**
14. Purtell	2:30 pm	48	2.8 m/s SE	Wind in trees (44), traffic (44), birds (40), **AQ1 (25)**
16. Bojba	1:25 pm	57	2.0 m/s SE	Traffic (57), birds (44), **AQ inaudible**

Table 13: Noise monitoring 30th August 2019

Ardglen Quarry noise monitoring results – 30th August 2019 (day)				
Location	**Time**	**dB(A),Leq**	**Wind speed/ direction**	**Identified Noise Sources**
4. Thompson	1:15 pm	43	2.5 m/s SE	Traffic (43), birds (30), **AQ inaudible**
13. McGhie	1:40 pm	55	2.7 m/s SE	Trains (54), traffic (47), birds (30), **AQ inaudible**
14. Purtell	2:01 pm	44	2.8 m/s SE	Traffic (44), **AQ (inaudible)**
16. Bojba	12:46 pm	54	2.0 m/s SE	Traffic (54), **AQ inaudible**

Table 14: Noise monitoring 22nd November 2019

Ardglen Quarry noise monitoring results – 22nd November 2019 (day)				
Location	**Time**	**dB(A),Leq**	**Wind speed/ direction**	**Identified Noise Sources**
4. Thompson	10:49 am	48	2.0 m/s N	Traffic (48), birds (35), **AQ inaudible**
13. McGhie	11:35 am	40	3.0 m/s NW	Traffic (40), birds (25), **AQ inaudible**
14. Purtell	11:10 am	43	2.5 m/s NW	Traffic (43), **AQ inaudible**
16. Bojba	10:30 am	50	2.0 m/s N	Traffic (50), **AQ inaudible**

4.2.4 Blasting Criteria

Table 15: Blasting Criteria

Airblast overpressure level (dB(Lin Peak))	*Allowable exceedance*
115	*5% of the total number of blasts over a period of 12 months*
120	*0%*
Peak Particle Velocity (mm/s)	***Allowable exceedance***
5	*5% of the total number of blasts over a period of 12 months*
10	*0%*

4.2.5 Blasting Monitoring Results

No blasts were carried out during the reporting period.

4.2.6 Analysis of Results

The results of the noise monitoring undertaken in February, May, August and November 2019 are included in Appendix 2. These results were all below the specified criteria.

No blasting occurred during the reporting period, so therefore no blast monitoring was completed.

4.2.7 Conclusion

The noise monitoring results were within the specified limits and when operations re-commence blast monitoring will then recommence.

Additionally, as part of the proposed MOD 2 currently in process, we plan to make a number of critical improvements to the noise mitigation measures to enable the appropriate handling and processing of material on site. This may also involve a variation to the EPL which would be sought subject to the approval of MOD 2.

4.3 Air Quality

4.3.1 Introduction

Ardglen Quarry operates under an approved Air Quality Management Plan. The objectives of this plan is to comply with all statutory requirements, minimise air quality impacts on surrounding residents and properties, maintain reasonable levels of amenity for surrounding residents, to keep the local community and regulators informed and to respond quickly and effectively to issues and complaints and to ensure that air quality is measured according to best practice and results are presented in a timely and transparent manner to stakeholders.

4.3.2 Meteorological Station

Condition 18 (32) requires that a meteorological station to operate in the vicinity of the project site for the life of the project. Daracon has installed a meteorological station (Figure 6), ensuring that the meteorological station complies with the requirements in the "Approved Methods for Sampling of Air Pollutants in New South Wales Guideline".
The meteorological station currently monitors the following parameters as per EPL 1115:

- Rainfall;
- Wind Speed and Direction;
- Temperature (at 2m and 10m above ground level);
- Sigma theta;
- Solar Radiation;

4.3.3 Air Quality Monitoring Locations and Frequency

The current air quality monitoring network consists of three deposited dust gauges (DDG), two HVAS units and one TSP unit (see **Figure 6**.).

The location of the air quality monitoring equipment (primarily to the North-East and East of the Quarry) was deduced from the location of the surrounding residences.

Figure 6: Air Quality Monitoring and Weather Station Locations

4.3.4 Air Quality Criteria

The air quality criteria for the quarry, as outlined with condition 15 (10) of the approval are provided in the below table.

Table 16: Air Quality Criteria

Parameter	Frequency	Locations	Limit/Guideline	Sampling Method
Deposited dust	Monthly.	DG-1 located at Receptor 2 (EPL point 2). DG-2 located at Receptor 5 (EPL point 3). DG-3 located at Receptor 6 (EPL point 4).	**Deposition Rate*** Maximum total deposited dust level: 4 g/m^2.month - as an annual average	AM-19 AS3580.10.1 – 2003
Total suspended particulate (TSP) matter	24 hours every 6 days for 12 months.	TSP-1 located at Receptor 2. Removed after 12 months.	**Concentration** 90 µg/m^3 - as an annual average	AM-15 AS3580.9.3 – 2003
Particulate matter < 10 µm (PM_{10})	24 hours every 6 days.	PM10-1 located at Receptor 2. PM10-2 located at Receptor 6.	**Concentration** 50 µg/m^3 - as a 24 hour average 30 µg/m^3 - as an annual average	AM-16 AS3580.9.6 - 2003

Parameter	Frequency	Locations	Limit/Guideline	Sampling Method
Visible air pollution	Weekly. In response to any visible emissions complaint.	Weekly site inspection. At the location of any reported emission.	**Project Approval Schedule 3, Condition 16** The Proponent shall ensure any visible air pollution generated by the project is assessed regularly, and that quarrying operations are relocated, modified, and/or stopped as required to minimise air quality impacts on privately-owned land, to the satisfaction of the Director-General.	No required sampling methodology. Actions required if visual impact is suspected or confirmed.
Meteorological station	Continuous.	On site near the weighbridge.	**Project Approval Schedule 3, Condition 18** The Proponent shall ensure the project has a suitable meteorological station in the vicinity of the site that complies with the requirements in *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline.	AM-1 to AM-4 USEPA (2000) EPA 454/R-99-005
Greenhouse gases (electricity and fuel consumption)	Upon purchase of electricity or fuel.	Entire site.	**Project Approval Schedule 3, Condition 46(a)** The proponent shall monitor the greenhouse gas emissions generated by the project.	No required sampling methodology. Records of purchase and storage used to determine consumption.

4.3.5 Air Quality Monitoring Results

The following information presents the results of the Dust Deposition Gauges (DDG), High Volume Air Sampler (HVAS) and Total Suspended Particulate (TSP) monitoring program.

4.3.5.1 Depositional Dust Gauges

Table 17: Depositional Dust Gauge Results

	Insoluble Solids (g/m^2.month)			Insoluble Solids Annual Average (g/m^2.month)		
	EPA2	EPA3	EPA4	EPA2	EPA3	EPA4
3/1/19 to 4/2/19	0.9	1.2	1.7	1.2	1.8	1.2
4/2/19 to 4/3/19	1.2	2.8	1.6	1.2	2	1.2
4/3/19 to 2/4/19	1.8	1.6	1.9	1.3	1.9	1.3
2/4/19 to 3/5/19	0.6	2.1	0.5	1.4	2	1.3
3/5/19 to 3/6/19	0.3	0.5	0.1	1.3	2	1.3
3/6/19 to 5/7/19	0.2	0.4	0.3	1.3	2	1.3
5/7/19 to 5/8/19	0.3	0.3	0.3	1.3	1.9	1.3
5/8/19 to 6/9/19	0.6	0.9	1	1.3	1.9	1.3
6/9/19 to 8/10/19	1.1	1.3	1	1.1	1.7	1
8/10/19 to 8/11/19	2.1	2.7	3.1	1.2	1.5	1.3
8/11/19 to 10/12/19	2.6	3.2	2.8	1.2	1.6	1.4
10/12/19 to 9/1/20	2.4	2.9	3.1	**1.2**	**1.7**	**1.5**

4.3.5.2 HVAS Unit 1 (PM10-1)

Table 18: HVAS Unit 1 Results

		Sample #	Run Date	PM10	Filter #	Date Off	Time Off	Tech	Hrs
Jan-19	PM_{10}-1	1199733012	2/01/2019	18	9584986	4/01/2019	6:05	Client	24.39
	PM_{10}-1	1199733015	8/01/2019	11	9584960	10/01/2019	6:44	Client	24.02
	PM_{10}-1	1199733018	14/01/2019	14	9589209	18/01/2019	6:25	Client	24.02
	PM_{10}-1	1199733021	20/01/2019	9	9589229	23/01/2019	10:21	Client	24
	PM_{10}-1	1199733024	26/01/2019	16	9589268	31/01/2019	12:07	Client	24.03
Feb-19	PM_{10}-1	2199733012	1/02/2019	8	9518100	6/02/2019	11	Client	24
	PM_{10}-1	2199733015	7/02/2019	4	9519672	11/02/2019	13.17	Client	24.03
	PM_{10}-1	2199733018	13/02/2019	105	9519603	14/02/2019	9.43	Client	24.01
	PM_{10}-1	2199733021	19/02/2019	30	9519638	21/02/2019	10.34	Client	24.03
	PM_{10}-1	2199733024	25/02/2019	9	9521205	28/02/2019	8.44	Client	24.01

Mar-19	PM_{10}-1	3199733012	3/03/2019	9	9518538	7/03/2019	12:05	Client	24.12
	PM_{10}-1	3199733015	9/03/2019	12	9656001	13/03/2019	12:39	Client	24.02
	PM_{10}-1	3199733018	15/03/2019	22	9656004	20/03/2019	9:47	Client	24.02
	PM_{10}-1	3199733021	21/03/2019	10	9656007	26/03/2019	10:04	Client	24.02
	PM_{10}-1	3199733024	27/03/2019	17	9656010	1/04/2019	10:19	Client	24.02
Apr-19	PM_{10}-1	4199733012	2/04/2019	2	9656013	3/04/2019	10:44	Client	24.03
	PM_{10}-1	4199733015	8/04/2019	13	9656016	10/04/2019	11:16	Client	24.02
	PM_{10}-1	4199733018	14/04/2019	16	9644819	18/04/2019	10:21	Client	24.03
	PM_{10}-1	4199733021	20/04/2019	6	9644822	24/04/2019	9:51	Client	24.02
	PM_{10}-1	4199733024	26/04/2019	12	9644825	30/04/2019	12:59	Client	24.01
May-19	PM_{10}-1	5199733012	2/05/2019	6	9644828	7/05/2019	14:17	Client	24.18
	PM_{10}-1	5199733015	8/05/2019	10	9644831	13/05/2019	12:15	Client	24.02
	PM_{10}-1	5199733018	14/05/2019	4	9644834	15/05/2019	11:38	Client	24.02
	PM_{10}-1	5199733021	20/05/2019	4	9644837	24/05/2019	12:05	Client	24.01
	PM_{10}-1	5199733024	26/05/2019	8	9722048	29/05/2019	11:53	Client	24.02
Jun-19	PM_{10}-1	6199733012	1/06/2019	11	9722051	5/06/2019	11:26	Client	24.02
	PM_{10}-1	6199733015	7/06/2019	8	9722054	12/06/2019	11:58	Client	24.02
	PM_{10}-1	6199733018	13/06/2019	5	9722057	18/06/2019	10:36	Client	24.01
	PM_{10}-1	6199733021	19/06/2019	2	9722060	20/06/2019	8:48	Client	24.01
	PM_{10}-1	6199733024	25/06/2019	3	9722063	26/06/2019	11:41	Client	24.02
Jul-19	PM_{10}-1	7199733012	1/07/2019	5	9722066	2/07/2019	13:28	Client	24.01
	PM_{10}-1	7199733015	7/07/2019	3	9711442	11/07/2019	9:08	Client	24.34
	PM_{10}-1	7199733018	13/07/2019	5	9711445	18/07/2019	9:23	Client	24.01
	PM_{10}-1	7199733021	19/07/2019	1	9711448	22/07/2019	9:50	Client	24.03
	PM_{10}-1	7199733024	25/07/2019	4	9711451	30/07/2019	10:45	Client	24.03
	PM_{10}-1	7199733027	31/07/2019	1	9711454	2/08/2019	11:29	Client	24.02
Aug-19	PM_{10}-1	8199733012	6/08/2019	4	9711457	7/09/2019	10:31	Client	24.02
	PM_{10}-1	8199733015	12/08/2019	1	9711460	15/08/2019	11:43	Client	24.01
	PM_{10}-1	8199733018	18/08/2019	6	9711463	23/08/2019	11:42	Client	24.03
	PM_{10}-1	8199733021	24/08/2019	12	9711466	29/08/2019	10:45	Client	24.03
	PM_{10}-1	8199733024	30/08/2019	5	9719675	4/09/2019	11:16	Client	24.02
Sep-19	PM_{10}-1	9199733012	5/09/2019	10	9719678	9/09/2019	13:05	Client	24.49
	PM_{10}-1	9199733015	11/09/2019	5	9719681	13/09/2019	11:02	Client	24.01
	PM_{10}-1	9199733018	17/09/2019	7	9719684	19/09/2019	10:36	Client	24.01
	PM_{10}-1	9199733021	23/09/2019	11	9719687	26/09/2019	12:09	Client	24.03
	PM_{10}-1	9199733024	29/09/2019	12	9719690	3/10/2019	8:46	Client	24.01

Oct-19	PM_{10}-1	10199733012	5/10/2019	16	9719693	9/10/2019	9:07	Client	24.04
	PM_{10}-1	10199733015	11/10/2019	7	9720376	15/10/2019	6:55	Client	24.03
	PM_{10}-1	10199733018	17/10/2019	43	9720379	21/10/2019	13:25	Client	24.02
	PM_{10}-1	10199733021	23/10/2019	21	9720382	24/10/2019	6:40	Client	24.01
	PM_{10}-1	10199733024	29/10/2019	52	9720385	1/11/2019	10:21	Client	17.07
Nov-19	PM_{10}-1	11199733008	4/11/2019	2	9720388	5/11/2019	13:32	Client	24.01
	PM_{10}-1	11199733011	10/11/2019	9	9720679	15/11/2019	6:27	Client	24.02
	PM_{10}-1	11199733014	16/11/2019	15	9720682	21/11/2019	10:08	Client	24.17
	PM_{10}-1	11199733017	22/11/2019	83	9720390	27/11/2019	9:49	Client	24.02
	PM_{10}-1	11199733020	28/11/2019	76	9720686	3/12/2019	10:15	Client	24.02
Dec-19	PM_{10}-1	12199733002	4/12/2019	15	9720689	6/12/2019	7:05	Client	24.01
	PM_{10}-1	12199733015	10/12/2019	89	9720692	11/12/2019	10:31	Client	24.03
	PM_{10}-1	12199733018	16/12/2019	51	9720695	18/12/2019	11:23	Client	24.01
	PM_{10}-1	12199733021	22/12/2019	65	9720698	23/12/2019	10:34	Client	24.03
	PM_{10}-1	12199733024	28/12/2019	55	9722351	30/12/2019	10:55	Client	24.02

4.3.5.3 HVAS Unit 2 (PM10-2)

Table 19: HVAS Unit 2 Results

		Sample #	Run Date	PM10	Filter #	Date Off	Time Off	Tech	Hrs
Jan-19	PM_{10}-2	1199733013	2/01/2019	16	9584994	4/01/2019	6:25	Client	24.37
	PM_{10}-2	1199733016	8/01/2019	12	9589202	10/01/2019	6:59	Client	24.04
	PM_{10}-2	1199733019	14/01/2019	14	9519770	18/01/2019	6:42	Client	24.04
	PM_{10}-2	1199733022	20/01/2019	10	9589231	23/01/2019	10:54	Client	24
	PM_{10}-2	1199733025	26/01/2019	18	9589230	31/01/2019	11:51	Client	24.03
Feb-19	PM_{10}-2	2199733013	1/02/2019	7	9520618	6/02/2019	11:20	Client	24.04
	PM_{10}-2	2199733016	7/02/2019	3	9519605	11/02/2019	13:04	Client	24.04
	PM_{10}-2	2199733019	13/02/2019	97	9519646	14/02/2019	9:54	Client	24.02
	PM_{10}-2	2199733022	19/02/2019	25	9520625	21/02/2019	10:19	Client	24.05
	PM_{10}-2	2199733025	25/02/2019	8	9521206	28/02/2019	8:58	Client	24.03
Mar-19	PM_{10}-2	3199733013	3/03/2019	8	9655199	7/03/2019	11:36	Client	24.49
	PM_{10}-2	3199733016	9/03/2019	12	9655200	13/03/2019	12:25	Client	24.09
	PM_{10}-2	3199733019	15/03/2019	25	9656003	20/03/2019	9:34	Client	24.04
	PM_{10}-2	3199733022	21/03/2019	10	9656006	26/03/2019	9:50	Client	24.05
	PM_{10}-2	3199733025	27/03/2019	15	9656009	1/04/2019	10:26	Client	24.03
Apr-19	PM_{10}-2	4199733013	2/04/2019	2	9656014	3/04/2019	10:24	Client	24.04
	PM_{10}-2	4199733016	8/04/2019	15	9656015	10/04/2019	11:01	Client	24.03

	PM_{10}-2	4199733019	14/04/2019	14	9644818	18/04/2019	10:08	Client	24.04
	PM_{10}-2	4199733022	20/04/2019	7	9644821	24/04/2019	9:20	Client	24.03
	PM_{10}-2	4199733025	26/04/2019	14	9644824	30/04/2019	13:10	Client	24.03
May-19	PM_{10}-2	5199733013	2/05/2019	7	9644829	7/05/2019	14:31	Client	24.27
	PM_{10}-2	5199733016	8/05/2019	10	9644832	13/05/2019	12:23	Client	24.04
	PM_{10}-2	5199733019	14/05/2019	5	9644835	15/05/2019	11:24	Client	24.05
	PM_{10}-2	5199733022	20/05/2019	6	9644836	24/05/2019	12:15	Client	24.02
	PM_{10}-2	5199733025	26/05/2019	9	9722049	29/05/2019	11:32	Client	24.05
Jun-19	PM_{10}-2	6199733013	1/06/2019	9	9722050	5/06/2019	11:09	Client	24.03
	PM_{10}-2	6199733016	7/06/2019	8	9722053	12/06/2019	11:44	Client	24.03
	PM_{10}-2	6199733019	13/06/2019	5	9722056	18/06/2019	11:01	Client	24.03
	PM_{10}-2	6199733022	19/06/2019	4	9722061	20/06/2019	9:52	Client	24.04
	PM_{10}-2	6199733025	25/06/2019	3	9722064	26/06/2019	11:25	Client	24.06
Jul-19	PM_{10}-2	7199733013	1/07/2019	8	9722065	2/07/2019	13:46	Client	24.01
	PM_{10}-2	7199733016	7/07/2019	4	9711443	11/07/2019	9:19	Client	24.39
	PM_{10}-2	7199733019	13/07/2019	5	9711446	18/07/2019	9:36	Client	24.04
	PM_{10}-2	7199733022	19/07/2019	3	9711449	22/07/2019	9:31	Client	24.05
	PM_{10}-2	7199733025	25/07/2019	5	9711450	30/07/2019	10:16	Client	24.03
	PM_{10}-2	7199733028	31/07/2019	0	9711453	2/08/2019	11:53	Client	24.02
Aug-19	PM_{10}-2	8199733013	6/08/2019	5	9711458	7/09/2019	10:16	Client	24.05
	PM_{10}-2	8199733016	12/08/2019	1	9711459	15/08/2019	12:03	Client	24
	PM_{10}-2	8199733019	18/08/2019	7	9711464	23/08/2019	11:26	Client	24.05
	PM_{10}-2	8199733022	24/08/2019	15	9711465	29/08/2019	10:56	Client	24.05
	PM_{10}-2	8199733025	30/08/2019	5	9719676	4/09/2019	10:55	Client	24.03
Sep-19	PM_{10}-2	9199733013	5/09/2019	14	9719677	9/09/2019	12:51	Client	24.38
	PM_{10}-2	9199733016	11/09/2019	4	9719680	13/09/2019	11:25	Client	24.01
	PM_{10}-2	9199733019	17/09/2019	6	9719685	19/09/2019	10:47	Client	24.04
	PM_{10}-2	9199733022	23/09/2019	11	9719688	26/09/2019	11:53	Client	24.04
	PM_{10}-2	9199733025	29/09/2019	11	9719689	3/10/2019	9:11	Client	24.04
Oct-19	PM_{10}-2	10199733013	5/10/2019	8	9720374	9/10/2019	9:31	Client	24.04
	PM_{10}-2	10199733016	11/10/2019	6	9720377	15/10/2019	7:07	Client	24.03
	PM_{10}-2	10199733019	17/10/2019	44	9720380	21/10/2019	13:38	Client	24.05
	PM_{10}-2	10199733022	23/10/2019	22	9720383	24/10/2019	6:52	Client	24.02
	PM_{10}-2	10199733025	29/10/2019	49	9720386	1/11/2019	10:38	Client	17.04
Nov-19	PM_{10}-2	11199733009	4/11/2019	1	9720389	5/11/2019	11:37	Client	24.04
	PM_{10}-2	11199733012	10/11/2019	11	9720678	15/11/2019	6:37	Client	24.12

	PM_{10}-2	11199733015	16/11/2019	19	9720683	21/11/2019	9:38	Client	24.26
	PM_{10}-2	11199733018	22/11/2019	86	9720373	27/11/2019	9:33	Client	24.05
	PM_{10}-2	11199733021	28/11/2019	81	9720685	3/12/2019	10:40	Client	24.03
Dec-19	PM_{10}-2	12199733003	4/12/2019	13	9720690	6/12/2019	7:14	Client	24.02
	PM_{10}-2	12199733016	10/12/2019	91	9720693	11/12/2019	10:38	Client	24.01
	PM_{10}-2	12199733019	16/12/2019	48	9720696	18/12/2019	11:05	Client	24.03
	PM_{10}-2	12199733022	22/12/2019	57	9720697	23/12/2019	10:42	Client	24.04
	PM_{10}-2	12199733025	28/12/2019	52	9722352	30/12/2019	11:06	Client	24.03

4.3.5.4 TSP Unit 1

Table 20: TSP Unit 1 Results

		Sample #	Run Date	TSP	Filter #	Date Off	Time Off	Tech	Hrs
Jan-19	TSP	1199733011	2/01/2019	35	9584985	4/01/2019	5:55	Client	24.7
	TSP	1199733014	8/01/2019	27	9584952	10/01/2019	6:37	Client	24.04
	TSP	1199733017	14/01/2019	28	9584993	18/01/2019	6:19	Client	24.02
	TSP	1199733020	20/01/2019	24	9584914	23/01/2019	10:15	Client	24
	TSP	1199733023	26/01/2019	35	9589267	31/01/2019	12:09	Client	24.03
Feb-19	TSP	2199733011	1/02/2019	24	9519696	6/02/2019	10:55	Client	24.02
	TSP	2199733014	7/02/2019	18	9519604	11/02/2019	13:20	Client	24.04
	TSP	2199733017	13/02/2019	235	9519637	14/02/2019	9:36	Client	24.01
	TSP	2199733020	19/02/2019	69	9519695	21/02/2019	10:49	Client	24.04
	TSP	2199733023	25/02/2019	36	9520617	28/02/2019	8:37	Client	24.02
Mar-19	TSP	3199733011	3/03/2019	23	9520665	7/03/2019	12:08	Client	24.27
	TSP	3199733014	9/03/2019	31	9656002	13/03/2019	12:41	Client	24.04
	TSP	3199733017	15/03/2019	50	9656005	20/03/2019	9:49	Client	24.02
	TSP	3199733020	21/03/2019	18	9656008	26/03/2019	10:06	Client	24.03
	TSP	3199733023	27/03/2019	29	9656011	1/04/2019	10:13	Client	24.02
Apr-19	TSP	4199733011	2/04/2019	4	9656012	3/04/2019	10:45	Client	24.03
	TSP	4199733014	8/04/2019	32	9656017	10/04/2019	11:18	Client	24.04
	TSP	4199733017	14/04/2019	27	9644820	18/04/2019	10:24	Client	24.04
	TSP	4199733020	20/04/2019	12	9644823	24/04/2019	9:53	Client	23.84
	TSP	4199733023	26/04/2019	31	9644826	30/04/2019	12:54	Client	24
May-19	TSP	5199733011	2/05/2019	13	9644827	7/05/2019	14:11	Client	24.25
	TSP	5199733014	8/05/2019	18	9644830	13/05/2019	12:08	Client	24.03
	TSP	5199733017	14/05/2019	9	9644833	15/05/2019	11:39	Client	24.03
	TSP	5199733020	20/05/2019	11	9722046	24/05/2019	11:59	Client	24.02
	TSP	5199733023	26/05/2019	17	9722047	29/05/2019	11:56	Client	24.04
Jun-19	TSP	6199733011	1/06/2019	13	9722052	5/06/2019	11:28	Client	24.02
	TSP	6199733014	7/06/2019	18	9722055	12/06/2019	12:00	Client	24.02
	TSP	6199733017	13/06/2019	9	9722058	18/06/2019	10:36	Client	24.03
	TSP	6199733020	19/06/2019	11	9722059	20/06/2019	8:42	Client	24.03

	TSP	6199733023	25/06/2019	17	9722062	26/06/2019	11:43	Client	24.03
Jul-19	TSP	7199733011	1/07/2019	9	9722067	2/07/2019	13:22	Client	24.02
	TSP	7199733014	7/07/2019	8	9711441	11/07/2019	9:01	Client	24.46
	TSP	7199733017	13/07/2019	11	9711444	18/07/2019	9:16	Client	24.03
	TSP	7199733020	19/07/2019	6	9711447	22/07/2019	9:52	Client	24.03
	TSP	7199733023	25/07/2019	13	9711452	30/07/2019	10:46	Client	24.04
	TSP	7199733026	31/07/2019	5	9711455	2/08/2019	11:24	Client	24.03
Aug-19	TSP	8199733011	6/08/2019	12	9711456	7/09/2019	10:33	Client	24.05
	TSP	8199733014	12/08/2019	8	9711461	15/08/2019	11:33	Client	23.97
	TSP	8199733017	18/08/2019	20	9711462	23/08/2019	11:44	Client	24.08
	TSP	8199733020	24/08/2019	31	9719673	29/08/2019	10:37	Client	24.03
	TSP	8199733023	30/08/2019	13	9719674	4/09/2019	11:19	Client	24.04
Sep-19	TSP	9199733011	5/09/2019	33	9719679	9/09/2019	13:10	Client	24.42
	TSP	9199733014	11/09/2019	14	9719682	13/09/2019	10:55	Client	24.01
	TSP	9199733017	17/09/2019	19	9719683	19/09/2019	10:30	Client	24.03
	TSP	9199733020	23/09/2019	24	9719686	26/09/2019	12:11	Client	24.05
	TSP	9199733023	29/09/2019	30	9719691	3/10/2019	8:40	Client	24.01
Oct-19	TSP	10199733011	5/10/2019	35	9719692	9/10/2019	8:55	Client	24.29
	TSP	10199733014	11/10/2019	17	9720375	15/10/2019	6:49	Client	24.02
	TSP	10199733017	17/10/2019	125	9720378	21/10/2019	13:18	Client	24.04
	TSP	10199733020	23/10/2019	40	9720381	24/10/2019	6:33	Client	24.01
	TSP	10199733023	29/10/2019	83	9720384	1/11/2019	10:14	Client	17.06
Nov-19	TSP	11199733007	4/11/2019	7	9720387	5/11/2019	13:40	Client	24.02
	TSP	11199733010	10/11/2019	39	9720680	15/11/2019	6:20	Client	24.04
	TSP	11199733013	16/11/2019	52	9720681	21/11/2019	10:12	Client	24.3
	TSP	11199733016	22/11/2019	200	9720684	27/11/2019	9:51	Client	24.02
	TSP	11199733019	28/11/2019	160	9720687	3/12/2019	10:05	Client	24.07
Dec-19	TSP	12199733001	4/12/2019	44	9720688	6/12/2019	6:58	Client	24.03
	TSP	12199733014	10/12/2019	140	9720691	11/12/2019	10:23	Client	24.02
	TSP	12199733017	16/12/2019	125	9720694	18/12/2019	11:24	Client	24.03
	TSP	12199733020	22/12/2019	175	9720699	23/12/2019	10:24	Client	24.02
	TSP	12199733023	28/12/2019	93	9720700	30/12/2019	10:49	Client	24.03

4.3.6 Analysis of Results

Please refer to sections 4.3.6.1 to 4.3.6.3 for a breakdown of the air quality monitoring data.

4.3.6.1 Depositional Dust Gauges

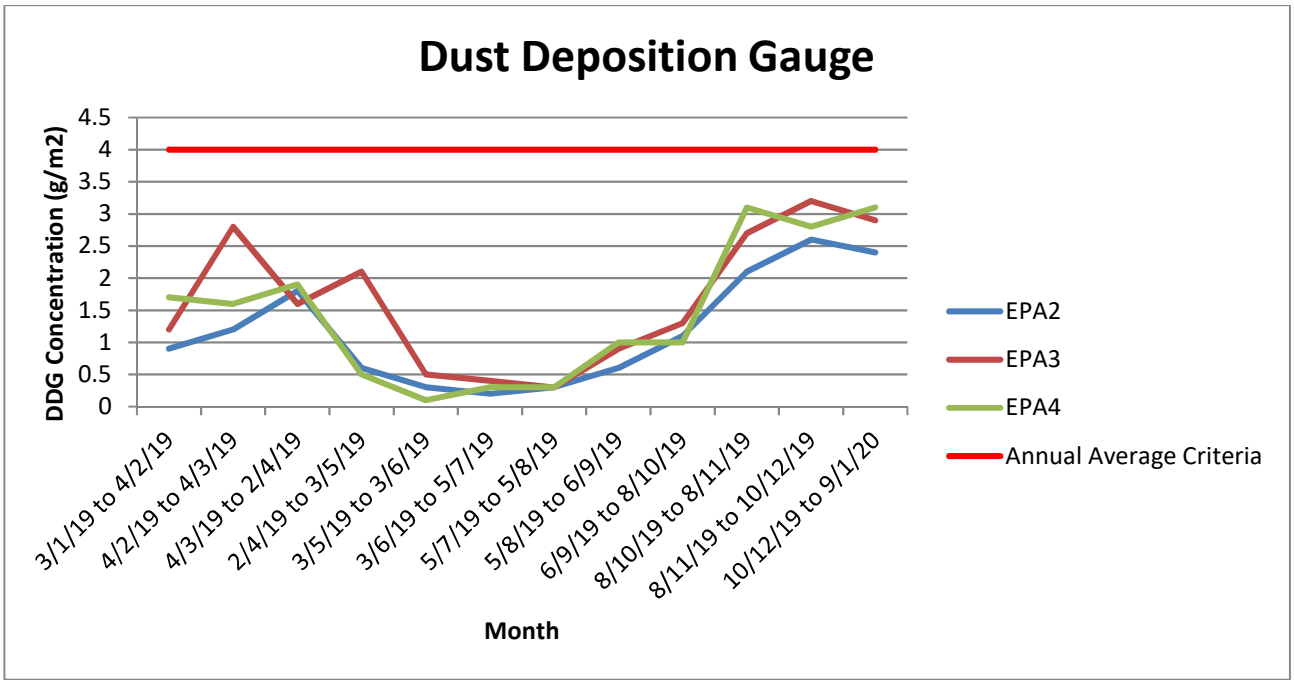


Figure 7: DDG results for the reporting period

4.3.6.2 HVAS PM-10 Unit 1 and 2

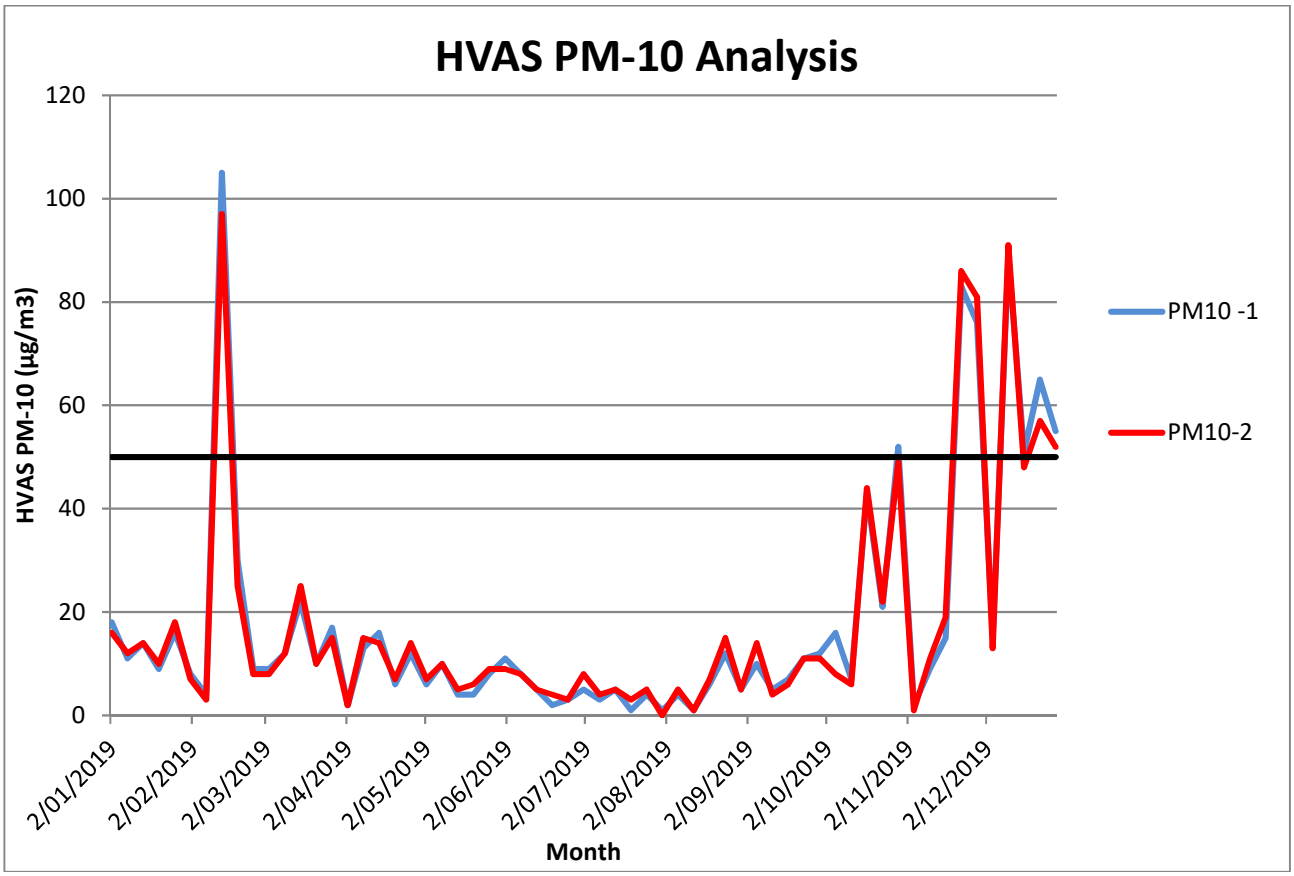


Figure 8: HVAS (PM-10) results for the reporting period

*The HVAS PM10 Annual average of 30µg/m3 is based on the short term impact assessment criterion for particulate matter. The 24hr average is the long term impact assessment criteria for deposited dust. Clause 15 (10) of approval.

Table 21: PM10 and TSP annual average results

Unit	Ardglen HVAS Annual Average	24 hour Criterion (Short Term)	Annual Average Criterion (Long Term)
PM10-1	18.0	30	50
PM10-2	17.9	30	50
TSP	41.2	N/A	90

4.3.6.3 TSP Unit 1

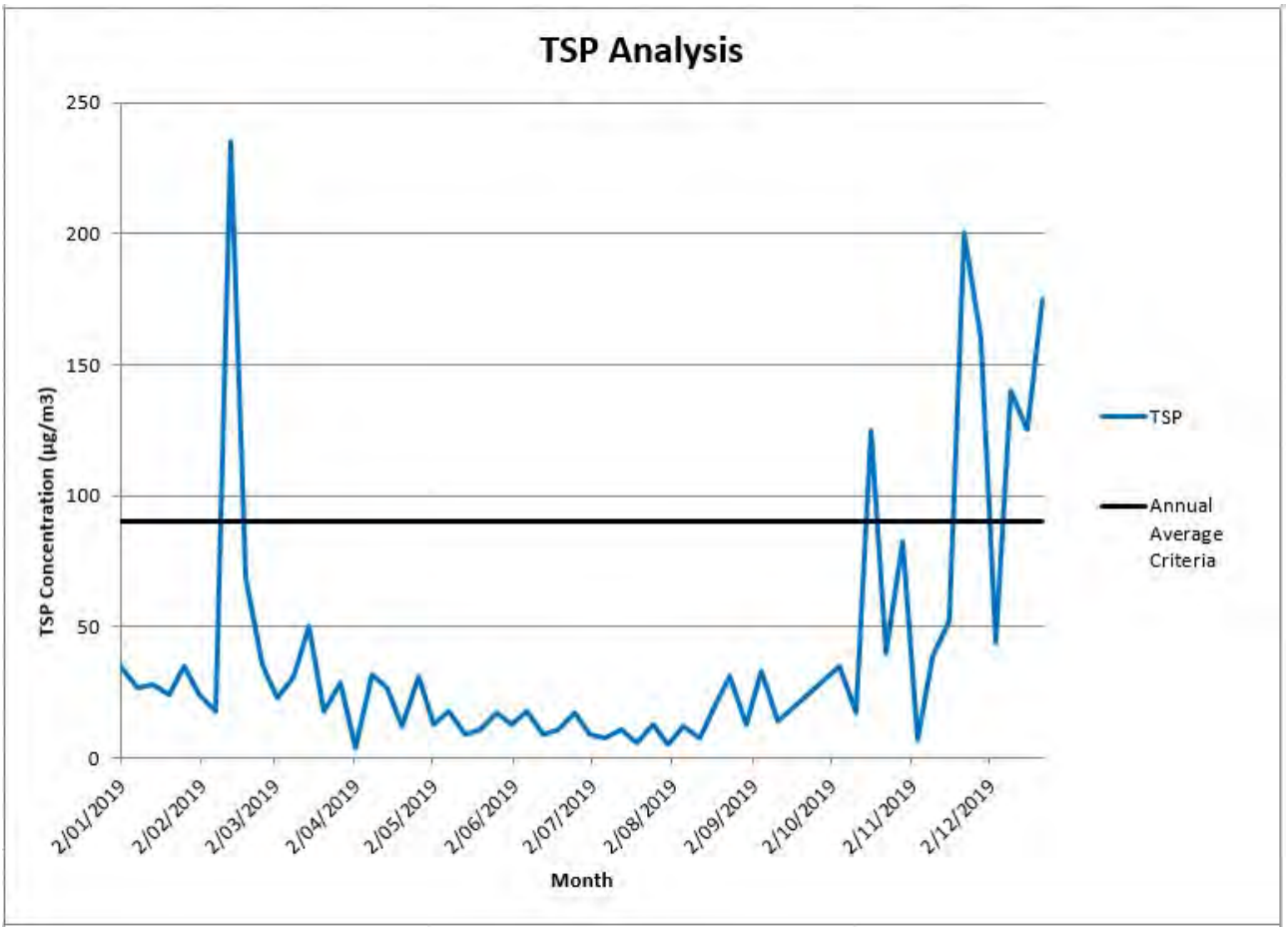


Figure 9: HVAS (TSP) results for the reporting period

4.3.7 Discussion

Commentary on the various air monitoring data is below:

DDG

All DDG's were compliant based on the annual average and individual results achieved during the reporting period.

HVAS (PM10 and TSP)

All HVAS's were compliant based on the annual average results achieved during the reporting period.

It is worth noting that although all of the annual average results obtained were compliant, there were a number of elevated "24 hour" results were caused by a number of factors as detailed below:

- A regional dust storm that passed through the region in February 2019;
- Intense drought conditions experienced throughout the region for the entire reporting period as described in more detail below in Section 4.6.3;

4.3.8 Conclusion

Although there were elevated PM-10 and TSP results obtained during the reporting period, following the completion of the relevant investigations, it was deduced that all elevated HVAS results were from external influences that were not related to the operation of Ardglen quarry.

4.4 Flora and Fauna Habitat

4.4.1 Introduction

As part of the current consent, the three off-set areas have been established as described in the off-set strategy. Please refer to Section 2.12 for further details of this ongoing process.

From a fauna perspective, nesting boxes were installed in April 2012 on Lot 187 DP 751028 as identified in the sites Landscape Management Plan. It is a requirement of the plan that annual springtime inspections of the nesting boxes are conducted for the life of the quarry.

4.4.2 Fauna Management

Appropriate feral animal control is an important aspect of the correct management of the site. Feral animal control is therefore ongoing and completed on the site (including offset areas) as required.

4.4.3 Nest Box Usage

The report associated with the annual springtime inspections of the nesting boxes is attached in Appendix 6.

4.5 Analysis of monitoring results against those predicted in the EA

4.5.1 Water Quality

Due to the fact that the quarry has mostly been in "care and maintenance" for many years, the fact that the site has substantial water storage capacity on site and ongoing and persistent drought conditions, there have been no documented water discharge events or known water quality issues identified. This is consistent with those predicted in the EA which states "the project is unlikely to result in any significant impacts on water".

4.5.2 Noise and Blast

Due to the fact that the quarry has mostly been in "care and maintenance" for many years and the fact that the site has not undertaken blasting or significant quarrying operations during this time, there have been no issues relating to noise or blasting identified. We are yet to fully implement all mitigation measures detailed in the EA as we have not yet entered the extension area. Subject to the approval of the current consent modification, the various additional mitigation measures will be implemented and monitored in accordance with the consent.

4.5.3 Air Quality

Due to the fact that the quarry has mostly been in "care and maintenance" for many years and the fact that the site has not undertaken blasting or significant quarrying operations during this time, there have been no substantial issues relating to air quality identified. There have obviously been a few (but infrequent) air quality monitoring results that have not complied with the consent, however these have easily been discounted for reasons not specifically associated with quarry operations (regional dust storms or persistent

intense drought conditions). This is consistent with those predicted in the EA which states "air quality modelling indicates that worst case dust emissions generated by the project would comply with the DECC criteria for dust deposition, TSP and small particulate matter (PM-10) at all privately owned residences in the vicinity of the site".

4.6 Trends of monitoring over the life of the project

4.6.1 Water Quality

Due to the fact that the quarry has mostly been in "care and maintenance" for many years, the fact that the site has substantial water storage capacity on site and ongoing and persistent drought conditions, there have been no documented water discharge events or known water quality issues identified. It must be noted however that the proposed consent modification includes additional water management strategies to permit appropriate water discharge subject to approval;

4.6.2 Noise and Blast

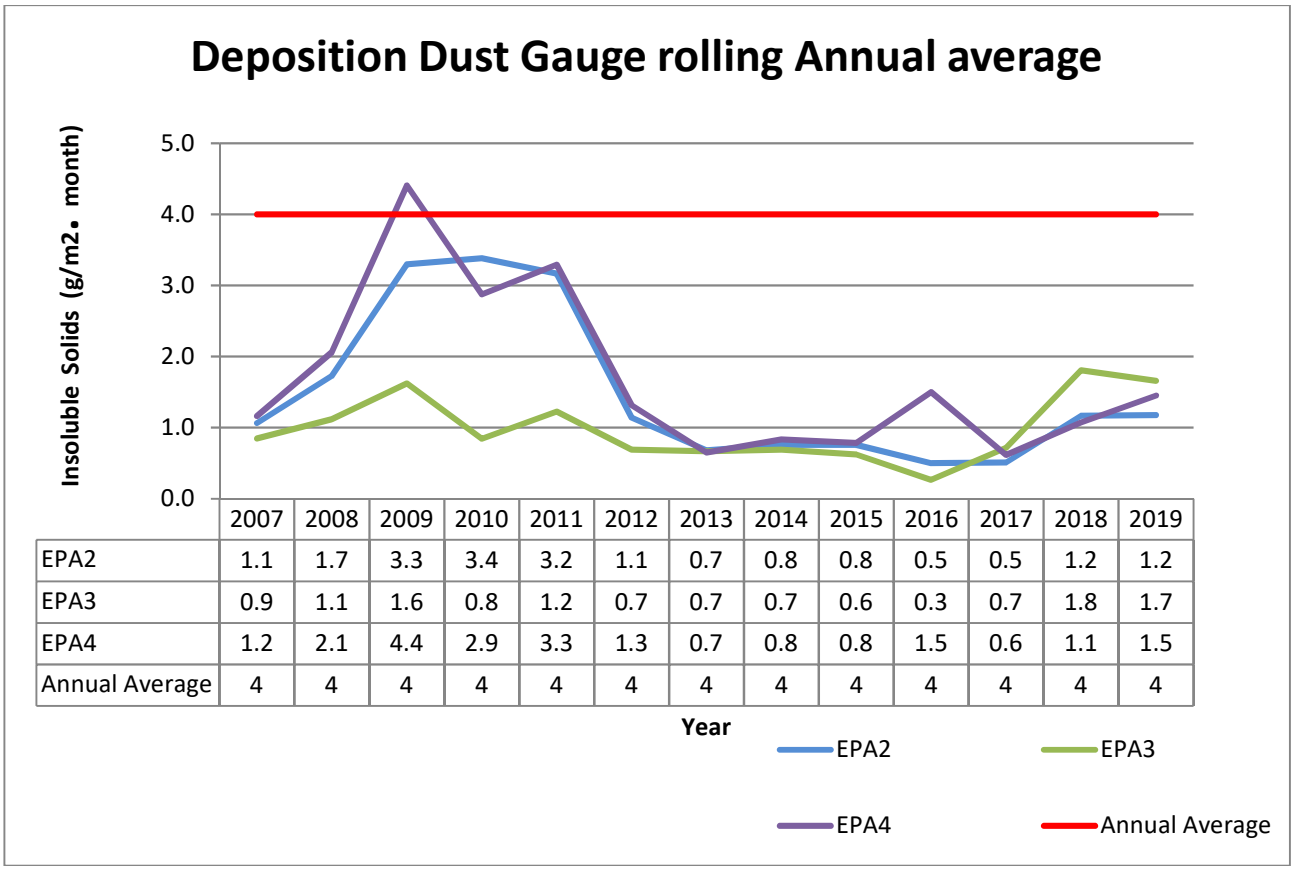
Due to the fact that the quarry has mostly been in "care and maintenance" for many years and the fact that the site has not undertaken blasting or significant quarrying operations during this time, there have been no issues relating to noise or blasting identified. It must be noted however that the proposed consent modification includes additional noise mitigation measures that will be implemented and monitored in accordance with the consent subject to approval.

4.6.3 Air Quality

Due to the fact that the quarry has mostly been in "care and maintenance" for many years and the fact that the site has not undertaken blasting or significant quarrying operations during this time, there have been no substantial issues relating to air quality identified.

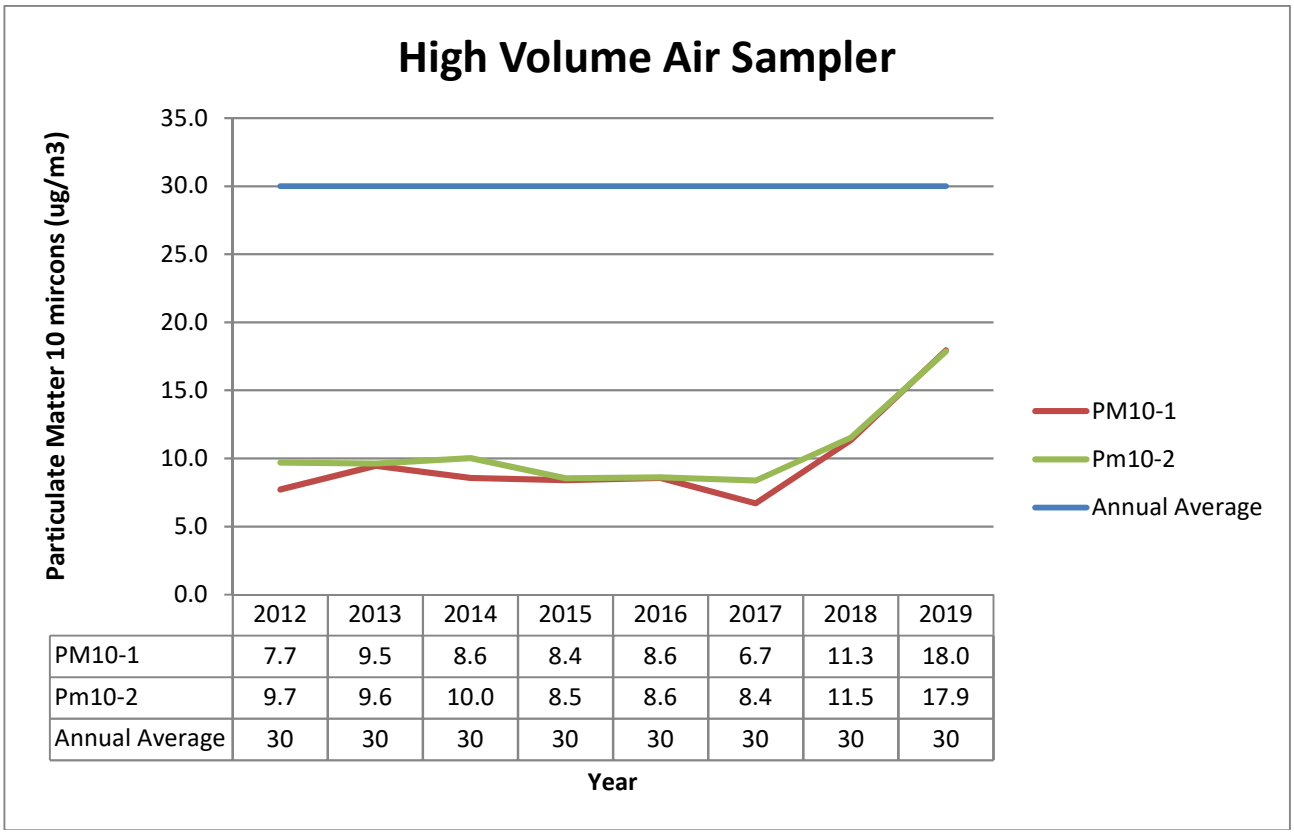
As shown in Figures 10, 11, 12 and 12 below, the long term trends associated with the various air quality monitoring parameters are summarised as follows:

- Figure 10 – This shows the Dust Deposition Gauge (DDG) monitoring results from 2007 to 2019. As seen in Figure 10, the annual average results are all below the criterion apart from the average result for EPA #4 from 2009;
- Figure 11 – This shows the HVAS PM10 "annual average" monitoring results from 2012 to 2019. As seen in Figure 11, the annual average results are all below the criterion;
- Figure 12 – This shows the HVAS PM-10 "24 hour" monitoring results from 2012 to 2019. As seen in Figure 12, the annual average results are all below the criterion apart from the results obtained in 2012 and more recently during late 2018 and into 2019. For clarification regarding the prevailing weather conditions during late 2018 into 2019, please see also see below Figure 14 (taken from the biodiversity monitoring report) which demonstrates that the region surrounding Ardglen quarry was experiencing "intense drought" conditions which were a significant contributor to the elevated PM10 monitoring results obtained during this time;
- Figure 13 – This shows the HVAS TSP monitoring results from 2012 to 2019. As seen in Figure 13, the TSP results are all below the criterion apart from the results obtained during late 2018 and into 2019. For clarification regarding the prevailing weather conditions during late 2018 into 2019, please see also see below Figure 14 (taken from the biodiversity monitoring report) which demonstrates that the region surrounding Ardglen quarry was experiencing "intense drought" conditions which were a significant contributor to the elevated PM10 monitoring results obtained during this time;



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
EPA2	1.1	1.7	3.3	3.4	3.2	1.1	0.7	0.8	0.8	0.5	0.5	1.2	1.2
EPA3	0.9	1.1	1.6	0.8	1.2	0.7	0.7	0.7	0.6	0.3	0.7	1.8	1.7
EPA4	1.2	2.1	4.4	2.9	3.3	1.3	0.7	0.8	0.8	1.5	0.6	1.1	1.5
Annual Average	4	4	4	4	4	4	4	4	4	4	4	4	4

Figure 10: DDG rolling averages from 2007 to 2019



	2012	2013	2014	2015	2016	2017	2018	2019
PM10-1	7.7	9.5	8.6	8.4	8.6	6.7	11.3	18.0
Pm10-2	9.7	9.6	10.0	8.5	8.6	8.4	11.5	17.9
Annual Average	30	30	30	30	30	30	30	30

Figure 11: Annual average PM-10 results from 2012 to 2019

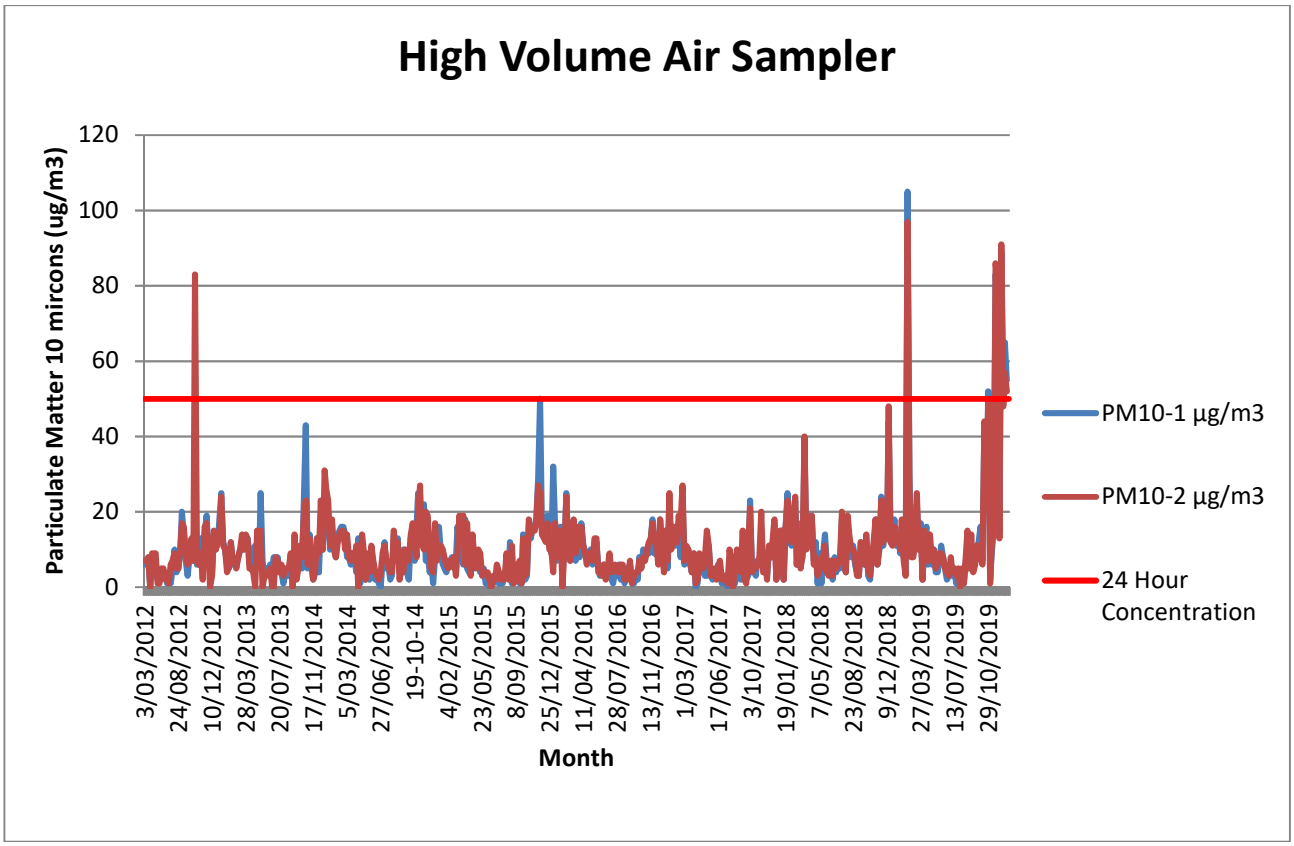


Figure 12: Twenty four hour concentration PM-10 results from 2012 to 2019

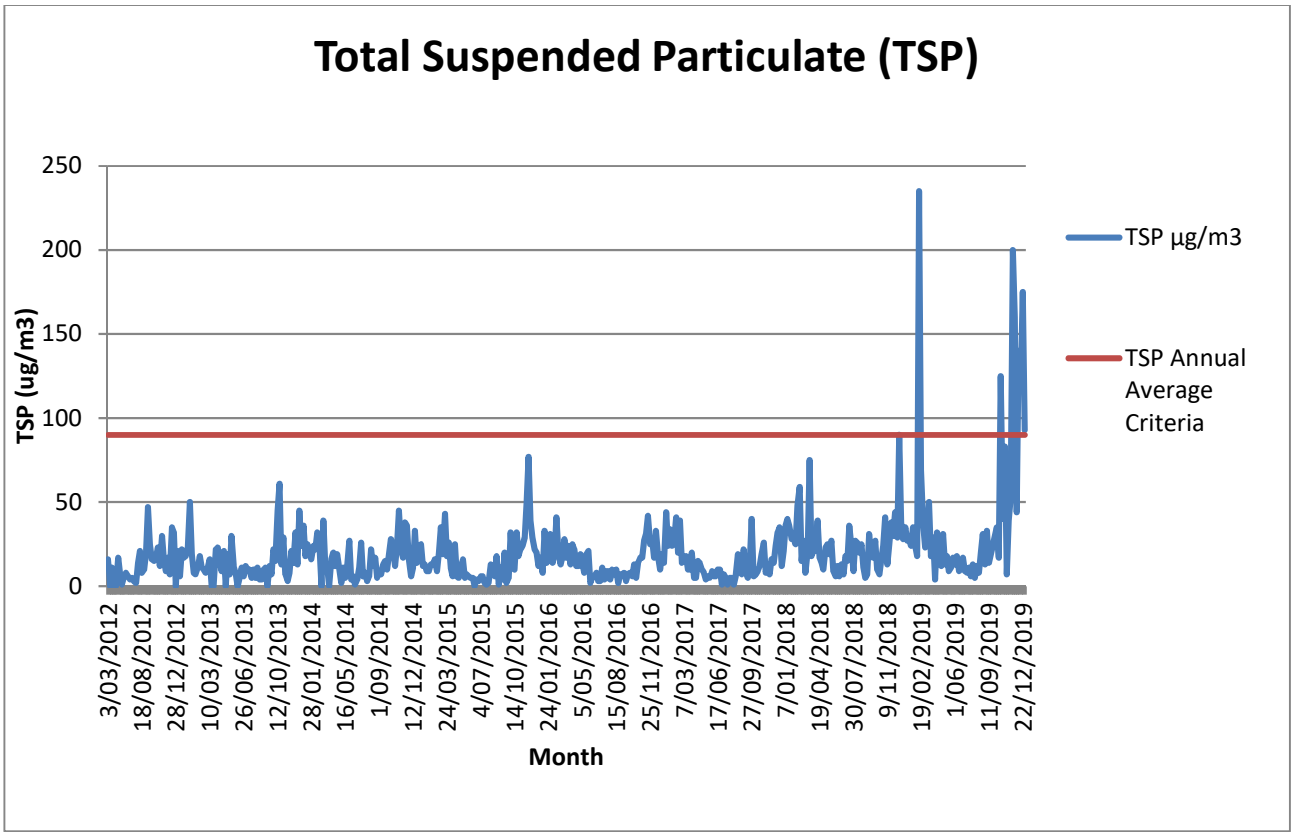


Figure 13: Annual average TSP results from 2012 to 2019

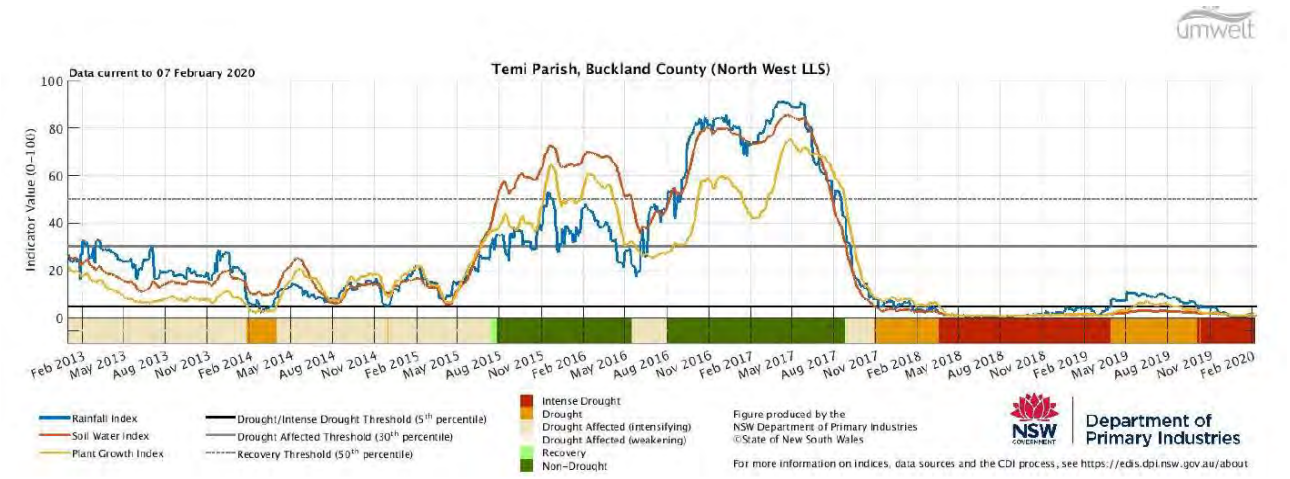


Figure 14: DPIE "Combined Drought Indicator" taken from Biodiversity monitoring report (Appendix 6)

5. COMPLIANCE ASSESSMENT

5.1 Environmental Protection Licence

Daracon hold Environmental protection Licence 1115 for a 'land based' extractive industry. The licence has an anniversary date of 1 January. The annual return covering the reporting period identified no non-compliances with the conditions of the licence and was submitted to the EPA in February 2020. The current version of the Ardglen Quarry Environment Protection Licence (EPL 1115) is available on site.

5.2 Discrepancies With Predicted And Actual Quarry Operations

The previous AEMR included a list of various activities planned for the following reporting period. With regard to the actual activities undertaken on site during the reporting period, the discrepancies between those predicted and those undertaken are summarised below:

- The security of the offset areas associated with the quarry extension approval has taken longer than expected, however now that we've confirmed the appropriate mechanism for this to occur whilst also completing the biodiversity offset monitoring inspection and report in late 2019, we expect to have this resolved by the end of 2020;

5.3 Independent Audit

During 2018, Daracon engaged the services of an environmental auditor to undertake the Independent Environmental Audit (IEA) in accordance with the Project Approval MP 06_0624 MOD. A copy of the IEA report and Response to Audit Recommendations were appended to the previous AEMR including a summary of the various actions as well as the status of each. Please also refer to Table 3 for a summary of the non-compliances arising from the IEA including the current status of each.

5.4 Summary of Incidents and Non-Compliances

Table 20 includes a summary of the incidents raised by Daracon during the reporting period. Please also refer to **Appendix 4** for a summary of complaints received and **Table 3** for a summary of the non-compliances arising from the IEA undertaken by Pitt and Sherry.

Table 22: Summary of incidents raised

Date occurred	Description	Outcome / action	Closed (Y / N)
13/02/19	HVAS results exceeded the 24 hour criterion for the run date of the 13th February 2019 as a result of a severe inland dust storm	The matter was investigated and not found to be a result of quarrying activities	Y
14/05/19	A complaint was received from a member of the community alleging excessive truck speed through the township of Ardglen	This matter was appropriately addressed and closed in consultation with the community member and DPIE	Y
29/05/19	A loaded truck departing Ardglen Quarry spilt a small quantity of gravel material onto Warra St and High St due to the tailgate opening unexpectedly	The matter was investigated with all drivers reminded of their responsibilities to comply with the CoC and additional measures were implemented on site to prevent recurrence	Y
01/10/19	A complaint was received from a member of the community via the NSW Department of Planning Industry and Environment (DPIE) alleging that a truck entered the township of Ardglen prior to 6.30am	This matter was appropriately addressed and closed in consultation with the DPIE	Y
29/10/19	During the course of the HVAS monitors running on the 29th October 2019, an unplanned power outage has occurred in the Village of Ardglen and surrounding areas leading to a run time of less than 24 hours	Essential Energy formally confirmed the occurrence of the power outage which was caused by essential maintenance works	Y
October 2019	A number of HVAS results exceeded the 24 hour criterion during October 2019	The matter was investigated and not found to be a result of quarrying activities	Y
November 2019	A number of HVAS results exceeded the 24 hour criterion during November 2019	The matter was investigated and not found to be a result of quarrying activities	Y
December 2019	A number of HVAS results exceeded the 24 hour criterion during November 2019	The matter was investigated and not found to be a result of quarrying activities	Y

6. ACTIVITIES PROPOSED DURING THE NEXT REPORTING PERIOD

6.1 Introduction

The following section provides a brief summary of operational & non-operational activities planned throughout the 2019 reporting period. **Table 17** provides a summary of the proposed quarry activities.

Table 23: Proposed Activities for 2020

January - December 2020	• Ongoing review of Management Plans; • Noise monitoring; • Regular Site Inspections; • Ongoing Air Quality Monitoring; • Addressing corrective actions identified in Independent Environmental Audit (IEA) as required; • Addressing corrective actions identified in the Road Safety Audit (RSA); • Export of material from the quarry to the Scone Bypass Project (no overburden removal, blasting or crushing required); • Progressing the modification to the Consent and subject to its approval, quarrying activities (overburden removal, blasting and crushing) may recommence; • Another update to the LMP following the completion of the biodiversity offset monitoring inspection in late 2019; • Ongoing site rehabilitation work;

6.2 Extraction Operations

Subject to the approval of the consent modification, extraction operations may be undertaken during the next reporting period.

6.3 Processing

Subject to the approval of the consent modification, processing may be undertaken during the next reporting period.

6.4 Overburden And Silt Management

Subject to the approval of the consent modification, overburden removal may be undertaken during the next reporting period. Current controls for overburden and silt management will remain in place and be monitored.

6.5 Waste Management

Subject to the approval of the consent modification, additional waste management processes may be implemented during the next reporting period.

6.6 Site Infrastructure And Services

Subject to the approval of the consent modification, changes may occur to the site infrastructure and services during the next reporting period.

6.7 Water Management

Subject to the approval of the consent modification, changes may be made to the current water management practices during the next reporting period.

6.8 Bushfire Management

Bush fire management practices will remain in place and monitored.

6.9 Hazardous Materials Management

There will be no importation or disposing of hazardous materials on site. Subject to the approval of the consent modification, changes may be made to the management practices associated with hazardous materials during the next reporting period.

6.10 Product Transportation

The export of material to the SBP was completed in early 2020 and we currently don't have any plans to export substantial quantities of material from Ardglen quarry, however there may be a need to service a few small scale local projects for which the existing stockpiled material would be suitable and appropriate.

6.11 Rehabilitation and landscape management

During the next reporting period it is likely that the following rehabilitation and landscape management activities will occur:

- Revise the Landscape Management Plan (LMP) again with assistance from Umwelt following the completion of the biodiversity offset monitoring inspection in late 2019 and submit to the DPIE for review and approval;
- Continue with rehabilitation planting in areas identified in the LMP;
- Monitoring of Off-Set areas will be conducted on a regular basis;
- Long term security of the off-set areas to be resolved;
- Subject to the approval of the consent modification, implement the various management strategies as detailed in the consent and revised LMP prior to entering the extension area;

7. REFERENCES

1. ANZECC (2000) – Australian and New Zealand Guidelines Fresh and Marine Water Quality
2. DEC (2007) Approved Methods for Sampling of Air Pollutants in New South Wales
3. DECCW (2007) Methods for the Sampling and Analysis of Air Pollutants in New South Wales
4. EPA (2000) New South Wales Industrial Noise Policy

8. APPENDICES

Appendix 1 Project Approval MP 06_0264 (Mod 1)

Project Approval

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

I approve the 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.

The Hon Kristina Keneally MP
Minister for Planning

Sydney **2008**

SCHEDULE 1

Application Number:	06_0264
Proponent:	Buttai Gravel Pty Limited (Daracon Quarries)
Approval Authority:	Minister for Planning
Land:	Lot 1 DP 1001734 Lot 218 DP 751028 Various Crown public roads
Project:	Ardglen Quarry Extension

Blue type represents December 2010 modification (MOD 1)

TABLE OF CONTENTS

DEFINITIONS

AEMR	Annual Environmental Management Report
BCA	Building Code of Australia
CCC	Community Consultative Committee
Council	Liverpool Plains Shire Council
Day	The period from 7.00am to 6.00pm on Monday to Saturday, and 8.00am to 6.00pm on Sundays and Public Holidays
DECCW	Department of Environment, Climate Change and Water
Department	Department of Planning
Director-General	Director-General of Department of Planning, or delegate
DWE	Department of Water and Energy
EA	Environmental assessment titled *Ardglen Quarry Extension Environmental Assessment,* dated June 2007, including the response to submissions, dated November 2007
EEC	Endangered Ecological Community as defined under the NSW *Threatened Species Conservation Act 1995*
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPL	Environment Protection Licence
Evening	The period from 6.00pm to 10.00pm
Extension Area	The Extension Area as shown in Appendix 1
I&I NSW	NSW Department of Industry and Investment
Land	Land means the whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at the Land Titles Office at the date of this approval
Minister	Minister for Planning, or delegate
Night	The period from 10.00pm to 7.00am on Monday to Saturday, and 10.00pm to 8.00am on Sundays and Public Holidays
NOW	NSW Office of Water within DECCW
Privately-owned Land	Land that is not owned by a public agency, or a quarrying company (or its subsidiary)
Project	The development as described in the EA
Proponent	Buttai Gravel Pty Limited (Daracon Quarries), or its successors
Reasonable and Feasible	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. Feasible relates to engineering considerations and what is practical to build
RTA	Roads and Traffic Authority
Site	The land referred to in Schedule 1 and shown in Appendix 1 as the project application area
Statement of Commitments	The Proponent's commitments in Appendix 4

SCHEDULE 2
ADMINISTRATIVE CONDITIONS

Obligation to Minimise Harm to the Environment

1. The Proponent shall implement all reasonable and feasible measures to prevent and/or minimise any 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.

   Note: The general layout of the project is shown in Appendix 1.

3. If there is any inconsistency between the above documents, the conditions of this consent shall prevail to the extent of any inconsistency.

4. The Proponent shall comply with any reasonable and feasible requirement/s of the Director-General arising from the Department's assessment of:
   (a) any reports, plans, programs, strategies or correspondence that are submitted in accordance with this approval; and
   (b) the implementation of any actions or measures contained in these reports, plans, programs, strategies or correspondence.

Limits on Approval

5. This approval expires on 31 August 2038.

   Note: Under this approval, the Proponent is required to rehabilitate the site and implement biodiversity offsets to the satisfaction of the Director-General. Consequently, this approval will continue to apply in all other respects other than the right to conduct extractive operations until the site has been rehabilitated and the biodiversity offset provided to a satisfactory standard.

6. The Proponent shall not extract or process more than 500,000 tonnes of material on the site each year.

7. The Proponent shall not transport more than:
   (a) 250,000 tonnes of product from the site by rail a year; or
   (b) 250,000 tonnes of product from the site by road a year.

8. The Proponent shall not import more than 80,000 tonnes of materials for the purposes of blending and product quality improvement each year.

Surrender of Consents

9. Within 3 years of this approval, the Proponent shall surrender all development consents or continuing use rights for the Ardglen Quarry, to the satisfaction of the Director-General.

Management Plans/Monitoring Programs

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

Structural Adequacy

11. The Proponent shall ensure that all 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.

    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 development.*

Demolition

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

Operation of Plant and Equipment

13. 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.

Protection of Public Infrastructure

14. The Proponent shall:
    (a) repair, or pay all reasonable costs associated with repairing any public infrastructure that is damaged by the project; and
    (b) relocate, or pay all reasonable costs associated with relocating any public infrastructure that needs to be relocated as a result of the project.

Revision of Strategies, Plans or Programs

15. Within 3 months of any modification to this approval, the Proponent shall review and if necessary revise all management and monitoring strategies, plans and programs required under this approval which are relevant to the modification to the satisfaction of the Director-General.

SCHEDULE 3
SPECIFIC ENVIRONMENTAL CONDITIONS

HOURS OF OPERATION

1. The Proponent shall comply with the hours of operation in Table 1.

Table 1: Hours of Operation

Activity	*Day*	*Time*
Topsoil/overburden removal/emplacement	Monday-Saturday	7.00am to 5.00pm
	Sunday	None
Blasting	Monday-Friday	10:00pm to 3.00pm
	Saturdays, Sundays and Public Holidays	None
In-pit activities (including drilling, extraction, and transfer of material out of the pit)	Monday-Saturday	7.00am to 5:30pm
	Sundays and Public Holidays	None
Out-of-pit activities (including processing, and stockpiling)	Monday-Saturday	7.00am to 5:30pm
	Sundays and Public Holidays	None
Maintenance (if inaudible at nearby residences)	Monday-Sunday	Any time
Truck loading and distribution	Monday-Saturday	6.30am to 5.30pm
	Sundays and Public Holidays	None
Rail loading	Monday-Sunday	7:00am to 10:00pm

Note:
- *The Proponent may load no more than 2 trains each year outside the hours listed in Table 1 (see condition 41).*
- *The Proponent may carry out blasting operations outside the hours listed in Table 1 for safety reasons provided the Proponent has notified DECCW and the local community about the proposed blast.*

NOISE

Noise Impact Assessment Criteria

2. The Proponent shall ensure that the noise generated by the project does not exceed the noise impact assessment criteria in Table 2 at any residence on privately-owned land, or on more than 25 percent of any privately-owned land.

Table 2: Noise impact assessment criteria dB(A)

Land	*Day*	*Evening*	*Night*	
	$L_{Aeq(15\ min)}$	$L_{Aeq(15\ min)}$	$L_{Aeq(15\ min)}$	$L_{A1(1\ min)}$
1 – Burraston	35	35	35	45
3 – Rose	35	35	35	45
4 – CM Thompson	44	35	35	45
5 – M Taylor	45	35	35	45
6 – S Thompson	45	35	35	45
9 – Bates	37	35	35	45
10 – Avery	38	35	35	45
11 – Shipman	37	35	35	45
12 – Hall	36	35	35	45
13 – McGhie	35	35	35	45
14 – Purtell	36	35	35	45
15 – J Taylor	43	35	35	45

Land	Day	Evening	Night	
	$L_{Aeq(15\ min)}$	$L_{Aeq(15\ min)}$	$L_{Aeq(15\ min)}$	$L_{A1(1\ min)}$
16 - Bojba	40	35	35	45
All other privately-owned land	35	35	35	45

However, if the Proponent has a written negotiated noise agreement with any landowner of the land listed in Table 2, and a copy of this agreement has been forwarded to the Department and DECCW, then the Proponent may exceed the noise limits in Table 2 in accordance with the negotiated noise agreement. The Proponent may also exceed the $L_{A1(1\ min)}$ and $L_{Aeq(15\ min)}$ noise impact assessment criteria during out of hours rail loading activities provided they are conducted in accordance with condition 41 below.

Notes:

- *For information on the numbering and identification of properties used in this approval see Appendix 5.*
- *To determine compliance with the $L_{Aeq(15\ minute)}$ noise limits, noise from the project is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary. Where it can be demonstrated that direct measurement of noise from the project is impractical, the DECCW may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.*
- *To determine compliance with the $L_{A1(1\ minute)}$ noise limits, noise from the project is to be measured at 1 metre from the dwelling façade. Where it can be demonstrated that direct measurement of noise from the project is impractical, the DECCW may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy).*
- *The noise emission limits identified in the above table apply under meteorological conditions of:*
  - *wind speeds of up to 3 m/s at 10 metres above ground level; or*
  - *temperature inversion conditions of up to 3ºC/100m, and source to receiver gradient wind speeds of up to 2 m/s at 10 metres above ground level.*

Land Acquisition Criteria

3. If the noise generated by the project exceeds the criteria in Table 3 at any residence on privately-owned land or on more than 25 percent of any privately-owned land, the Proponent shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in conditions 7-9 of Schedule 4.

Table 3: Land acquisition criteria dB(A)

Land	Day	Evening	Night
	$L_{Aeq(15\ min)}$	$L_{Aeq(15\ min)}$	$L_{Aeq(15\ min)}$
1 – Burraston	40	40	40
3 – Rose	46	40	40
4 – CM Thompson	46	40	40
5 – M Taylor	46	40	40
6 – S Thompson	46	40	40
9 – Bates	46	40	40
10 – Avery	46	40	40
11 – Shipman	46	40	40
12 – Hall	46	40	40
13 – McGhie	40	40	40
14 – Purtell	46	40	40
15 – J Taylor	46	40	40
16 - Bojba	46	40	40
All other privately-owned land	40	40	40

However, if the Proponent has a written negotiated noise agreement with any landowner of the land listed in Table 3, and a copy of this agreement has been forwarded to the Department and DECCW, then the Proponent may exceed the noise limits in Table 3 in accordance with the negotiated noise agreement. The Proponent may also exceed the land acquisition criteria during out of hours rail loading activities provided they are conducted in accordance with condition 41 below.

Note: Noise generated by the project is to be measured in accordance with the notes to Table 2.

Additional Noise Mitigation

4. Upon receiving a written request from the owner of any privately-owned residence where subsequent noise monitoring shows the noise generated by the project is greater than the relevant criteria in Table 4, the Proponent shall implement additional noise mitigation measures such as double glazing, insulation, and/or air conditioning at any residence on the land in consultation with the landowner.

Table 4: Additional Noise Mitigation Criteria dB(A)

Land	***Day***	***Evening***	***Night***
	$L_{Aeq(15\ min)}$	$L_{Aeq(15\ min)}$	$L_{Aeq(15\ min)}$
1 – Burraston	38	38	38
3 – Rose	44	38	38
4 – CM Thompson	44	38	38
5 – M Taylor	44	38	38
6 – S Thompson	44	38	38
9 – Bates	44	38	38
10 – Avery	44	38	38
11 – Shipman	44	38	38
12 – Hall	44	38	38
13 – McGhie	38	38	38
14 – Purtell	44	38	38
15 – J Taylor	44	38	38
16 - Bojba	44	38	38
All other privately-owned land	38	38	38

Note: Noise generated by the project is to be measured in accordance with the notes to Table 2.

These additional mitigation measures must be reasonable and feasible.

If within 3 months of receiving this request from the landowner, the Proponent and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution.

Within 3 months of this approval, the Proponent shall notify all applicable landowners of their rights under this condition, to the satisfaction of the Director-General.

Continuous Improvement

5. The Proponent shall:
   (a) implement all reasonable and feasible noise mitigation measures;
   (b) investigate ways to reduce the noise generated by the project, including off-site road and rail noise and maximum noise levels which may result in sleep disturbance; and
   (c) report on these investigations and the implementation and effectiveness of these measures in the AEMR,

   to the satisfaction of the Director-General.

Monitoring

6. Prior to any works being undertaken in the Extension Area, the Proponent shall prepare and implement a Noise Monitoring Program for the project, in consultation with DECCW, and to the satisfaction of the Director-General. The program must include:
   (a) a combination of attended and unattended noise monitoring measures; and
   (b) a noise monitoring protocol for evaluating compliance with the noise impact assessment and land acquisition criteria in this approval.

BLASTING AND VIBRATION

Airblast Overpressure Criteria

7. The Proponent shall ensure that the airblast overpressure level from blasting at the project does not exceed the criteria in Table 5 at any privately-owned residence.

Table 5: Airblast overpressure impact assessment criteria

Airblast overpressure level (dB(Lin Peak))	Allowable exceedance
115	5% of the total number of blasts over a period of 12 months
120	0%

Ground Vibration Impact Assessment Criteria

8. The Proponent shall ensure that the ground vibration level from blasting at the project does not exceed the criteria in Table 6 at any privately-owned residence.

Table 6: Ground vibration impact assessment criteria

Peak particle velocity (mm/s)	Allowable exceedance
5	5% of the total number of blasts over a period of 12 months
10	0%

Blasting Frequency

9. The Proponent shall not carry out more than 30 blasts a year, or more than 1 blast per day, without the written approval of the Director-General.

Operating Conditions

10. The Proponent shall implement best blasting practice to:
    (a) protect the safety of people, property, public infrastructure and livestock; and
    (b) minimise the dust and fume emissions from blasting at the project,
    to the satisfaction of the Director-General.

11. The Proponent shall not undertake blasting within 500 metres of any privately-owned land or any land not owned by the Proponent, unless suitable arrangements have been made with the landowner and any tenants to minimise the risk of flyrock-related impact to the property to the satisfaction of the Director-General.

Public Notice

12. The Proponent shall:
    (a) notify the landowner/occupier of any residence within 1 kilometre of the quarry pit who registers an interest in being notified about the blasting schedule at the quarry;
    (b) operate a Blasting Hotline, or alternate system agreed to by the Director-General, to enable the public to get up-to-date information on the blasting schedule at the quarry;
    (c) keep local residents informed about this hotline (or any alternative notification protocols),
    to the satisfaction of the Director-General.

Property Investigations

13. If any landowner of privately-owned land within 1 kilometre of the site claims that buildings and/or structures on his/her land have been damaged as a result of blasting at the site, following commencement of operations within the extension area, then he/she may ask the Director-General in writing to investigate the claim.

    If the Director-General is satisfied that an independent property investigation is warranted, the Proponent shall within 3 months of the Director-General's determination:
    (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to investigate the claim; and
    (b) 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.

If the matter cannot be resolved within 21 days, the Director-General shall refer the matter to an Independent Dispute Resolution Process (see Appendix 6).

Blast Monitoring Program

14. Prior to carrying out any blasting in the Extension Area, the Proponent shall prepare and implement a Blast Monitoring Program for the project, in consultation with the DECCW, and to the satisfaction of the Director-General. This program must include a protocol for demonstrating compliance with the blasting criteria in this approval.

AIR QUALITY

Impact Assessment Criteria

15. The Proponent shall ensure that the dust emissions generated by the project do not cause additional exceedances of the air quality impact assessment criteria listed in Tables 8, 9 and 10 at any residence, on privately-owned land, or on more than 25 percent of any privately-owned land.

Table 8: Long term impact assessment criteria for particulate matter

Pollutant	Averaging period	Criterion
Total suspended particulate (TSP) matter	Annual	90 µg/m^3
Particulate matter < 10 µm (PM_{10})	Annual	30 µg/m^3

Table 9: Short term impact assessment criterion for particulate matter

Pollutant	Averaging period	Criterion
Particulate matter < 10 µm (PM_{10})	24 hour	50 µg/m^3

Table 10: Long term impact assessment criteria for deposited dust

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

Note: Deposited dust is 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.

Operating Conditions

16. The Proponent shall ensure any visible air pollution generated by the project is assessed regularly, and that quarrying operations are relocated, modified, and/or stopped as required to minimise air quality impacts on privately-owned land, to the satisfaction of the Director-General.

Monitoring

17. The Proponent shall prepare and implement an Air Quality Monitoring Program for the project, in consultation with DECCW, and to the satisfaction of the Director-General. This program must:
    (a) use a combination of high volume air samplers and dust deposition gauges to monitor the dust emissions from the project;
    (b) include a protocol for demonstrating compliance with the air quality impact assessment criteria in this approval; and
    (c) be submitted to the Director-General for approval prior to any works being undertaken in the Extension Area.

METEOROLOGICAL MONITORING

18. The Proponent shall ensure the project has a suitable meteorological station in the vicinity of the site that complies with the requirements in *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline, to the satisfaction of the DECCW and the Director-General.

SURFACE AND GROUND WATER

Surface Water Discharges

19. The Proponent shall only discharge water from the site in accordance with the provisions of an EPL.

Site Water Management Plan

20. Prior to any works being undertaken in the Extension Area, the Proponent shall prepare and implement a Site Water Management Plan for the project, in consultation with DECCW and NOW, and to the satisfaction of the Director-General. This plan must be prepared by suitably qualified expert/s whose appointment/s have been approved by the Director-General, and must include:
    (a) a Site Water Balance;
    (b) an Erosion and Sediment Control Plan; and
    (c) a Water Monitoring Program.

    Note: The Site Water Management Plan must incorporate the existing quarry operations and operations within the extension area.

Site Water Balance

21. The Site Water Balance must include details of:
    (a) sources and reliability of water supply;
    (b) water management;
    (c) water use; and
    (d) any off-site discharges.

Erosion and Sediment Control

22. The Erosion and Sediment Control Plan must:
    (a) be consistent with the requirements of the *Managing Urban Stormwater: Soils and Construction Manual* (Landcom 2004, or its latest version);
    (b) identify activities that could cause soil erosion and generate sediment;
    (c) describe measures to minimise soil erosion and the potential for the transport of sediment to downstream waters;
    (d) describe the location, function, and capacity of erosion and sediment control structures; and
    (e) describe what measures would be implemented to maintain the structures over time.

Water Monitoring

23. The Water Monitoring Plan must include:
    (a) water quality assessment criteria;
    (b) a program to monitor water flows and quality in creeks and other waterbodies that could potentially be affected by the project;
    (c) a protocol for the investigation, notification, and mitigation of identified exceedances of the water quality assessment criteria; and
    (d) the procedures that would be followed if any unforeseen impacts are detected during the project.

REHABILITATION AND LANDSCAPE MANAGEMENT

Rehabilitation

24. The Proponent shall progressively rehabilitate the site in a manner that is generally consistent with the conceptual rehabilitation principles and proposed rehabilitation strategy in the EA (shown conceptually in Appendix 2), to the satisfaction of the Director-General.

Offset Strategy

25. Prior to undertaking any works in the Extension Area, the Proponent shall revise the Biodiversity Offset Strategy described in the EA and Response to Submissions (shown conceptually in Appendix 3), to the satisfaction of the Director-General. The revised strategy must be prepared in consultation with the DECCW, and include additional areas where Yellow Box White Box Blakely's Red Gum Woodland EEC would be actively re-established within the identified biodiversity offset areas shown in Appendix 3.

26. Within 3 years of this approval, the Proponent shall make suitable arrangements to provide appropriate long term security for the offset areas to the satisfaction of the Director-General.

Landscape Management Plan

27. The Proponent shall prepare and implement a detailed Landscape Management Plan for the project to the satisfaction of the Director-General. This plan must:
    (a) be prepared by suitably qualified expert/s whose appointment/s have been approved by the Director-General;
    (b) submitted to the Director-General for approval prior to undertaking any works in the Extension Area; and
    (c) include a:
        - Doughboy Hollow Creek Rehabilitation Strategy;
        - Rehabilitation and Biodiversity Offset Management Plan; and
        - Quarry Closure Plan.

    Note: The Department accepts that the initial Landscape Management Plan may not include the detailed Quarry Closure Plan. However, if this occurs, the Proponent will be required to seek approval from the Director-General for an alternative timetable for the completion and approval of the Quarry Closure Plan.

Doughboy Hollow Creek Rehabilitation Strategy

28. The Doughboy Hollow Creek Rehabilitation Strategy must:
    (a) be prepared in consultation with the I&I NSW and NOW;
    (b) describe the measures that would be implemented to:
        - remove the weir from Doughboy Hollow Creek;
        - rehabilitate the creek; and
        - rehabilitate and/or re-establish riparian vegetation.

Rehabilitation and Biodiversity Offset Management Plan

29. The Rehabilitation and Biodiversity Offset Management Plan must:
    (a) be prepared by suitably qualified expert/s whose appointment/s have been approved by the Director-General;
    (b) describe in general the short, medium, and long term measures that would be implemented to:
        - rehabilitate the site;
        - implement the Biodiversity Offset Strategy and Doughboy Hollow Creek Rehabilitation Strategy; and
        - manage the remnant vegetation and habitat on the site;
    (c) include a detailed description of what measures would be implemented over the next 3 years to implement the Biodiversity Offset Strategy and Doughboy Hollow Creek Rehabilitation Strategy;
    (d) include a detailed description of what measures would be implemented over the next 5 years to rehabilitate the site, including the procedures to be implemented for:
        - progressively rehabilitating areas disturbed by quarrying;
        - implementing revegetation and regeneration within the disturbance areas, including establishment of canopy, sub-canopy (if relevant), understorey and ground strata;
        - managing the remnant vegetation and habitat on site;
        - managing impacts on fauna;
        - reducing the visual impacts of the project;
        - landscaping the site to minimise visual impacts;
        - protecting areas outside the disturbance areas;
        - conserving and reusing topsoil;
        - collecting and propagating seeds for rehabilitation works;
        - salvaging and reusing material from the site for habitat enhancement;
        - controlling weeds and feral pests;
        - controlling access; and
        - bushfire management;

(e) detailed performance and completion criteria for the rehabilitation of the site and implementation of the Biodiversity Offset Strategy and Doughboy Hollow Creek Rehabilitation Strategy;
(f) a detailed description of how the performance of the rehabilitation of the site and implementation of the Biodiversity Offset Strategy and Doughboy Hollow Creek Rehabilitation Strategy would be monitored over time to achieve the relevant objectives and completion criteria;
(g) a description of the potential risks to successful revegetation and/or rehabilitation in the offset areas and project area, and a description of the contingency measures that would be implemented to mitigate these risks; and
(h) details of who is responsible for monitoring, reviewing and implementing the plan.

Quarry Closure Plan

30. The Quarry Closure Plan must:
(a) define the objectives and criteria for quarry closure;
(b) investigate options for the future use of the site, including any final void(s);
(c) describe the measures that would be implemented to minimise or manage the ongoing environmental effects of the development; and
(d) describe how the performance of these measures would be monitored over time.

Rehabilitation Bond

31. Within 3 months of the approval of the Landscape Management Plan, the Proponent shall lodge a rehabilitation bond with the Director-General to ensure that the rehabilitation and biodiversity offset obligations required in this approval are implemented in accordance with the performance and completion criteria in the Rehabilitation and Biodiversity Offset Management Plan. The rehabilitation bond may in the form of a bank guarantee or security bond. The sum of the bond shall be calculated by:
(a) a suitably qualified quantity surveyor at $\$2.50/m^2$ for the area to be disturbed over the next 5 year period at the quarry; and
(b) a suitably qualified rehabilitation expert for land within the biodiversity offset areas where re-establishment of the EEC is proposed,
to the satisfaction of the Director-General.

Notes:
- *If the rehabilitation and biodiversity offset is completed to the satisfaction of the Director-General, the Department will release the rehabilitation bond.*
- *If the rehabilitation and biodiversity offset is not completed to the satisfaction of the Director-General, all or part of the rehabilitation bond will be used to ensure the satisfactory completion of the relevant works.*

32. Every 5 years, following the provision of the rehabilitation bond (see condition 31), the Proponent shall review, and if necessary revise, the sum of the bond to the satisfaction of the Director-General. This review must consider:
(a) the effects of inflation;
(b) any changes to the total area of disturbance; and
(c) the performance of the rehabilitation against the completion criteria of the Rehabilitation, Biodiversity Offset Management Plan.

TRANSPORT

Product Transport

33. The Proponent shall:
(a) keep records of the:
- amount of quarry materials imported onto the site each year;
- amount of product transported from the site each year;
- number of truck movements generated by the project, on a weekly basis;
- number of train movements generated by the project, on a weekly basis;
- date and time of each train movement generated by the project;

(b) provide annual production data to the I&I NSW using the standard form for that purpose; and
(c) include these records in the AEMR.

Road Safety and Condition Audit

34. Prior to undertaking any works in the Extension Area, the Proponent shall undertake a Road Safety and Condition Audit for the project, to the satisfaction of the Director-General. This audit must:
    (a) be prepared by a suitably independent and qualified expert/s whose appointment has been approved by the Director-General;
    (b) be prepared in consultation with the RTA and Council;
    (c) assess the safety, performance and condition of the Ardglen Street-New England Highway intersection and the quarry access route from the New England Highway to the quarry entrance (Ardglen Street, High Street (Swinging Bridges Road), St Stephen Street and Warra Street); and
    (d) identify any road works that are required to comply with relevant AUSROAD standards or other relevant RTA requirements.

35. Within 12 months of completing the Road Safety and Condition Audit, the Proponent shall undertake (and complete) any road works recommended in the Audit, to the satisfaction of the relevant roads authority (i.e. RTA or Council). If there is a dispute about the implementation of these measures, then the Proponent may refer the matter to the Director-General for resolution.

Road Signage

36. Within 3 months of this approval, the Proponent shall install warning signs ("Truck Turning") on the northern and southern approaches to the quarry access route on the New England Highway, to the satisfaction of the RTA.

Road Maintenance

37. The Proponent shall maintain the quarry access route from the New England Highway to the quarry entrance (Ardglen Street, High Street (Swinging Bridges Road), St Stephen Street and Warra Street) until the cessation of quarrying on the site, to the satisfaction of Council.

    If the Proponent and the Council fail to reach agreement on the road maintenance requirements, then either party may refer the matter to the Director-General for resolution. Any determination by the Director-General's on this matter will be binding on the Proponent and the Council.

Road Haulage

38. The Proponent shall ensure that truck movements associated with the project do not exceed 50 movements on average per day.

39. The Proponent shall not use trucks with a capacity of greater than 35 tonnes to transport product from the site, unless otherwise agreed in writing by the RTA.

40. The Proponent shall ensure that all loaded vehicles entering or leaving the site are covered, and are cleaned of materials that may fall onto public roads.

Rail Loading

41. The Proponent may only load a maximum of 2 trains outside the rail loading and distribution hours in Table 1 in any 12 month period, unless agreed to in writing by the Director-General.

42. If the Proponent intends to undertake out of hours rail loading, it must use its best endeavours to notify all local residents at least 12 hours prior to the proposed rail loading, to the satisfaction of the Director-General.

Traffic and Transport Management Plan

43. Prior to undertaking any works in the Extension Area, the Proponent shall prepare and implement a Traffic and Transport Management Plan, to the satisfaction of the Director-General. The plan must include:
    (a) a driver code of conduct for the project to minimise the impacts of trucks on local residents;
    (b) the measures that would be put in place to ensure compliance with the driver code of conduct;
    (c) the measures that would be taken to avoid night time train loading operations; and
    (d) the procedures for notifying local residents about night time train loading activities when these occur.

VISUAL IMPACT

44. The Proponent shall:
    (a) take all practicable measures to mitigate off-site lighting impacts from the project; and
    (b) ensure that all external lighting associated with the project complies with *Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting*,
    to the satisfaction of the Director-General.

ABORIGINAL CULTURAL HERITAGE

45. The Proponent shall not destroy any known Aboriginal objects (as defined in the *National Parks and Wildlife Act 1974*) without the written approval of the Director-General.

GREENHOUSE GAS

46. The Proponent shall:
    (a) monitor the greenhouse gas emissions generated by the project;
    (b) investigate ways to reduce greenhouse gas emissions generated by the project; and
    (c) report on greenhouse gas monitoring and abatement measures in the AEMR,
    to the satisfaction of the Director-General.

WASTE MINIMISATION

47. The Proponent shall:
    (a) monitor the amount of waste generated by the project;
    (b) investigate ways to minimise waste generated by the project;
    (c) implement reasonable and feasible measures to minimise waste generated by the project;
    (d) ensure irrigation of treated wastewater is undertaken in accordance with DECCW's *Use of Effluent by Irrigation*; and
    (e) report on waste management and minimisation in the AEMR,
    to the satisfaction of the Director-General.

48. The Proponent shall ensure that all waste generated or stored on site is assessed, classified and managed in accordance with the DECCW's *Waste Classification Guidelines Part 1: Classifying Waste*.

SCHEDULE 4
ADDITIONAL PROCEDURES

NOTIFICATION OF LANDOWNERS

1. If the results of monitoring required in Schedule 3 identify that impacts generated by the project are greater than the relevant impact assessment criteria, then the Proponent shall notify the Director-General and the affected landowners and/or existing or future tenants (including tenants of quarry owned properties) accordingly, and provide quarterly monitoring results to each of these parties until the results show that the project is complying with the relevant criteria.

INDEPENDENT REVIEW

2. If a landowner (excluding quarry owned properties) considers that the operations of the project are exceeding the impact assessment 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, the Proponent shall within 3 months of the Director-General's decision:
   (a) consult with the landowner to determine his/her concerns;
   (b) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to conduct monitoring on the land to:
      - determine whether the project is complying with the relevant impact assessment criteria in Schedule 3; and
      - identify the source(s) and scale of any impact on the land, and the project's contribution to this impact; and
   (c) 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 impact assessment criteria in Schedule 3, then the Proponent may discontinue the independent review with the approval of the Director-General.

4. If the independent review determines that the project is not complying with the relevant impact assessment criteria in Schedule 3, and that the project is primarily responsible for this non-compliance, then the Proponent shall:
   (a) take all reasonable and feasible measures, in consultation with the landowner, to ensure that the project complies with the relevant criteria; and
   (b) conduct further monitoring to determine whether these measures ensure compliance.

   If the additional monitoring referred to above subsequently determines that the project is complying with the relevant criteria in Schedule 3, or the Proponent and landowner enter into a negotiated agreement to allow these exceedances, then the Proponent may discontinue the independent review with the approval of the Director-General.

5. If the independent review determines that the relevant criteria in Schedule 3 are being exceeded, then the Proponent shall:
   (a) take all reasonable and feasible measures, in consultation with the landowner, to ensure that the relevant criteria are complied with; and
   (b) conduct further monitoring to determine whether these measures ensure compliance; or
   (c) secure a written agreement with the landowner to allow exceedances of the criteria in Schedule 3.

   If the additional monitoring referred to above subsequently 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.

6. If the landowner disputes the results of the independent review, either the Proponent or the landowner may refer the matter to the Director-General for resolution.

   If the matter cannot be resolved within 21 days, the Director-General shall refer the matter to an Independent Dispute Resolution Process (see Appendix 6).

LAND ACQUISITION

7. Within 3 months of receiving a written request from a landowner with acquisition rights, the Proponent shall make a binding written offer to the landowner based on:
   (a) the current market value of the landowner's interest in the property at the date of this written request, as if the property was unaffected by the project the subject of the project application, having regard to the:
      - existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and
      - presence of improvements on the property and/or any approved building or structure which has been physically commenced at the date of the landowner's written request, and is due to be completed subsequent to that date, but excluding any improvements that have resulted from the implementation of the additional noise mitigation measures in conditions 5 and 6 of Schedule 3;
   (b) the reasonable costs associated with:
      - relocating within the Liverpool Plains local government area, or to any other local government area determined by the Director-General;
      - obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is required; and
   (c) reasonable compensation for any disturbance caused by the land acquisition process.

   However, if at the end of this period, the Proponent and landowner cannot agree on the acquisition price of the land, and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Director-General for resolution.

   Upon receiving such a request, the Director-General shall request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer or Fellow of the Institute, to consider submissions from both parties, and determine a fair and reasonable acquisition price for the land, and/or terms upon which the land is to be acquired.

   Within 14 days of receiving the independent valuer's determination, the Proponent shall make a written offer to purchase the land at a price not less than the independent valuer's determination.

   If the landowner refuses to accept this offer within 6 months of the Proponent's offer, the Proponent's obligations to acquire the land shall cease, unless otherwise agreed by the Director-General.

8. The Proponent shall bear the costs of any valuation or survey assessment requested by the independent valuer, or the Director-General, and the costs of determination referred above.

9. If the Proponent and landowner agree that only part of the land shall be acquired, then the Proponent shall pay all reasonable costs associated with obtaining Council approval for any plan of subdivision (where permissible), and registration of the plan at the Office of the Registrar-General.

SCHEDULE 5
ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING & REPORTING

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 be submitted to the Director-General for approval prior to any works being undertaken in the Extension Area, and:
   (a) provide the strategic framework for environmental management of the project;
   (b) identify the statutory requirements that apply to the project;
   (c) describe in general how the environmental performance of the project would be monitored and managed;
   (d) 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
   (e) describe the role, responsibility, authority, and accountability of all the key personnel involved in environmental management of the project.

ENVIRONMENTAL MONITORING PROGRAM

2. The Proponent shall prepare and implement an Environmental Monitoring Program for the project to the satisfaction of the Director-General. This program must be submitted to the Director-General for approval prior to any works being undertaken in the Extension Area, and consolidate the various monitoring requirements in Schedule 3 of this approval into a single document, and be submitted to the Director-General concurrently with the submission of the relevant monitoring programs/plans.

REPORTING

Incident Reporting

3. Within 7 days of detecting an exceedance of the limits/performance criteria in this approval or the occurrence of an incident that causes (or may cause) harm to the environment, the Proponent shall report the exceedance/incident to the Department and any relevant agencies. This report must:
   (a) describe the date, time, and nature of the exceedance/incident;
   (b) identify the cause (or likely cause) of the exceedance/incident;
   (c) describe what action has been taken to date; and
   (d) describe the proposed measures to address the exceedance/incident.

Annual Reporting

4. Within 12 months of this approval, and annually thereafter, the Proponent shall submit an AEMR to the Director-General and relevant agencies. This report must:
   (a) identify the standards and performance measures that apply to the project;
   (b) describe the works carried out in the last 12 months;
   (c) describe the works that will be carried out in the next 12 months;
   (d) include a summary of the complaints received during the past year, and compare this to the complaints received in previous years;
   (e) include a summary of the monitoring results for the project during the past year;
   (f) include an analysis of these monitoring results against the relevant:
      - limits/criteria in this approval;
      - monitoring results from previous years; and
      - predictions in the EA;
   (g) identify any trends in the monitoring results over the life of the project;
   (h) identify and discuss any non-compliance during the previous year; and
   (i) describe what actions were, or are being, taken to ensure compliance.

INDEPENDENT ENVIRONMENTAL AUDIT

5. Prior to 31 December 2012, and every 5 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 a suitably qualified, experienced, and independent team of experts whose appointment has been endorsed by the Director-General;
   (b) assess the environmental performance of the project, and its effects on the surrounding environment;
   (c) assess whether the project is complying with the relevant standards, performance measures, and statutory requirements;
   (d) review the adequacy of any strategy/plan/program required under this approval; and, if necessary,
   (e) recommend measures or actions to improve the environmental performance of the project, and/or any strategy/plan/program required under this approval.

   Note: This audit team must be led by a suitably qualified auditor, and include experts in the field of noise and rehabilitation.

6. Within 6 weeks of completing this audit, or as otherwise agreed by the Director-General, the Proponent shall submit a copy of the audit report to the Director-General with a response to any recommendations contained in the audit report.

7. Within 3 months of submitting the audit report to the Director-General, the Proponent shall review and if necessary revise the strategies/plans/programs required under this approval, to the satisfaction of the Director-General.

COMMUNITY CONSULTATIVE COMMITTEE

8. The Proponent shall operate a Community Consultative Committee (CCC) for the project to the satisfaction of the Director-General, in general accordance with the *Guideline for Establishing and Operating Community Consultative Committees for Mining Projects*.

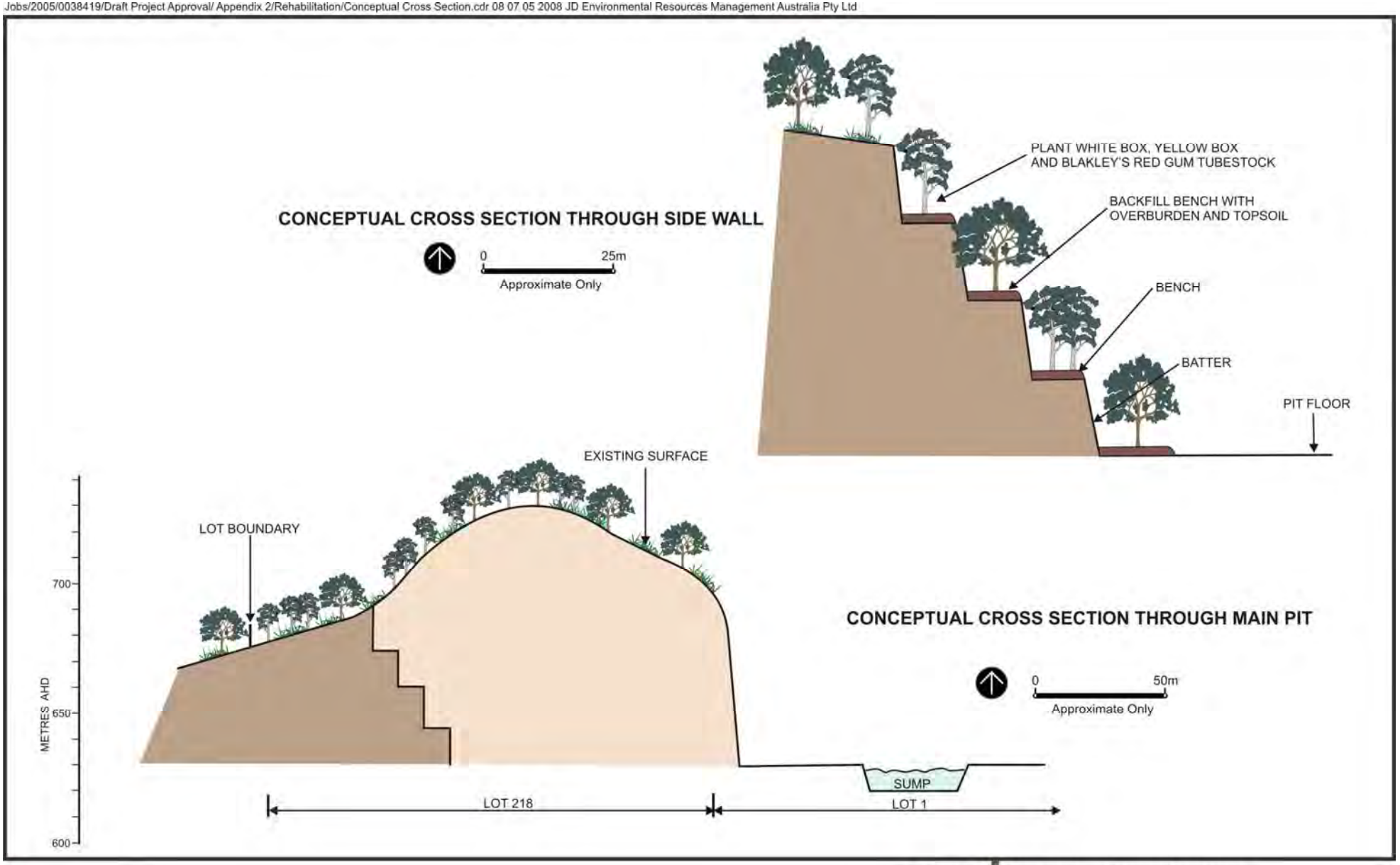
ACCESS TO INFORMATION

9. Within 3 months of the approval of any plan/strategy/program required under this approval (or any subsequent revision of these plans/strategies/programs), or the completion of the audits or AEMRs required under this approval, the Proponent shall:
   (a) provide a copy of the relevant document/s to the relevant agencies and CCC; and
   (b) put a copy of the relevant document/s on its website.

10. During the development, the Proponent shall:
   (a) include a copy of this approval, as may be modified from time to time, on its website;
   (b) provide a full summary of monitoring results required under this approval on its website; and
   (c) update these results on a regular basis (at least every 6 months).

APPENDIX 1
GENERAL PROJECT LAYOUT

APPENDIX 2
CONCEPTUAL REHABILITATION PLAN



ERM

Appendix 2 **Conceptual Cross Sections**

Daracon Engineering - Ardglen Quarry, NSW - Draft Project Approval

APPENDIX 3
CONCEPTUAL OFFSET PLAN

APPENDIX 4
STATEMENT OF COMMITMENTS

Table 1: Statement of Commitments

Item Number	Item	Commitment	Responsibility	Timing
1	Scope of Development	The project will be carried out generally in accordance with the following plans and documentation, except where amended by the conditions of the project approval: • the Environmental Assessment (EA) prepared by ERM (June, 2007) and accompanying specialist reports; • the Response to Submissions report prepared by ERM (November, 2007); and • this revised Statement of Commitments.	Daracon Quarries	Ongoing for the duration of the project.
2	Statutory Requirements	All necessary licences, permits and approvals will be obtained and maintained for the project.	Daracon Quarries	Ongoing for the duration of the project.
3		In accordance with section 104A of the EP&A Act, the proponent will surrender the existing development consent applying to Lot 1 DP 1001734, issued by Murrurundi Shire Council in May 1994.	Daracon Quarries	Within 2 years of work commencing within the extension area.
4	General	The proponent will prepare and implement an Environmental Management System (EMS) based on the AS/NZA ISO 14001:2004 - Environmental Management Systems. The EMS will: • incorporate an operational Environmental Management Plan (EMP); • detail potential environmental risks due to operation of the proposed quarry; • provide measures for the prevention, minimisation and management of these impacts to within acceptable limits; and • provide a means for the project to improve environmental performance and move towards environmental sustainability.	Daracon Quarries	EMS to be submitted for approval prior to work commencing within the extension area.
5	Water Management	The proponent will prepare and implement a Surface Water Management Plan for the project that will include: • an Erosion and Sediment Control Plan (including procedures to minimise erosion, capture of sediment on-site, and maintenance of control structures);	Daracon Quarries	Plan to be submitted for approval prior to work commencing within the extension area.

Item Number	Item	Commitment	Responsibility	Timing
		• a Site Water Balance; and • a Water Quality Monitoring Program		
6	Biodiversity	The proponent will implement the biodiversity offset strategy outlined in the EA, which includes the conservation and long term protection of the areas described in *Table 1*. *Table 1 Biodiversity Offset Areas* **Land Description** / **Area (ha)** / **Proposed Management Strategy** Lot 187 DP 751028 / 8.2 / stock removal, weed control, planting of EEC trees, transport of logs and rocks, provision of nest boxes Lot 39 DP 751028 / 11.65 / stock removal, weed control, major planting of EEC trees and grasses, transport of logs and rocks Lot 49 DP 751028 / 16.3 / stock removal, weed control **Total** / **36.15**	Daracon Quarries	Ongoing for the duration of the project.
7		The proponent will prepare a detailed biodiversity offset management plan in consultation with the DECC and submit it for approval by the Director-General. The plan will include: ▪ proposed staging; ▪ planting details such as final density, species mix, sowing rates, fertiliser; ▪ proposed maintenance schedule; ▪ weed control; ▪ importation of rock and log shelter; ▪ topsoil handling; ▪ fencing;	Daracon Quarries	Plan to be submitted for approval prior to work commencing within the extraction area.

Item Number	Item	Commitment	Responsibility	Timing
		▪ pre-clearing surveys of all hollow bearing trees within the proposed quarry extension area; ▪ herbivore control; and ▪ number and location of nest boxes.		
8		The proponent will make suitable arrangements to provide appropriate long term security for the offset areas.	Daracon Quarries	Within 3 years of work commencing within the extraction area.
9	Noise	The proponent will continue to implement the following measures, which are currently in place at Ardglen Quarry, to mitigate noise impacts: ▪ quarry hours are restricted to between 6am and 5.30pm; ▪ noise created by the haul trucks, both empty and loaded, is reduced by imposing a speed limit of 50 km/h when travelling on local roads between the quarry and the highway. Trucks on site are limited to a speed of 25 km/h; ▪ all on-site, fixed and mobile diesel-powered plant, excluding road vehicles, are correctly fitted and maintained to manufacturer specifications. Particular attention is given to engine exhaust systems and the care and maintenance of mufflers. Further noise control is nominated through the implementation of the following measures: ▪ reduction of equipment through the separation of site activities to overburden stripping and extraction, whereby they do not occur simultaneously; ▪ rail loading will be limited to the day period (7am to 6pm) as much as practicable; ▪ the surge bin will be lined with latex or polymer liners to reduce impulsive noise; ▪ a sheet metal enclosure will be built around the rail loader discharge and extend to include the rail wagon being loaded. The enclosure will be constructed of sheet metal and will cover the length of a minimum of three wagons whereby the wagon being loaded will be in the centre of the enclosure. The enclosure will be open at the ends and will contain a roof which will be connected to the rail loader discharge.	Daracon Quarries	Ongoing for the duration of the project.

Item Number	Item	Commitment	Responsibility	Timing
		Gaps between the loader discharge and the roof will be sealed; ▪ the two scrapers initially assigned for overburden stripping will be replaced by one excavator and two articulated dump trucks; ▪ the existing three crushers will be acoustically treated by extending the metal cladding on the crushing and screening station building to ground level with no gaps or openings; ▪ the existing screens will be located behind earth bunds; and ▪ mobile acoustic barriers or earth mounds will surround the drill rig and any mobile plant situated on the surface during initial stripping; and ▪ where land slopes away from stripping activities to receivers, barriers will be raised to a height of 4 metres, so there is no direct line of sight to receivers.		
10		Except during night-time rail loading activities, the proponent will ensure that the noise generated by the project does not exceed the levels set out in *Table 2*, at any privately-owned residence, unless a specific agreement is reached with the landholder, in which case the proponent may exceed the noise limits set out in *Table 2* in accordance with the negotiated noise agreement. *Table 2 Noise Criteria* **Land** — **Noise Level LAeq dB(A)** 1 - Burraston — 35 2 - Rose — 35 4 – CM Thomson — 44 5 – M Taylor — 45 6 – S Thompson — 45 9 – Bates — 37 10 – Avery — 38	Daracon Quarries	Ongoing for the duration of the project.

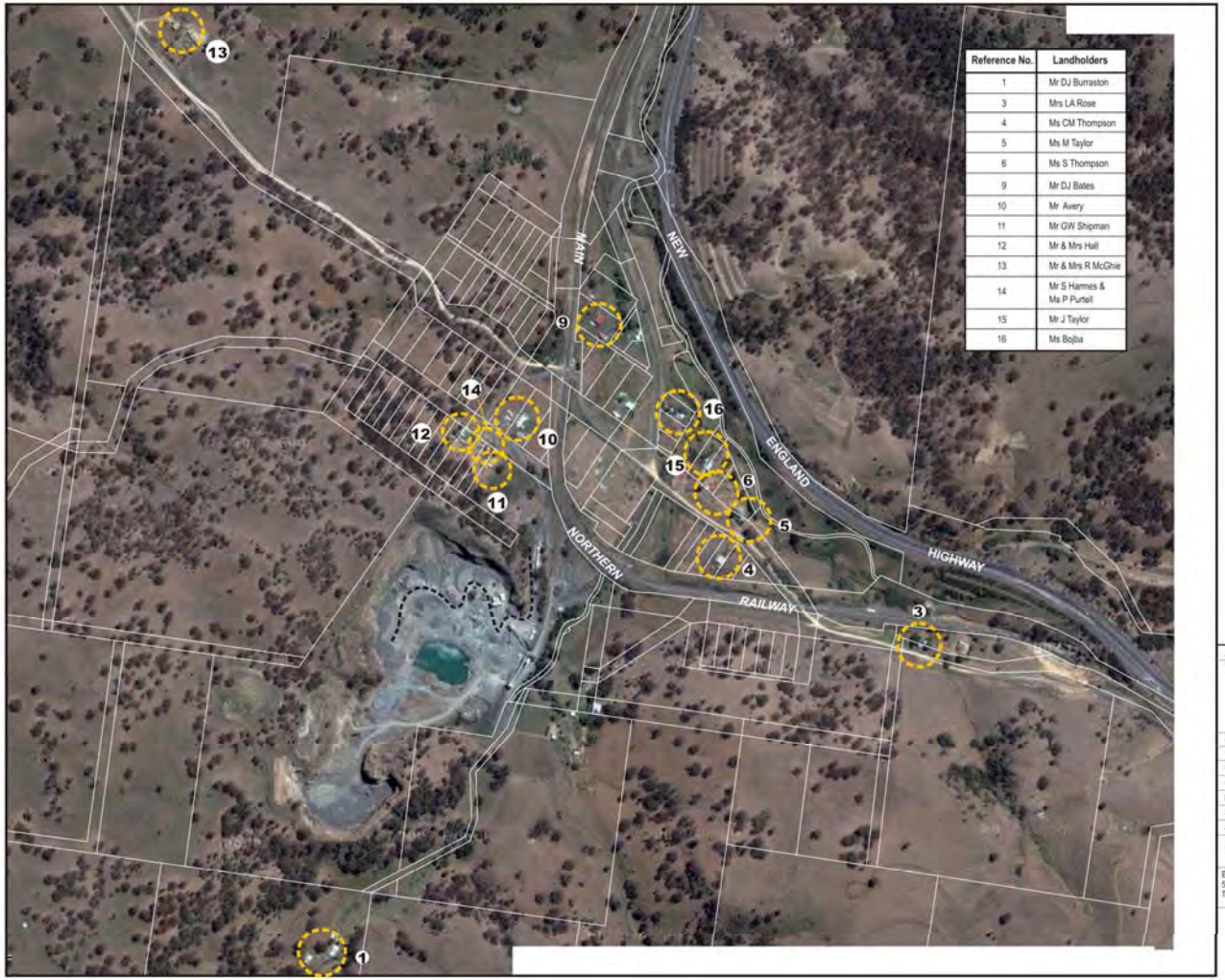
Item Number	Item	Commitment		Responsibility	Timing
		11 – Shipman	37		
		12 – Hall	36		
		13 – McGhie	35		
		14 – Purtell	36		
		15 – J Taylor	43		
		16 - Bojba	40		
11	Blasting and Vibration	The proponent will implement the following measures to mitigate the impacts of blasting and vibration: ▪ blasting will be limited to between the hours of 10am and 4pm, Monday to Friday and residents in the vicinity of the quarry will be given adequate notification of forthcoming blasts; ▪ air-blast overpressure from any blast will not exceed 120 dB(Lpeak) at any privately-owned residence for more than 5% of all blasts over a 12 month period. It will not exceed 115 dB(Lpeak) at any time, unless specific prior agreement is reached with the affected landholder; ▪ peak particle velocity (ppv) from ground vibration will not exceed 5 mm/s at any privately-owned residence for more than 5% of the total number of blasts over a 12 month period. The maximum level will not exceed 10 mm/s at any time; ▪ the existing blast management strategy will continue to be implemented to ensure appropriate charge masses are used to avoid excessive air blast overpressure and ground vibrations; and ▪ a Blast Monitoring Program will be prepared and submitted to the Director-General for approval		Daracon Quarries	Ongoing for the duration of the project.

Item Number	Item	Commitment	Responsibility	Timing
12	Air Quality	In addition to the dust mitigation measures currently employed, the proponent will implement the following measures to ensure particulate matter emissions are minimised: ▪ revegetation of exposed surfaces where possible; ▪ sealing the haul road; ▪ limiting the speed limit on unpaved surfaces to 15 km/hr; ▪ high level watering of unpaved road surfaces (greater than 2L/m2/hr); ▪ covering all loads leaving the site; ▪ building a wheel wash at the end of the unpaved section of the haul road (after the weighbridge); and ▪ wet suppression or chemical coating of static stockpiles.	Daracon Quarries	Ongoing for the duration of the project.
13		The proponent will prepare and implement an air quality monitoring program for the project. The program will include: ▪ a series of dust deposition gauges operated in accordance with Australian/New Zealand Standard AS/NZS 3580.10.1:2003; and ▪ a series of high volume or low volume air samplers to monitor levels of PM10, operated in accordance with Australian/New Zealand AS/NZS 3580.9.6:2003 and AS/NZS 3580.9.6:2003.	Daracon Quarries	Program to be submitted for approval prior to work commencing within the extension area.
14	Rehabilitation	The proponent will prepare a detailed biodiversity offset plan to provide an integrated plan for the whole site, considering the existing quarry areas, the western extension, the areas of box-gum woodland to be preserved and the areas to be planted as offsets. This plan will be prepared in liaison with the DECC and lodged for approval by the Director-General.	Daracon Quarries	Plan to be submitted for approval prior to work commencing within the extension area.
15		The proponent will progressively rehabilitate the site, generally in accordance with the rehabilitation strategy outlined in the EA.	Daracon Quarries	Ongoing for the duration of the project.

Item Number	Item	Commitment	Responsibility	Timing
16		The proponent will lodge a rehabilitation bond with the Director-General to ensure that rehabilitation of the site is satisfactorily completed, generally in accordance with the rehabilitation strategy outlined in the EA.	Daracon Quarries	Within 6 months of work commencing within the extension area.
17	Traffic Management and Access	The proponent will not transport more than 500,000 tonnes of product from the site each year.	Daracon Quarries	Ongoing for the duration of the project.
18		The proponent will keep daily records of: ▪ the type and amount of product transported from the site and the method of transportation i.e. road or rail; and ▪ the type and amount of quarry material imported onto the site and the method of transportation i.e. road or rail.	Daracon Quarries	Ongoing for the duration of the project.
19		The proponent will maintain the quarry access route from the New England Highway to the quarry entrance, to at least its present standard (two lane rural road), to the satisfaction of Council.	Daracon Quarries	Ongoing for the duration of the project.
20	Visual Amenity	The proponent will implement the following mitigation measures to reduce the potential visual impacts of the project: ▪ those areas of the quarry in which the resource has been exhausted will be progressively rehabilitated and revegetated; and ▪ further planting will be undertaken along the ridgeline to the west of the proposed extension area.	Daracon Quarries	Further planting to be undertaken prior to work commencing within the extension area.

21	Aboriginal Cultural Heritage	Should any Aboriginal objects (artefacts) be exposed during ground surface disturbance, all works involving ground surface disturbance will be suspended. A representative of the Nungaroo Local Aboriginal Land Council and an archaeologist will conduct an assessment of the significance of the Aboriginal object(s) and identify appropriate mitigation and management measures.	Daracon Quarries	Ongoing for the duration of the project.
22	Community Consultation	The proponent will continue to engage the community in consultation, with the aim of providing the community with up-to-date information in relation to the project and quarry operations in general, and allowing the community to provide feedback and raise any issues or concerns. On-going consultation will include distribution of an annual community newsletter and individual face-to-face meetings with adjoining landowners and other stakeholders when required.	Daracon Quarries	Ongoing for the duration of the project.
23	Annual Reporting	The proponent will prepare and submit to the Director-General an Annual Environmental Management Report (AEMR). The AEMR will: ▪ include a summary of the environmental monitoring results for the project for the past year; ▪ include an analysis of the monitoring results against relevant limits/criteria and monitoring results from previous years; and ▪ identify and discuss any non-compliances during the past year and detail any actions taken to ensure compliance.	Daracon Quarries	Report to be submitted annually

APPENDIX 5
LOCATION OF RESIDENCES



Reference No.	Landholders
1	Mr DJ Burraston
3	Mrs LA Rose
4	Ms CM Thompson
5	Ms M Taylor
6	Ms S Thompson
9	Mr DJ Bates
10	Mr Avery
11	Mr GW Shipman
12	Mr & Mrs Hall
13	Mr & Mrs R McGhie
14	Mr S Harmes & Ms P Purtell
15	Mr J Taylor
16	Ms Bojba

Appendix 5
Nearest Residences

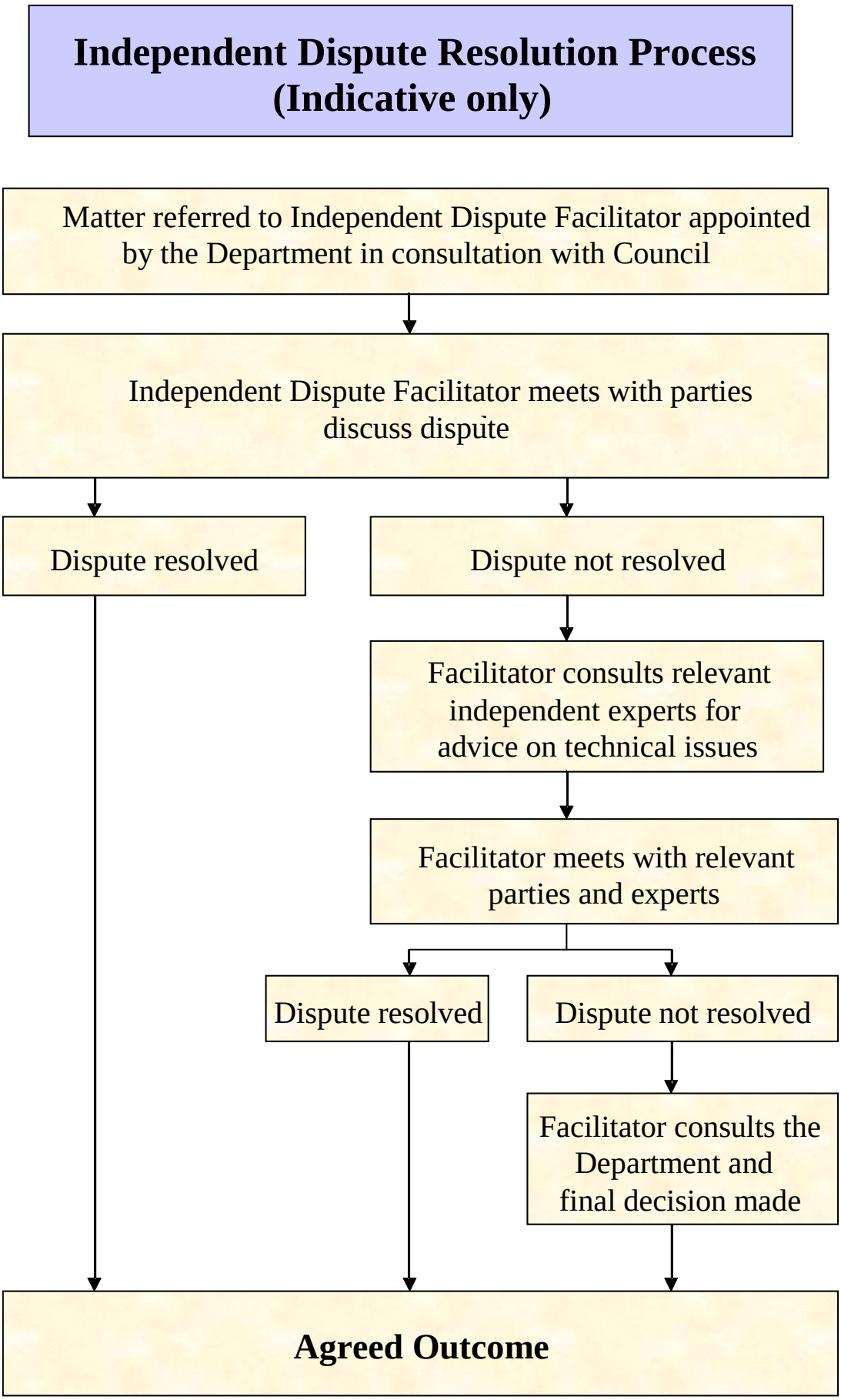
Client:	Daracon Engineering		
Project:	Ardglen Quarry		
Drawing No:	0038419hr_DoP request_let may 08_01		
Date:	22/05/08	Drawing size:	A3
Drawn by:	JD	Reviewed by:	OM
Source:	Google Maps		
Scale:	Refer to Scale Bar		

N 0 50 100 150 200m

Environmental Resources Management Australia Pty Ltd
53 Bonville Avenue, Thornton, NSW 2322
Telephone +61 2 4964 2150

ERM

APPENDIX 6
INDEPENDENT DISPUTE RESOLUTION PROCESS



Appendix 2 Noise monitoring reports

Included:

- February 2019 Noise Monitoring Report
- May 2019 Noise Monitoring Report
- August 2019 Noise Monitoring Report
- November 2019 Noise Monitoring Report

13 February 2019

Ref: 161308/8281

Daracon Quarries Pty Ltd
PO Box 299
WALLSEND NSW 2287

RE: FEBRUARY 2019 NOISE MONITORING RESULTS – ARDGLEN QUARRY

This letter report presents the results of attended noise monitoring conducted for the Ardglen Quarry (AQ) between Tuesday 5th and 12th February 2019. The monitoring was carried out to measure noise emissions from the operations of the quarry. Noise monitoring was carried out in accordance with the conditions of the AQ Noise Monitoring Plan (NMP) as detailed below.

NOISE CRITERIA

*The Proponent shall ensure that the noise generated by the project does not exceed the noise impact assessment criteria in **Table 1** at any residence on privately-owned land, or more than 25% of any privately owned land.*

Table 1
Noise Impact Assessment Criteria

Land	*Day*	*Evening*	*Night*	
	Leq (15 min)	*Leq (15 min)*	*Leq (15 min)*	*L1 (1 min)*
1 Burraston	*35*	*35*	*35*	*45*
3 Rose	*35*	*35*	*35*	*45*
4 C M Thompson	*44*	*35*	*35*	*45*
5 M Taylor	*45*	*35*	*35*	*45*
6 S Thompson	*45*	*35*	*35*	*45*
9 Bates	*37*	*35*	*35*	*45*
10 Avery	*38*	*35*	*35*	*45*
11 Shipman	*37*	*35*	*35*	*45*
12 Hall	*36*	*35*	*35*	*45*
13 McGhie	*35*	*35*	*35*	*45*
14 Purtell	*36*	*35*	*35*	*45*
15 J Taylor	*43*	*35*	*35*	*45*
16 Bojba	*40*	*35*	*35*	*45*
All other privately owned land	*35*	*35*	*35*	*45*

However, if the Proponent has a written negotiated noise agreement with any landowner of the land listed in Table 1, and a copy of this agreement has been forwarded to the Department and the DECCW, then the Proponent may exceed the noise limits in Table 1 in accordance with the negotiated agreement. The Proponent may also exceed the L1 (1 min) and Leq (15 min) noise impact criteria during out of hours rail loading activities provided they are conducted in accordance with Section 3, Condition 41 of the Project Approval (which is reproduced below).

> *41. The Proponent may only load a maximum of 2 trains outside the rail loading and distribution hours listed in Table 1 (of the Project Approval, being Monday to Sunday 7:00am to 10:00pm) in any 12 month period, unless agreed in writing by the Director General.*
>
> *Notes:*
>
> - *For information on the numbering and identification of properties used in this approval see Figure 2 on Page 14 of this Noise Monitoring Program).*
> - *To determine compliance with the LAeq (15 minute) noise limits, noise from the project is to be measured at the most affected point on or within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary. Where it can be demonstrated that direct measurement of noise from the development is impractical, the DECCW may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.*
> - *To determine compliance with the L1 (1 minute) noise limits, noise from the project is to be measured 1m from the dwelling facade. Where it can be demonstrated that direct measurement of noise from the development is impractical, the DECCW may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy).*
> - *The noise emission limits identified in the above table apply under meteorological conditions of:*
>   - *wind speeds of up to 3 m/s at 10 metres above ground level; or*
>   - *Temperature inversion conditions of up to 3ºC/100m, and wind speeds of up to 2 m/s at 10 metres above ground level.*

NOISE MONITORING LOCATIONS

Noise measurement locations for the attended noise survey are listed below and shown in the accompanying **Figure 1**:

Location 4: C M Thompson
Location 13: McGhie
Location 14: Purtell
Location 16: Bojba

Figure 1 – Attended Noise Monitoring Locations

ATTENDED NOISE MEASUREMENTS

Noise emission levels were measured with Brüel & Kjær Type 2260 Precision Sound Analysers. These instruments have Type 1 characteristics as defined in AS1259-1982 “Sound Level Meters”. Calibration of the instruments was confirmed with a Brüel & Kjær Type 4231 Sound Level Calibrator prior to and at the completion of measurements.

Meteorological data used in this report was obtained from a hand held weather station with measurements made at approximately 2.5m above ground level. The weather throughout the survey was mild with relatively clear skies with 3 to 4 octas cloud cover. The wind speed was variable throughout at 2.5 to 4 m/s generally from the south.

Throughout the monitoring period the quarry was operating. Plant items working at the quarry are detailed below;

- Generator at Office;
- 980 Loader; and
- Five truck and dogs entering and leaving with loads.

RESULTS OF ATTENDED MONITORING

The measured noise levels, over 1 second intervals, were analysed using Brüel & Kjær "*Evaluator*" software. The software enables the contributions of the quarry and other significant noise sources to the overall to be quantified.

Noise levels were recorded for each of the Leq (15 min), Lmax, L1, L10, L90 and Lmin percentiles. As shown in Table 1, the noise criterion for AQ during the day is based on an Leq noise level. The results, shown in **Table 2**, represent the total 15 minute Leq noise level for all noise sources and the relative contributions of each. Levels for the other percentiles are not shown as they have no compliance criteria for comparison but are available on request. The exception is the L1 (1 min) noise level (which is the standard measure of sleep disturbance) which is applicable to noise emissions at night (i.e. between 10 pm and 7 am).

TABLE 3
Ardglen Quarry Noise Monitoring Results –
12th February 2019 (Day)

Location	Time	dB(A),L_{eq}	Wind speed/ direction	Identified Noise Sources
4. Thompson	9: 05 pm	55	1.5 m/s NE	Traffic (55), birds (30), **AQ[1] barely audible**
13. McGhie	10:05 pm	40	2.5 m/s NW	Birds (39), traffic (32), **AQ inaudible**
14. Purtell	9:40 pm	46	1.5 m/s N	Traffic (45), birds (37), **AQ[1] (30)**
16. Bojba	8:45 pm	54	1.0 m/s NE	Traffic (54), birds (40), **AQ inaudible**

1 see text re noise sources from quarry

The results in Table 2 show that under the operating conditions at the time the noise emissions from AQ were compliant with the relevant noise criteria at all monitoring locations.

Throughout the noise monitoring survey trucks were entering and leaving the quarry. The noise from the trucks is considered a site noise whilst the vehicles are on quarry site roads. Once the vehicles pass onto public roads the noise is assessed separately, against RMS road traffic noise criteria.

The noise from the trucks whilst on site was audible at Locations 4 and 14.

At Location 4 the truck noise from the vicinity of the site was audible on occasion but not measureable in the acoustic environment dominated by noise from traffic on the highway.

At location 14 the noise from two trucks leaving and one truck entering the quarry was measureable during the 15 minute survey, with the relevant noise contribution calculated based on log addition of the magnitude and duration of the noise for each. The calculated contribution as an Leq (15 min) noise level from the trucks whilst on site is that shown in Table 3.

The results of the noise monitoring programme have shown that AQ is operating within approved noise limits. No actions are recommended with respect to noise management at the Quarry.

UNATTENDED NOISE MEASUREMENTS

The NMP requires that unattended noise logging be undertaken over a period of seven days, part of which coincides with the quarterly attended noise monitoring. To measure the acoustic environment Rion NL-42 sound level meters, set up as environmental noise loggers, were located as shown in Figure 2 from 5th to 12th February, 2019. **Table 3** shows a summary of the relevant measured data from the loggers which is also shown graphically in **Appendix I**.

TABLE 3
Measured Logger Noise Levels dB(A)
5th to 12th February, 2019

Logger Location	Day (7am to 6pm)		Evening (6pm to 10 pm)		Night (10pm to 7am)	
	Leq	L90	Leq	L90	Leq	L90
Logger 1	54	36	53	34	54	24
Logger 2	55	39	52	36	43	29

Figure 2 – Unattended Noise Monitoring Locations

The logger locations were chosen to be representative of the acoustic environment of the closest residences to the quarry and for security reasons.

Logger 1 was located on the fence at location R 14. This is adjacent to the attended noise monitoring location for this residence. Logger 2 was in an open paddock north of the house.

The unattended noise loggers measure the total noise level in the environment but the data cannot discriminate between various noise sources. As such, the data is presented here with no further analysis.

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

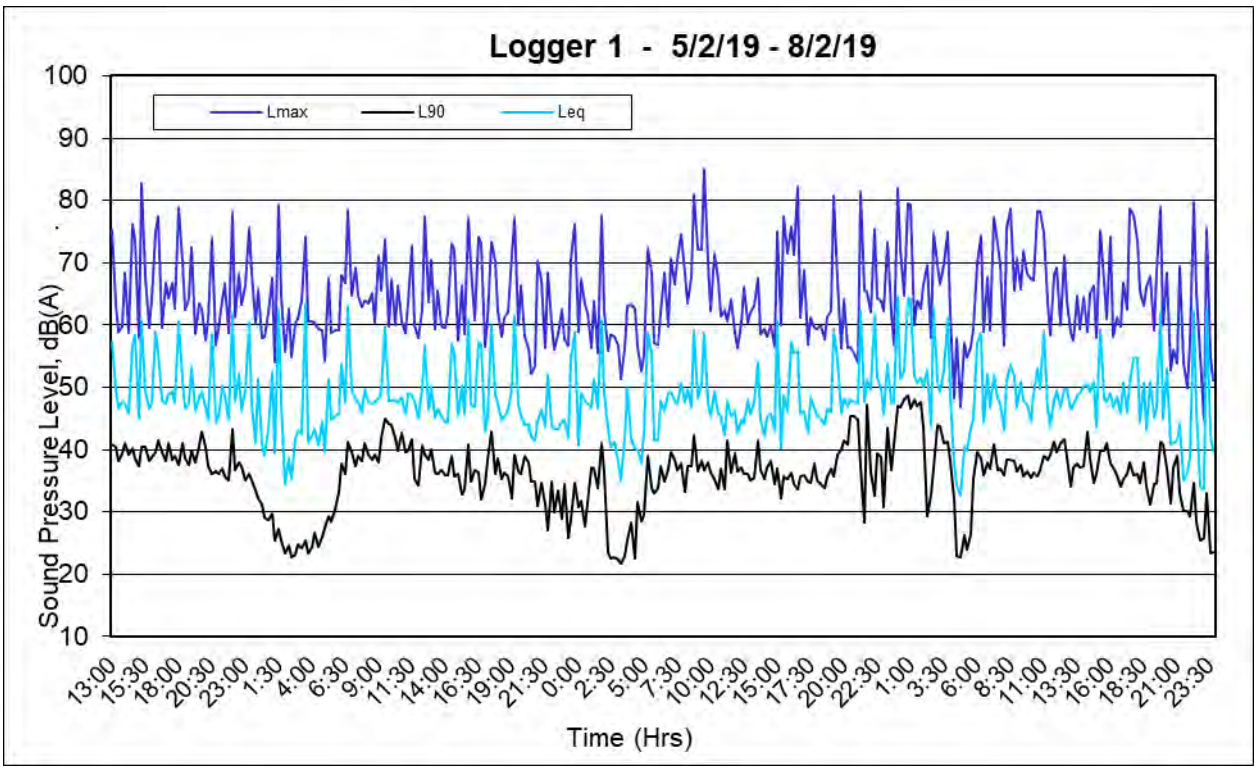
Author:

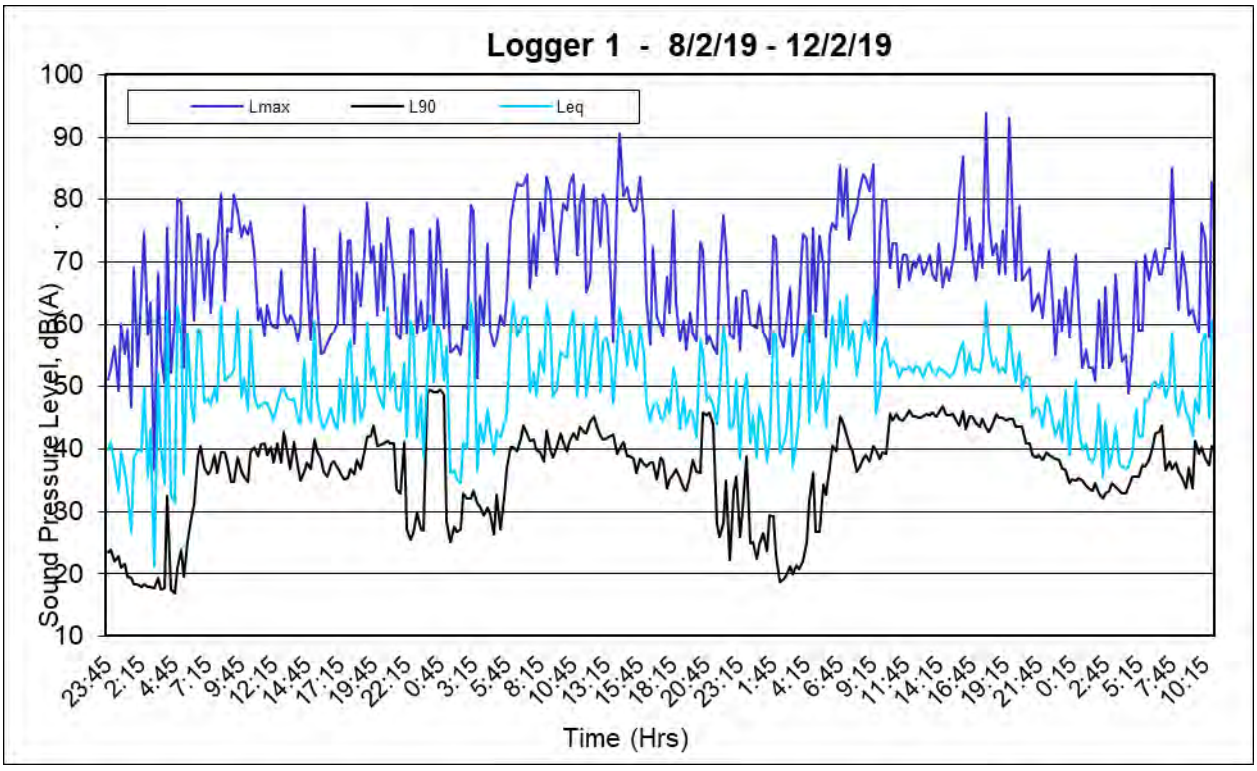
Ross Hodge
Acoustical Consultant

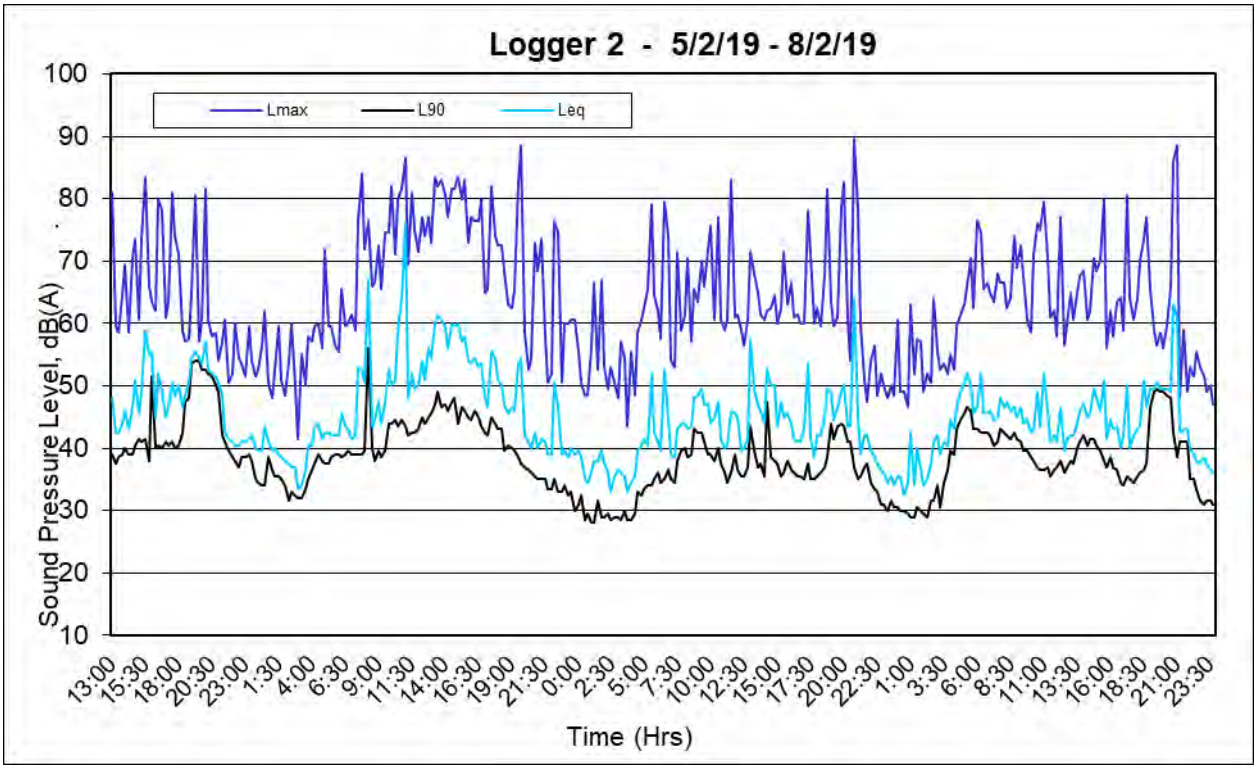
Review:

Neil Pennington
Acoustical Consultant

APPENDIX A
NOISE LOGGER CHARTS






Logger 2 - 5/2/19 - 8/2/19
Lmax
L90
Leq
Sound Pressure Level, dB(A)
100
90
80
70
60
50
40
30
20
10
13:00
15:30
18:00
20:30
23:00
1:30
4:00
6:30
9:00
11:30
14:00
16:30
19:00
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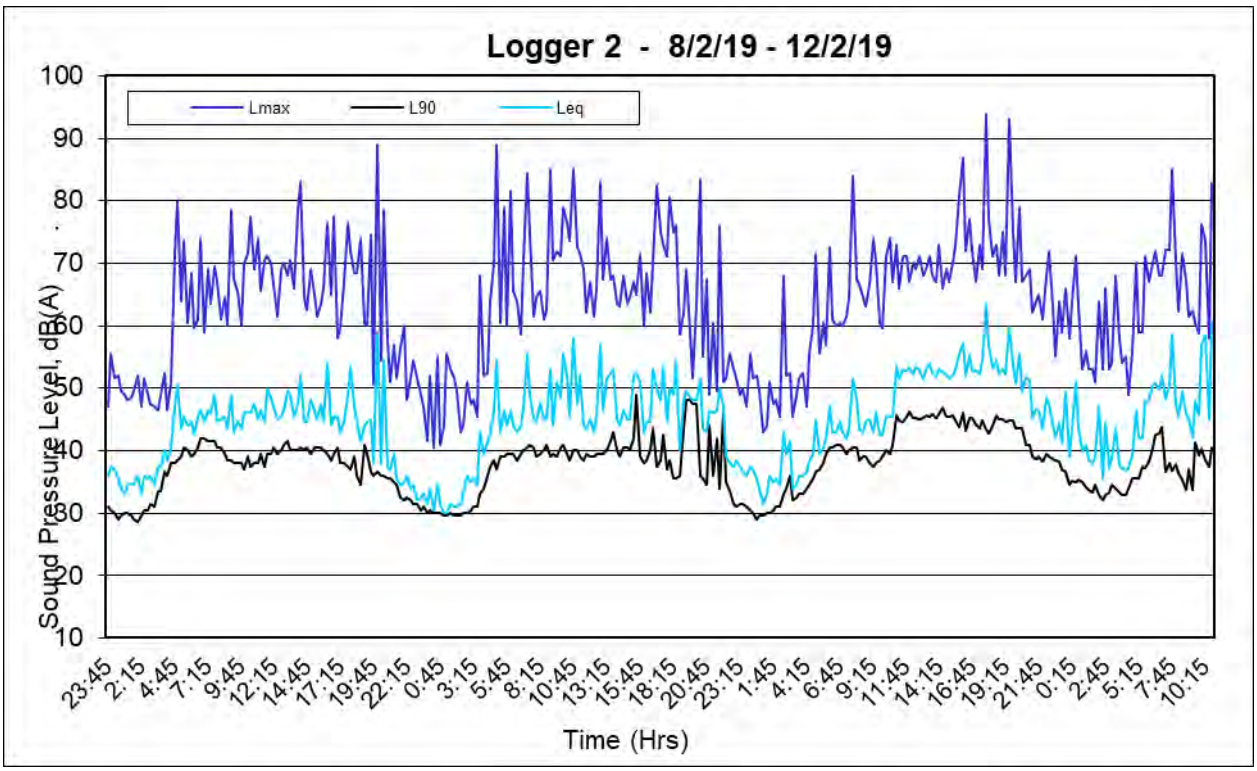
21:00
23:30
Time (Hrs)


Logger 2 - 8/2/19 - 12/2/19
Lmax
L90
Leq
Sound Pressure Level, dB(A)
100
90
80
70
60
50
40
30
20
10
23:45
2:15
4:45
7:15
9:45
12:15
14:45
17:15
19:45
22:15
0:45
3:15
5:45
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20:45
23:15
1:45
4:15
6:45
9:15
11:45
14:15
16:45
19:15
21:45
0:15
2:45
5:15
7:45
10:15
Time (Hrs)

5 June 2019

Ref: 161308/8348

Daracon Quarries Pty Ltd
PO Box 299
WALLSEND NSW 2287

RE: MAY 2019 NOISE MONITORING RESULTS – ARDGLEN QUARRY

This letter report presents the results of attended noise monitoring conducted for the Ardglen Quarry (AQ) between Wednesday 8th and 15th May 2019. The monitoring was carried out to measure noise emissions from the operations of the quarry. Noise monitoring was carried out in accordance with the conditions of the AQ Noise Monitoring Plan (NMP) as detailed below.

NOISE CRITERIA

*The Proponent shall ensure that the noise generated by the project does not exceed the noise impact assessment criteria in **Table 1** at any residence on privately-owned land, or more than 25% of any privately owned land.*

Table 1
Noise Impact Assessment Criteria

Land	*Day*	*Evening*	*Night*	
	Leq (15 min)	*Leq (15 min)*	*Leq (15 min)*	*L1 (1 min)*
1 Burraston	*35*	*35*	*35*	*45*
3 Rose	*35*	*35*	*35*	*45*
4 C M Thompson	*44*	*35*	*35*	*45*
5 M Taylor	*45*	*35*	*35*	*45*
6 S Thompson	*45*	*35*	*35*	*45*
9 Bates	*37*	*35*	*35*	*45*
10 Avery	*38*	*35*	*35*	*45*
11 Shipman	*37*	*35*	*35*	*45*
12 Hall	*36*	*35*	*35*	*45*
13 McGhie	*35*	*35*	*35*	*45*
14 Purtell	*36*	*35*	*35*	*45*
15 J Taylor	*43*	*35*	*35*	*45*
16 Bojba	*40*	*35*	*35*	*45*
All other privately owned land	*35*	*35*	*35*	*45*

However, if the Proponent has a written negotiated noise agreement with any landowner of the land listed in Table 1, and a copy of this agreement has been forwarded to the Department and the DECCW, then the Proponent may exceed the noise limits in Table 1 in accordance with the negotiated agreement. The Proponent may also exceed the L1 (1 min) and Leq (15 min) noise impact criteria during out of hours rail loading activities provided they are conducted in accordance with Section 3, Condition 41 of the Project Approval (which is reproduced below).

> *41. The Proponent may only load a maximum of 2 trains outside the rail loading and distribution hours listed in Table 1 (of the Project Approval, being Monday to Sunday 7:00am to 10:00pm) in any 12 month period, unless agreed in writing by the Director General.*
>
> *Notes:*
>
> - *For information on the numbering and identification of properties used in this approval see Figure 2 on Page 14 of this Noise Monitoring Program).*
> - *To determine compliance with the LAeq (15 minute) noise limits, noise from the project is to be measured at the most affected point on or within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary. Where it can be demonstrated that direct measurement of noise from the development is impractical, the DECCW may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.*
> - *To determine compliance with the L1 (1 minute) noise limits, noise from the project is to be measured 1m from the dwelling facade. Where it can be demonstrated that direct measurement of noise from the development is impractical, the DECCW may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy).*
> - *The noise emission limits identified in the above table apply under meteorological conditions of:*
>   - *wind speeds of up to 3 m/s at 10 metres above ground level; or*
>   - *Temperature inversion conditions of up to 3ºC/100m, and wind speeds of up to 2 m/s at 10 metres above ground level.*

NOISE MONITORING LOCATIONS

Noise measurement locations for the attended noise survey are listed below and shown in the accompanying **Figure 1**:

Location 4: C M Thompson
Location 13: McGhie
Location 14: Purtell
Location 16: Bojba

Figure 1 – Attended Noise Monitoring Locations

ATTENDED NOISE MEASUREMENTS

Noise emission levels were measured with a Brüel & Kjær Type 2260 Precision Sound Analyser. This instrument has Type 1 characteristics as defined in AS1259-1982 "Sound Level Meters". Calibration of the instrument was confirmed with a Brüel & Kjær Type 4231 Sound Level Calibrator prior to and at the completion of measurements.

Meteorological data used in this report was obtained from a hand held weather station with measurements made at approximately 2.5m above ground level. The weather throughout the survey was cool with relatively clear skies. The wind speed was generally around 2.5 to 3 m/s from the south.

Throughout the monitoring period the quarry was operating. Plant items working at the quarry are detailed below;

- 980 Caterpillar Loader;
- 27 loaded trucks departing site (throughout the entire day);
- One 20 Kva generator powering the office complex;
- Watercart operating on site; and
- Ancillary light vehicles.

RESULTS OF ATTENDED MONITORING

The measured noise levels, over 1 second intervals, were analysed using Brüel & Kjær "*Evaluator*" software. The software enables the contributions of the quarry and other significant noise sources to the overall to be quantified.

Noise levels were recorded for each of the Leq (15 min), Lmax, L1, L10, L90 and Lmin percentiles. As shown in Table 1, the noise criterion for AQ during the day is based on an Leq noise level. The results, shown in **Table 2**, represent the total 15 minute Leq noise level for all noise sources and the relative contributions of each. Levels for the other percentiles are not shown as they have no compliance criteria for comparison but are available on request. The exception is the L1 (1 min) noise level (which is the standard measure of sleep disturbance) which is applicable to noise emissions at night (i.e. between 10 pm and 7 am).

TABLE 2
Ardglen Quarry Noise Monitoring Results –
15th May 2019 (Day)

Location	Time	dB(A),L_{eq}	Wind speed/ direction	Identified Noise Sources
4. Thompson	1:45 pm	50	2.5 m/s SE	Traffic (50), wind in trees (35), birds (20), **AQ inaudible**
13. McGhie	2:06 pm	45	2.7 m/s SE	Birds (44), traffic (36), **AQ inaudible**
14. Purtell	2:30 pm	48	2.8 m/s SE	Wind in trees (44), traffic (44), birds (40), **AQ[1] (25)**
16. Bojba	1:25 pm	57	2.0 m/s SE	Traffic (57), birds (44), **AQ inaudible**

1 see text re noise sources from quarry

Throughout the noise monitoring survey trucks were entering and leaving the quarry. The noise from the trucks is considered a site noise whilst the vehicles are on quarry site roads. Once the vehicles pass onto public roads the noise is assessed separately, against RMS road traffic noise criteria.

The noise from the trucks on site was audible and measureable at Location 14.

At location 14 the noise from one truck leaving and one truck entering the quarry was measureable during the 15 minute survey, with the relevant noise contribution calculated based on log addition of the magnitude and duration of the noise for each. The calculated contribution as an Leq (15 min) noise level from the trucks whilst on site is that shown in Table 2.

The results in Table 2 show that under the operating conditions at the time the noise emissions from AQ were inaudible and, therefore, compliant with the relevant noise criteria at all monitoring locations.

The results of the noise monitoring programme have shown that AQ is operating within approved noise limits. No actions are recommended with respect to noise management at the Quarry.

UNATTENDED NOISE MEASUREMENTS

The NMP requires that unattended noise logging be undertaken over a period of seven days, part of which coincides with the quarterly attended noise monitoring.

To measure the acoustic environment Rion NL-42 sound level meters, set up as environmental noise loggers, were located as shown in Figure 2 from 8th to 15th May, 2019. **Table 3** shows a summary of the relevant measured data from the loggers which is also shown graphically in **Appendix I**.

TABLE 3
Measured Logger Noise Levels dB(A)
8th to 15th May, 2019

Logger Location	Day (7am to 6pm)		Evening (6pm to 10 pm)		Night (10pm to 7am)	
	Leq	L90	Leq	L90	Leq	L90
Logger 1	50	36	45	35	43	33
Logger 2						

Figure 2 – Unattended Noise Monitoring Locations

The logger locations were chosen to be representative of the acoustic environment of the closest residences to the quarry and for security reasons.

Logger 1 was located on the fence at location R 14. This is adjacent to the attended noise monitoring location for this residence. Logger 2 was in an open paddock north of the house.

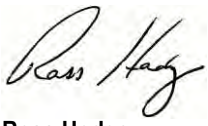
The unattended noise loggers measure the total noise level in the environment but the data cannot discriminate between various noise sources. As such, the data is presented here with no further analysis.

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,

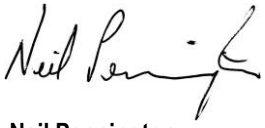
SPECTRUM ACOUSTICS PTY LIMITED

Author:



Ross Hodge
Acoustical Consultant

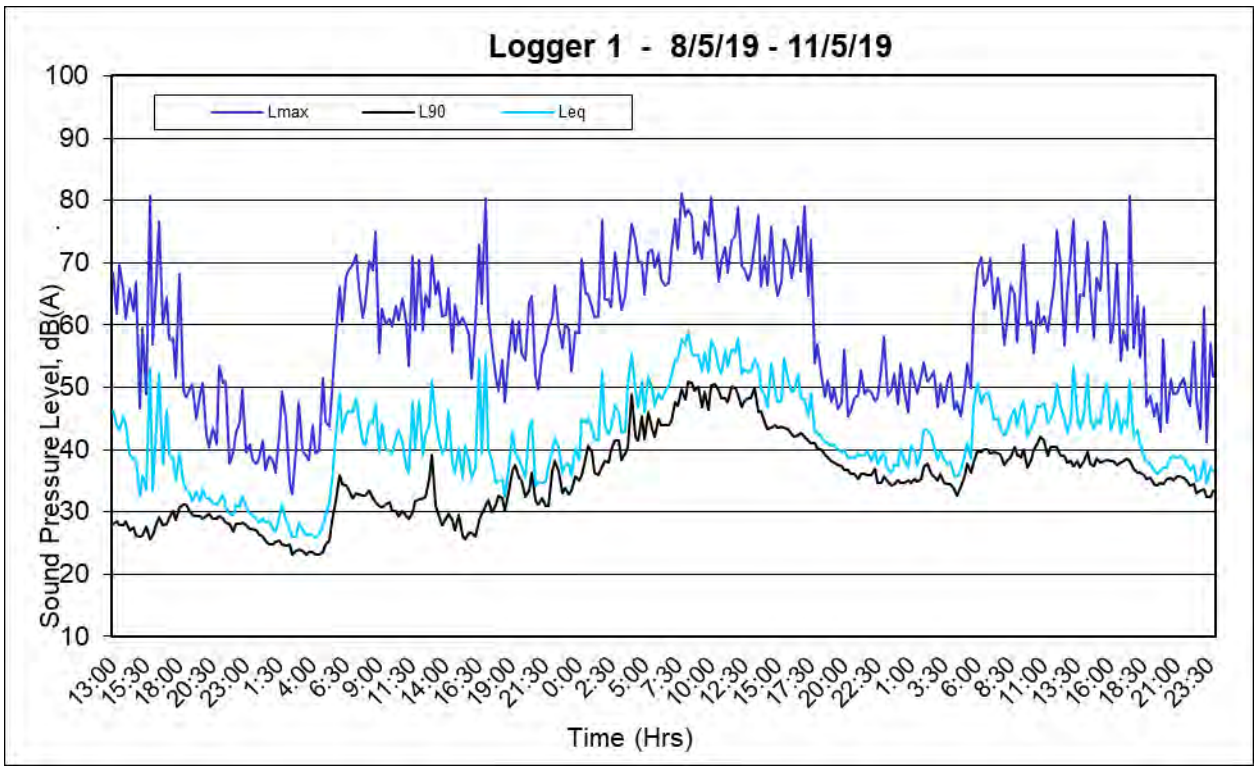
Review:

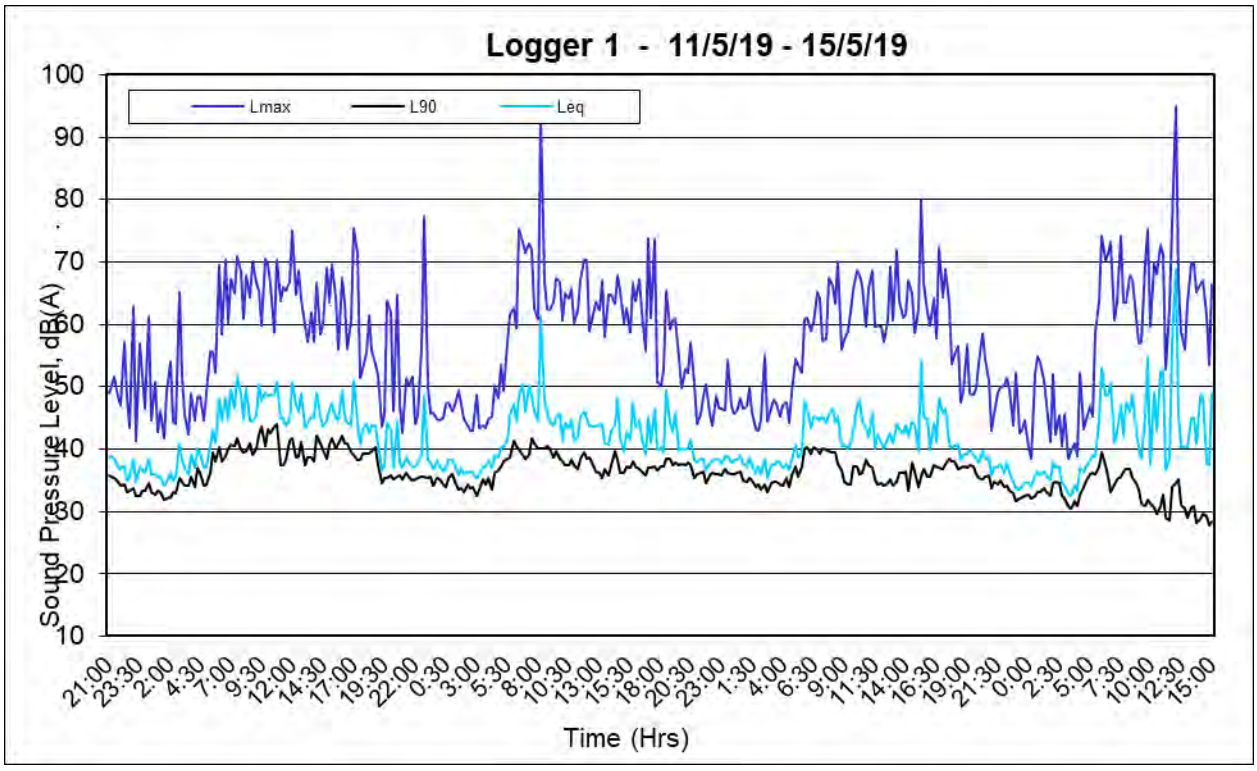


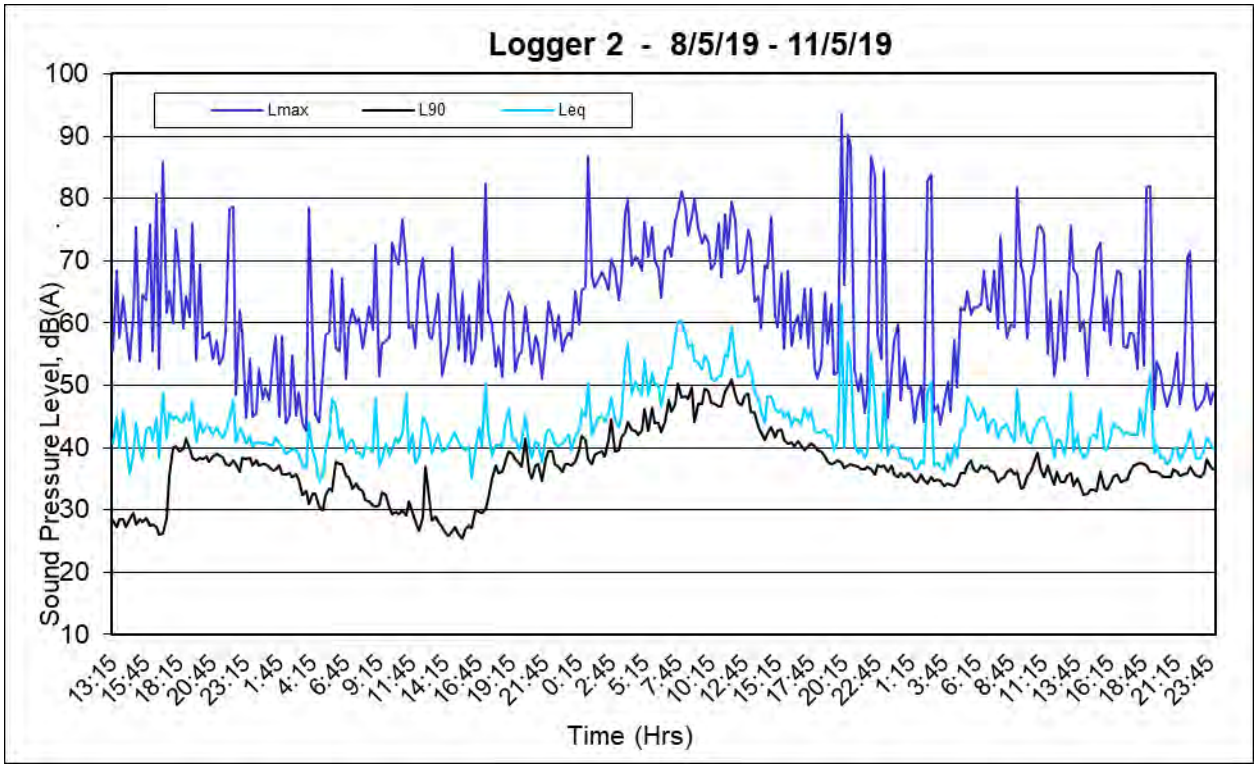
Neil Pennington
Acoustical Consultant

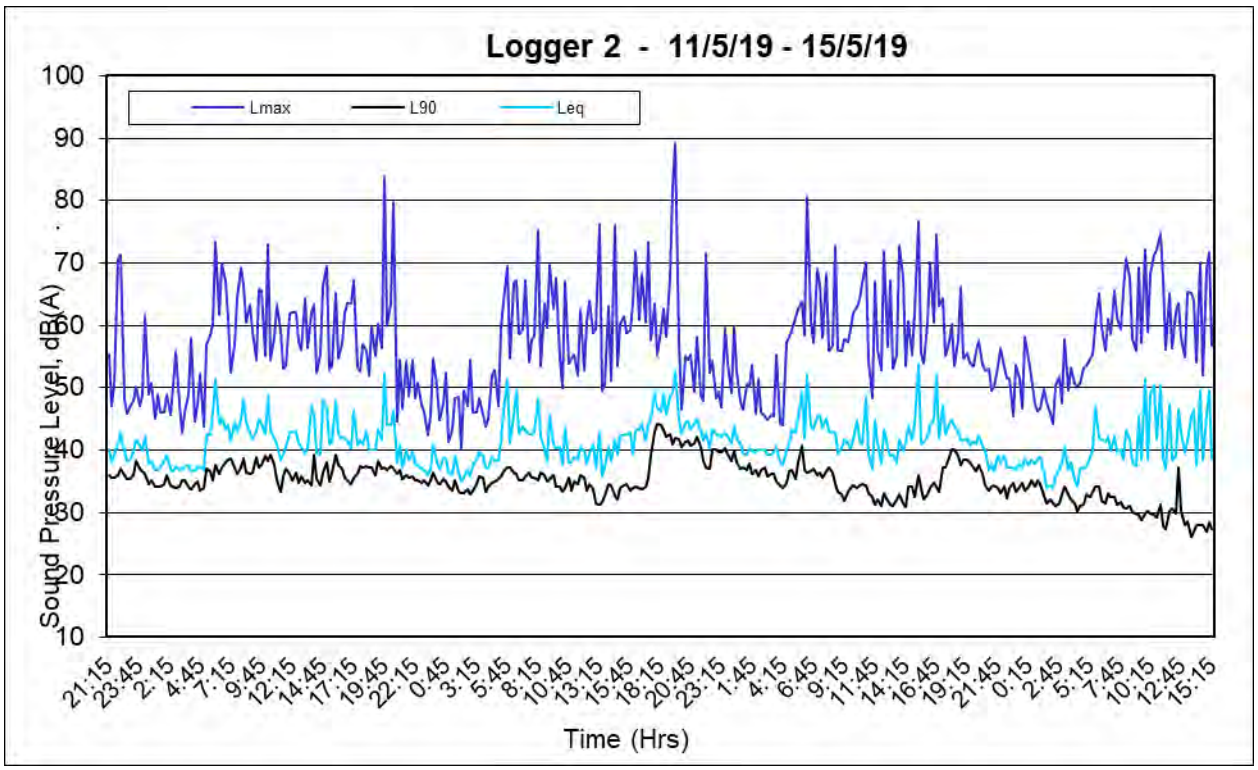
APPENDIX A

NOISE LOGGER CHARTS






Logger 2 - 8/5/19 - 11/5/19
Lmax
L90
Leq
Sound Pressure Level, dB(A)
Time (Hrs)


Logger 2 - 11/5/19 - 15/5/19
Lmax
L90
Leq
Sound Pressure Level, dB(A)
Time (Hrs)

16 September 2019

Ref: 161308/8348

Daracon Quarries Pty Ltd
PO Box 299
WALLSEND NSW 2287

RE: AUGUST 2019 NOISE MONITORING RESULTS – ARDGLEN QUARRY

This letter report presents the results of attended noise monitoring conducted for the Ardglen Quarry (AQ) between Friday 23rd and 30th August 2019. The monitoring was carried out to measure noise emissions from the operations of the quarry. Noise monitoring was carried out in accordance with the conditions of the AQ Noise Monitoring Plan (NMP) as detailed below.

NOISE CRITERIA

*The Proponent shall ensure that the noise generated by the project does not exceed the noise impact assessment criteria in **Table 1** at any residence on privately-owned land, or more than 25% of any privately owned land.*

Table 1
Noise Impact Assessment Criteria

Land	*Day*	*Evening*	*Night*	
	Leq (15 min)	*Leq (15 min)*	*Leq (15 min)*	*L1 (1 min)*
1 Burraston	*35*	*35*	*35*	*45*
3 Rose	*35*	*35*	*35*	*45*
4 C M Thompson	*44*	*35*	*35*	*45*
5 M Taylor	*45*	*35*	*35*	*45*
6 S Thompson	*45*	*35*	*35*	*45*
9 Bates	*37*	*35*	*35*	*45*
10 Avery	*38*	*35*	*35*	*45*
11 Shipman	*37*	*35*	*35*	*45*
12 Hall	*36*	*35*	*35*	*45*
13 McGhie	*35*	*35*	*35*	*45*
14 Purtell	*36*	*35*	*35*	*45*
15 J Taylor	*43*	*35*	*35*	*45*
16 Bojba	*40*	*35*	*35*	*45*
All other privately owned land	*35*	*35*	*35*	*45*

However, if the Proponent has a written negotiated noise agreement with any landowner of the land listed in Table 1, and a copy of this agreement has been forwarded to the Department and the DECCW, then the Proponent may exceed the noise limits in Table 1 in accordance with the negotiated agreement. The Proponent may also exceed the L1 (1 min) and Leq (15 min) noise impact criteria during out of hours rail loading activities provided they are conducted in accordance with Section 3, Condition 41 of the Project Approval (which is reproduced below).

> *41. The Proponent may only load a maximum of 2 trains outside the rail loading and distribution hours listed in Table 1 (of the Project Approval, being Monday to Sunday 7:00am to 10:00pm) in any 12 month period, unless agreed in writing by the Director General.*
>
> *Notes:*
>
> - *For information on the numbering and identification of properties used in this approval see Figure 2 on Page 14 of this Noise Monitoring Program).*
> - *To determine compliance with the LAeq (15 minute) noise limits, noise from the project is to be measured at the most affected point on or within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary. Where it can be demonstrated that direct measurement of noise from the development is impractical, the DECCW may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.*
> - *To determine compliance with the L1 (1 minute) noise limits, noise from the project is to be measured 1m from the dwelling facade. Where it can be demonstrated that direct measurement of noise from the development is impractical, the DECCW may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy).*
> - *The noise emission limits identified in the above table apply under meteorological conditions of:*
>   - *wind speeds of up to 3 m/s at 10 metres above ground level; or*
>   - *Temperature inversion conditions of up to 3ºC/100m, and wind speeds of up to 2 m/s at 10 metres above ground level.*

NOISE MONITORING LOCATIONS

Noise measurement locations for the attended noise survey are listed below and shown in the accompanying **Figure 1**:

Location 4: C M Thompson
Location 13: McGhie
Location 14: Purtell
Location 16: Bojba

Figure 1 – Attended Noise Monitoring Locations

ATTENDED NOISE MEASUREMENTS

Noise emission levels were measured with a Brüel & Kjær Type 2260 Precision Sound Analyser. This instrument has Type 1 characteristics as defined in AS1259-1982 "Sound Level Meters". Calibration of the instrument was confirmed with a Brüel & Kjær Type 4231 Sound Level Calibrator prior to and at the completion of measurements.

Meteorological data used in this report was obtained from a hand held weather station with measurements made at approximately 2.5m above ground level. The weather throughout the survey was cool with relatively clear skies. The wind speed was generally around 2.5 to 3 m/s from the south.

The quarry operates on an ad hoc basis as and when demand dictates. Throughout the current monitoring period the quarry was not operating.

RESULTS OF ATTENDED MONITORING

The measured noise levels, over 1 second intervals, were analysed using Brüel & Kjær "*Evaluator*" software. The software enables the contributions of the quarry and other significant noise sources to the overall to be quantified.

Noise levels were recorded for each of the Leq (15 min), Lmax, L1, L10, L90 and Lmin percentiles. As shown in Table 1, the noise criterion for AQ during the day is based on an Leq noise level. The results, shown in **Table 2**, represent the total 15 minute Leq noise level for all noise sources and the relative contributions of each. Levels for the other percentiles are not shown as they have no compliance criteria for comparison but are available on request. The exception is the L1 (1 min) noise level (which is the standard measure of sleep disturbance) which is applicable to noise emissions at night (i.e. between 10 pm and 7 am).

TABLE 2
Ardglen Quarry Noise Monitoring Results –
30th August 2019 (Day)

Location	Time	dB(A),L_{eq}	Wind speed/ direction	Identified Noise Sources
4. Thompson	1:15 pm	43	2.5 m/s SE	Traffic (43), birds (30), **AQ inaudible**
13. McGhie	1:40 pm	55	2.7 m/s SE	Trains (54), traffic (47), birds (30), **AQ inaudible**
14. Purtell	2:01 pm	44	2.8 m/s SE	Traffic (44), **AQ (inaudible)**
16. Bojba	12:46 pm	54	2.0 m/s SE	Traffic (54), **AQ inaudible**

The results in Table 2 show that under the operating conditions at the time the noise emissions from AQ were inaudible and, therefore, compliant with the relevant noise criteria at all monitoring locations.

The results of the noise monitoring programme have shown that AQ is operating within approved noise limits. No actions are recommended with respect to noise management at the Quarry.

UNATTENDED NOISE MEASUREMENTS

The NMP requires that unattended noise logging be undertaken over a period of seven days, part of which coincides with the quarterly attended noise monitoring.

To measure the acoustic environment Rion NL-42 sound level meters, set up as environmental noise loggers, were located as shown in Figure 2 from 23rd to 30th August, 2019. **Table 3** shows a summary of the relevant measured data from the loggers which is also shown graphically in **Appendix I**.

TABLE 3
Measured Logger Noise Levels dB(A)
23rd to 30th May, 2019

Logger Location	Day (7am to 6pm)		Evening (6pm to 10 pm)		Night (10pm to 7am)	
	Leq	L90	Leq	L90	Leq	L90
Logger 1	54	37	54	30	55	31
Logger 2	50	31	49	36	49	31

Figure 2 – Unattended Noise Monitoring Locations

The logger locations were chosen to be representative of the acoustic environment of the closest residences to the quarry and for security reasons.

Logger 1 was located on the fence at location R 14. This is adjacent to the attended noise monitoring location for this residence. Logger 2 was in an open paddock north of the house.

The unattended noise loggers measure the total noise level in the environment but the data cannot discriminate between various noise sources. As such, the data is presented here with no further analysis.

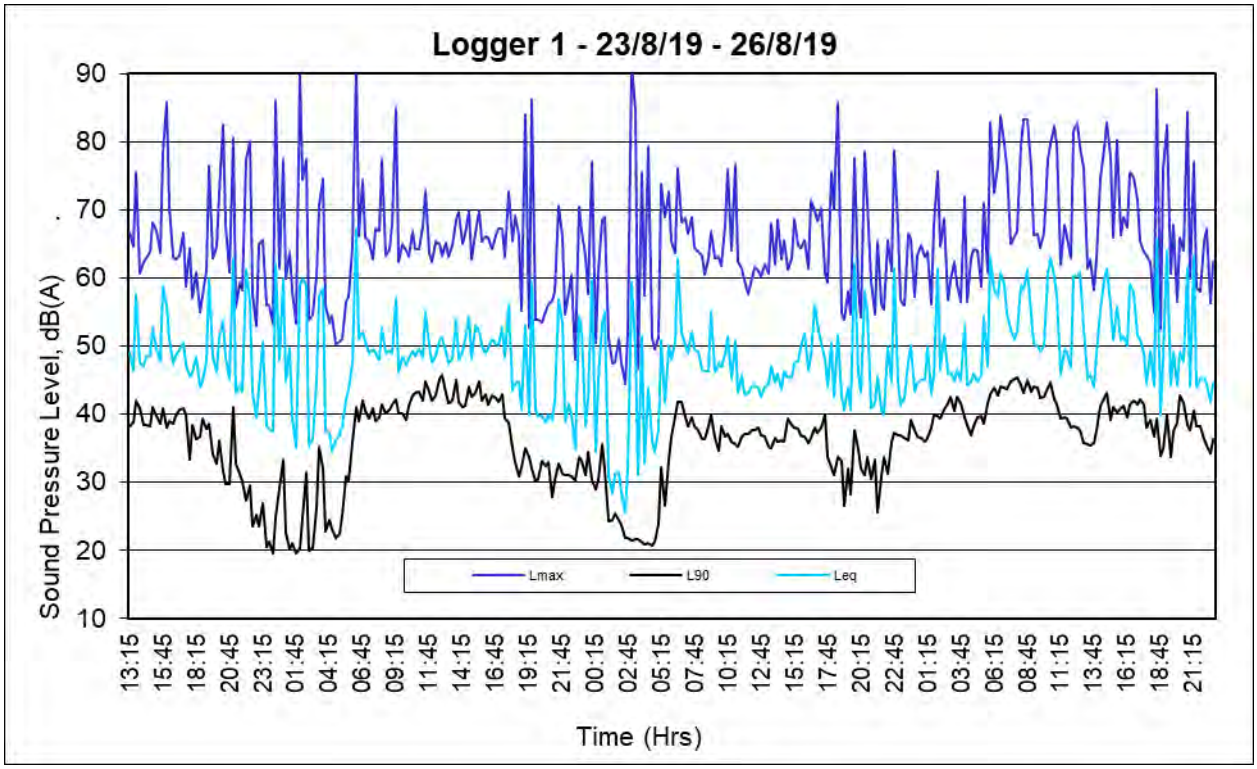
We trust this report fulfils your requirements at this time, however, should you require additional information or assistance please contact the undersigned on 4954 2276.

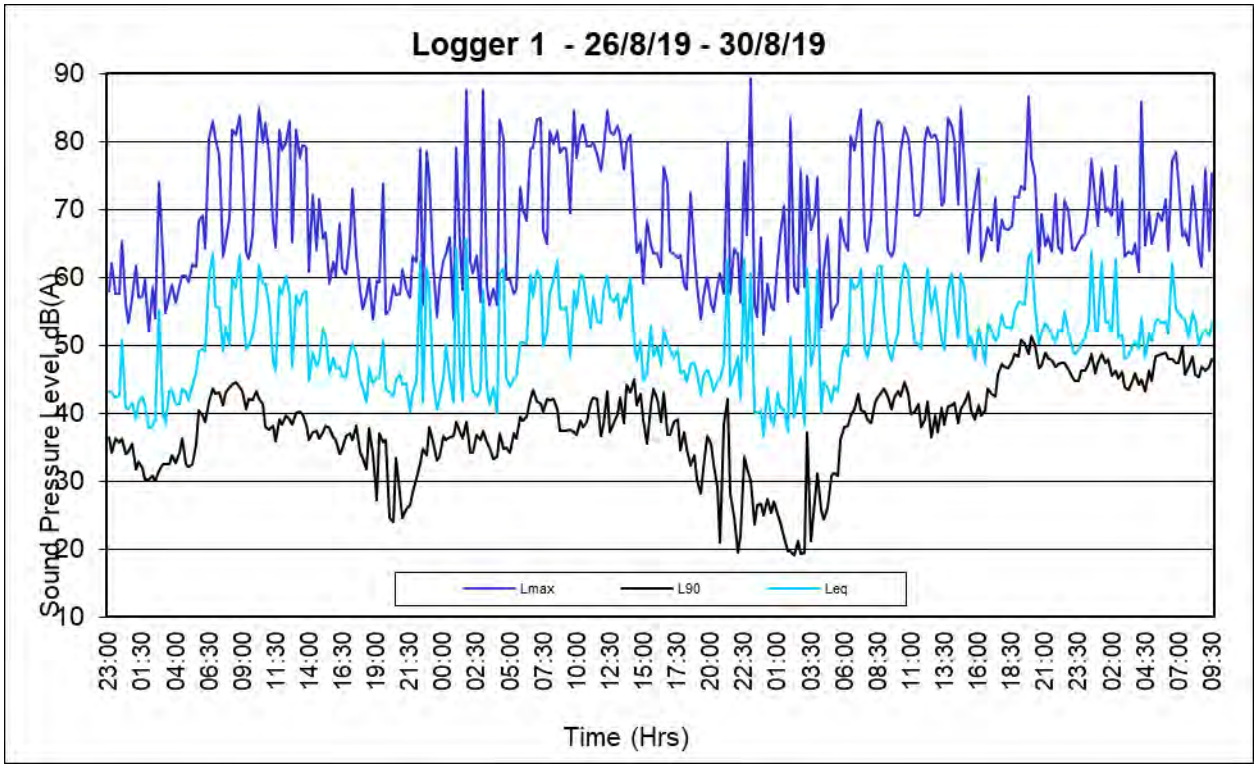
Yours faithfully,
SPECTRUM ACOUSTICS PTY LIMITED

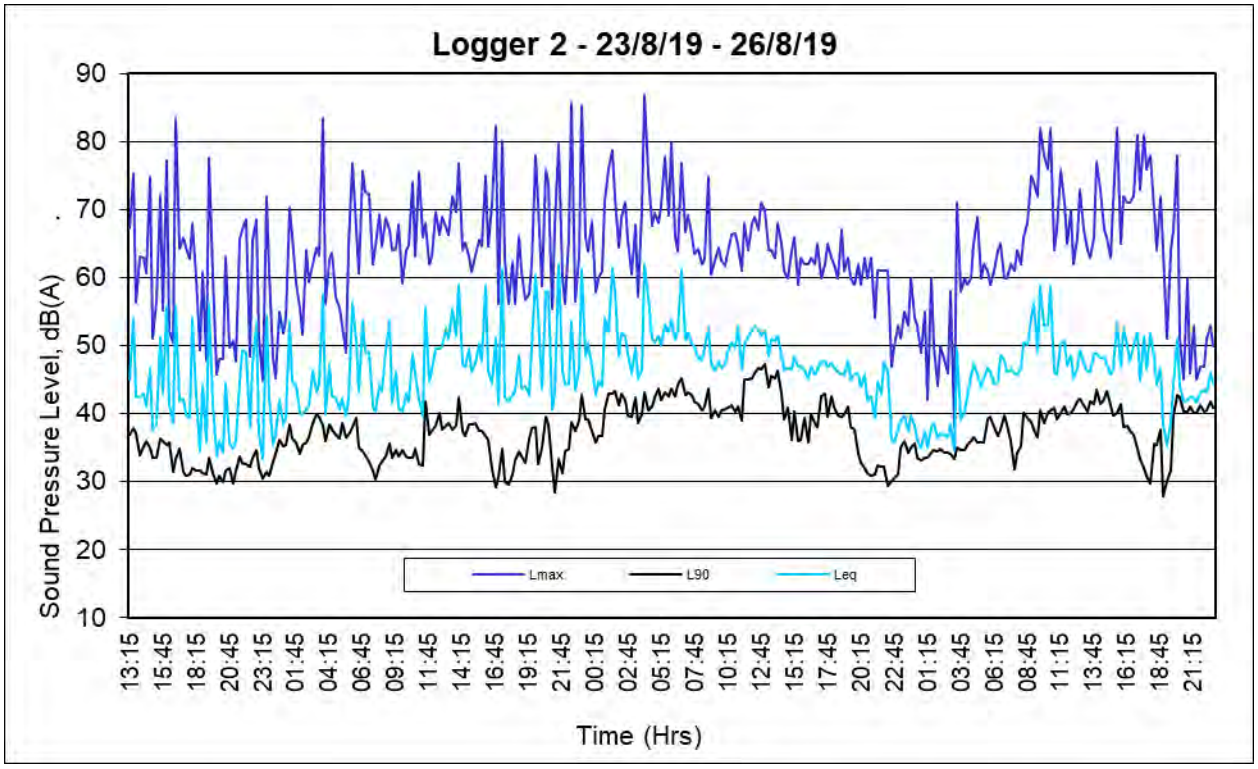
Author:

Ross Hodge
Acoustical Consultant

APPENDIX A
NOISE LOGGER CHARTS






Logger 2 - 23/8/19 - 26/8/19
Sound Pressure Level, dB(A)
90
80
70
60
50
40
30
20
10
Lmax
L90
Leq
13:15
15:45
18:15
20:45
23:15
01:45
04:15
06:45
09:15
11:45
14:15
16:45
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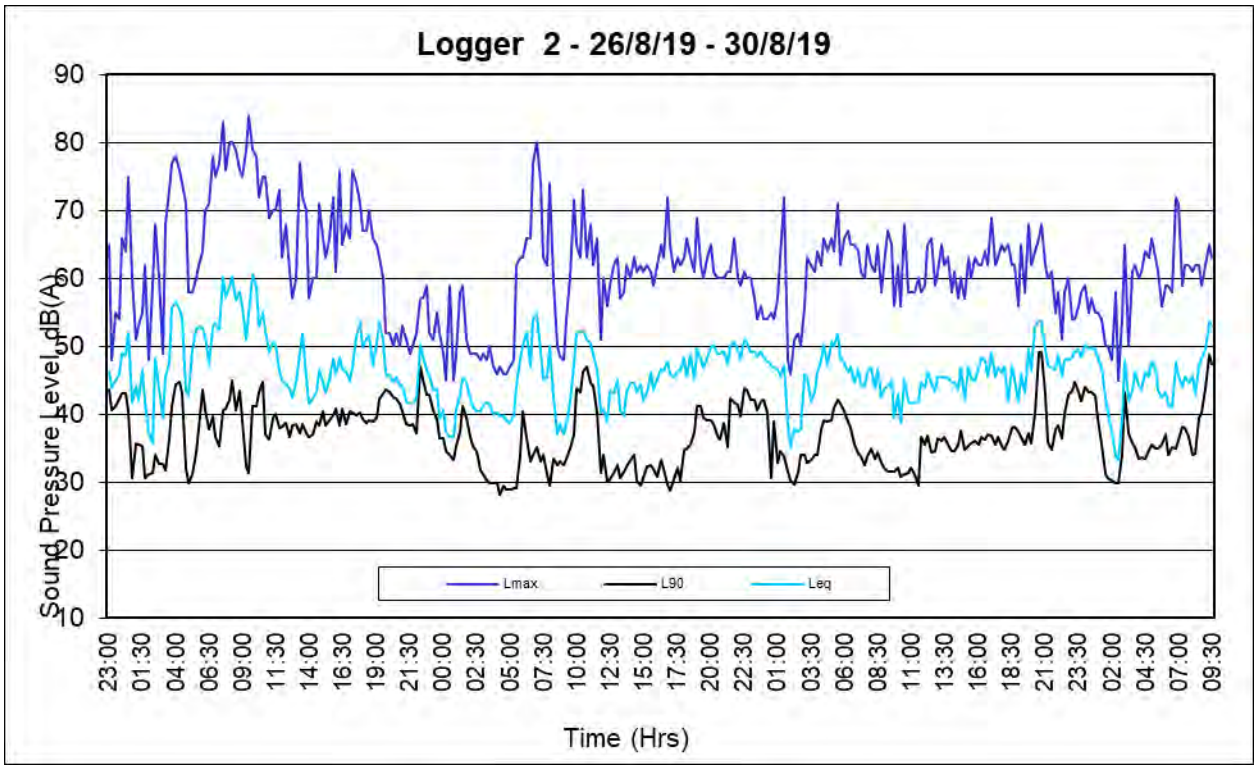
18:45
21:15
Time (Hrs)


Logger 2 - 26/8/19 - 30/8/19
Sound Pressure Level, dB(A)
90
80
70
60
50
40
30
20
10
Lmax
L90
Leq
23:00
01:30
04:00
06:30
09:00
11:30
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02:00
04:30
07:00
09:30
Time (Hrs)

26 November 2019

Ref: 161308/8734

Daracon Quarries Pty Ltd
PO Box 299
WALLSEND NSW 2287

RE: NOVEMBER 2019 NOISE MONITORING RESULTS – ARDGLEN QUARRY

This letter report presents the results of attended and unattended noise monitoring conducted for the Ardglen Quarry (AQ) between Friday 15th and 22nd November, 2019. The monitoring was carried out to measure noise emissions from the operations of the quarry. Noise monitoring was carried out in accordance with the conditions of the AQ Noise Monitoring Plan (NMP) as detailed below.

NOISE CRITERIA

*The Proponent shall ensure that the noise generated by the project does not exceed the noise impact assessment criteria in **Table 1** at any residence on privately-owned land, or more than 25% of any privately owned land.*

Table 1
Noise Impact Assessment Criteria

Land	*Day*	*Evening*	*Night*	
	Leq (15 min)	*Leq (15 min)*	*Leq (15 min)*	*L1 (1 min)*
1 Burraston	*35*	*35*	*35*	*45*
3 Rose	*35*	*35*	*35*	*45*
4 C M Thompson	*44*	*35*	*35*	*45*
5 M Taylor	*45*	*35*	*35*	*45*
6 S Thompson	*45*	*35*	*35*	*45*
9 Bates	*37*	*35*	*35*	*45*
10 Avery	*38*	*35*	*35*	*45*
11 Shipman	*37*	*35*	*35*	*45*
12 Hall	*36*	*35*	*35*	*45*
13 McGhie	*35*	*35*	*35*	*45*
14 Purtell	*36*	*35*	*35*	*45*
15 J Taylor	*43*	*35*	*35*	*45*
16 Bojba	*40*	*35*	*35*	*45*
All other privately owned land	*35*	*35*	*35*	*45*

However, if the Proponent has a written negotiated noise agreement with any landowner of the land listed in Table 1, and a copy of this agreement has been forwarded to the Department and the DECCW, then the Proponent may exceed the noise limits in Table 1 in accordance with the negotiated agreement. The Proponent may also exceed the L1 (1 min) and Leq (15 min) noise impact criteria during out of hours rail loading activities provided they are conducted in accordance with Section 3, Condition 41 of the Project Approval (which is reproduced below).

> *41. The Proponent may only load a maximum of 2 trains outside the rail loading and distribution hours listed in Table 1 (of the Project Approval, being Monday to Sunday 7:00am to 10:00pm) in any 12 month period, unless agreed in writing by the Director General.*
>
> *Notes:*
>
> - *For information on the numbering and identification of properties used in this approval see Figure 2 on Page 14 of this Noise Monitoring Program).*
> - *To determine compliance with the LAeq (15 minute) noise limits, noise from the project is to be measured at the most affected point on or within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary. Where it can be demonstrated that direct measurement of noise from the development is impractical, the DECCW may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.*
> - *To determine compliance with the L1 (1 minute) noise limits, noise from the project is to be measured 1m from the dwelling facade. Where it can be demonstrated that direct measurement of noise from the development is impractical, the DECCW may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy).*
> - *The noise emission limits identified in the above table apply under meteorological conditions of:*
>   - *wind speeds of up to 3 m/s at 10 metres above ground level; or*
>   - *Temperature inversion conditions of up to 3ºC/100m, and wind speeds of up to 2 m/s at 10 metres above ground level.*

NOISE MONITORING LOCATIONS

Noise measurement locations for the attended noise survey are listed below and shown in the accompanying **Figure 1**:

Location 4: C M Thompson
Location 13: McGhie
Location 14: Purtell
Location 16: Bojba

Figure 1 – Attended Noise Monitoring Locations

ATTENDED NOISE MEASUREMENTS

Noise emission levels were measured with a Brüel & Kjær Type 2260 Precision Sound Analyser. This instrument has Type 1 characteristics as defined in AS1259-1982 "Sound Level Meters". Calibration of the instrument was confirmed with a Brüel & Kjær Type 4231 Sound Level Calibrator prior to and at the completion of measurements.

Meteorological data used in this report was obtained from a hand held weather station with measurements made at approximately 2.5m above ground level. The weather throughout the survey was warm with relatively clear skies. The wind speed was generally around 2.0 to 3.0 m/s from the north to north west.

The quarry operates on an ad hoc basis as and when demand dictates. Throughout the current monitoring period the quarry was not operating.

RESULTS OF ATTENDED MONITORING

The measured noise levels, over 1 second intervals, were analysed using Brüel & Kjær "*Evaluator*" software. The software enables the contributions of the quarry and other significant noise sources to the overall to be quantified.

Noise levels were recorded for each of the Leq (15 min), Lmax, L1, L10, L90 and Lmin percentiles. As shown in Table 1, the noise criterion for AQ during the day is based on an Leq noise level. The results, shown in **Table 2**, represent the total 15 minute Leq noise level for all noise sources and the relative contributions of each. Levels for the other percentiles are not shown as they have no compliance criteria for comparison but are available on request. The exception is the L1 (1 min) noise level (which is the standard measure of sleep disturbance) which is applicable to noise emissions at night (i.e. between 10 pm and 7 am).

TABLE 2
Ardglen Quarry Noise Monitoring Results – 22nd November 2019 (Day)

Location	Time	dB(A),L_{eq}	Wind speed/ direction	Identified Noise Sources
4. Thompson	10:49 am	48	2.0 m/s N	Traffic (48), birds (35), **AQ inaudible**
13. McGhie	11:35 am	40	3.0 m/s NW	Traffic (40), birds (25), **AQ inaudible**
14. Purtell	11:10 am	43	2.5 m/s NW	Traffic (43), **AQ inaudible**
16. Bojba	10:30 am	50	2.0 m/s N	Traffic (50), **AQ inaudible**

The results in Table 2 show that under the operating conditions at the time the noise emissions from AQ were inaudible and, therefore, compliant with the relevant noise criteria at all monitoring locations.

The results of the noise monitoring programme have shown that AQ is operating within approved noise limits. No actions are recommended with respect to noise management at the Quarry.

UNATTENDED NOISE MEASUREMENTS

The NMP requires that unattended noise logging be undertaken over a period of seven days, part of which coincides with the quarterly attended noise monitoring.

To measure the acoustic environment Rion NL-42 sound level meters, set up as environmental noise loggers, were located as shown in Figure 2 from 15th to 22nd November, 2019. **Table 3** shows a summary of the relevant measured data from the loggers which is also shown graphically in **Appendix I**.

TABLE 3
Measured Logger Noise Levels dB(A) - 15th to 22nd, November 2019

Logger Location	Day (7am to 6pm)		Evening (6pm to 10 pm)		Night (10pm to 7am)	
	Leq	L90	Leq	L90	Leq	L90
Logger 1	48	36	50	37	50	37
Logger 2	56	41	45	36	43	36

Figure 2 – Unattended Noise Monitoring Locations

The logger locations were chosen to be representative of the acoustic environment of the closest residences to the quarry and for security reasons.

Logger 1 was located on the fence at location R 14. This is adjacent to the attended noise monitoring location for this residence. Logger 2 was in an open paddock north of the house.

The unattended noise loggers measure the total noise level in the environment but the data cannot discriminate between various noise sources. As such, the data is presented here with no further analysis.

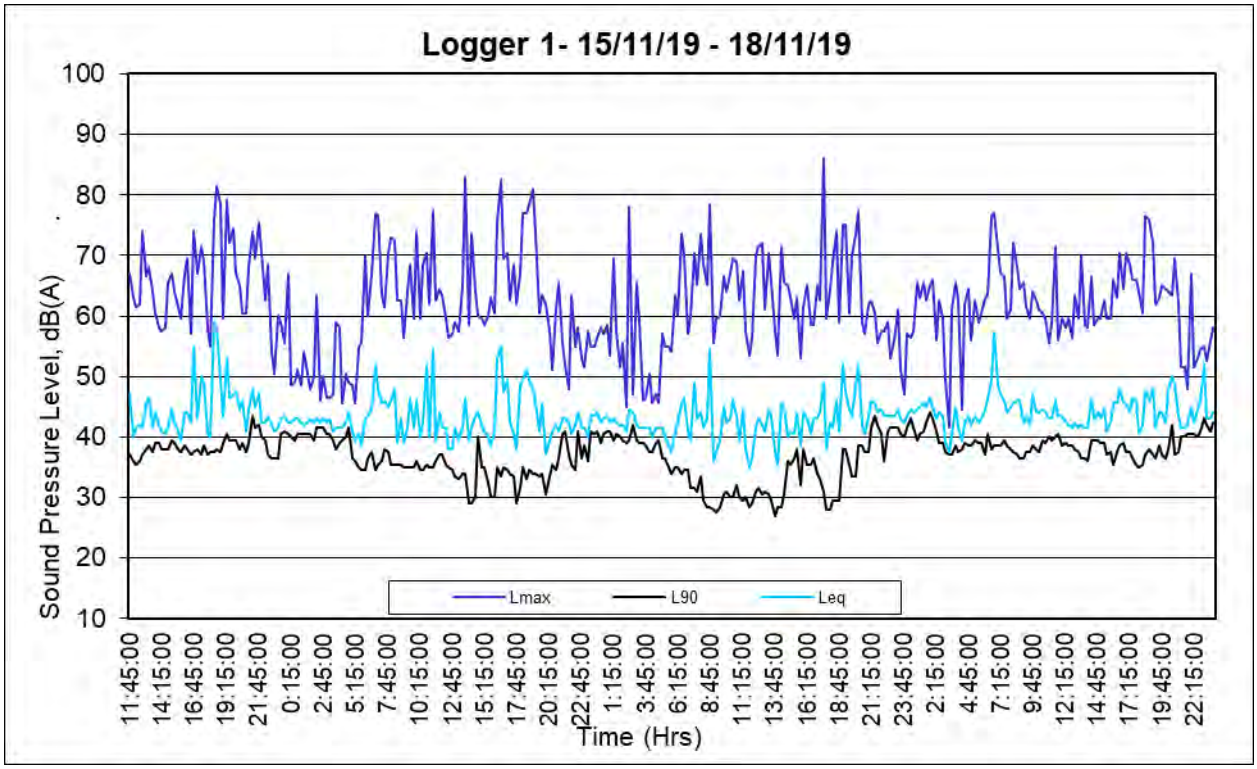
We trust this report fulfils your requirements at this time, however, should you require additional information or assistance please contact the undersigned on 4954 2276.

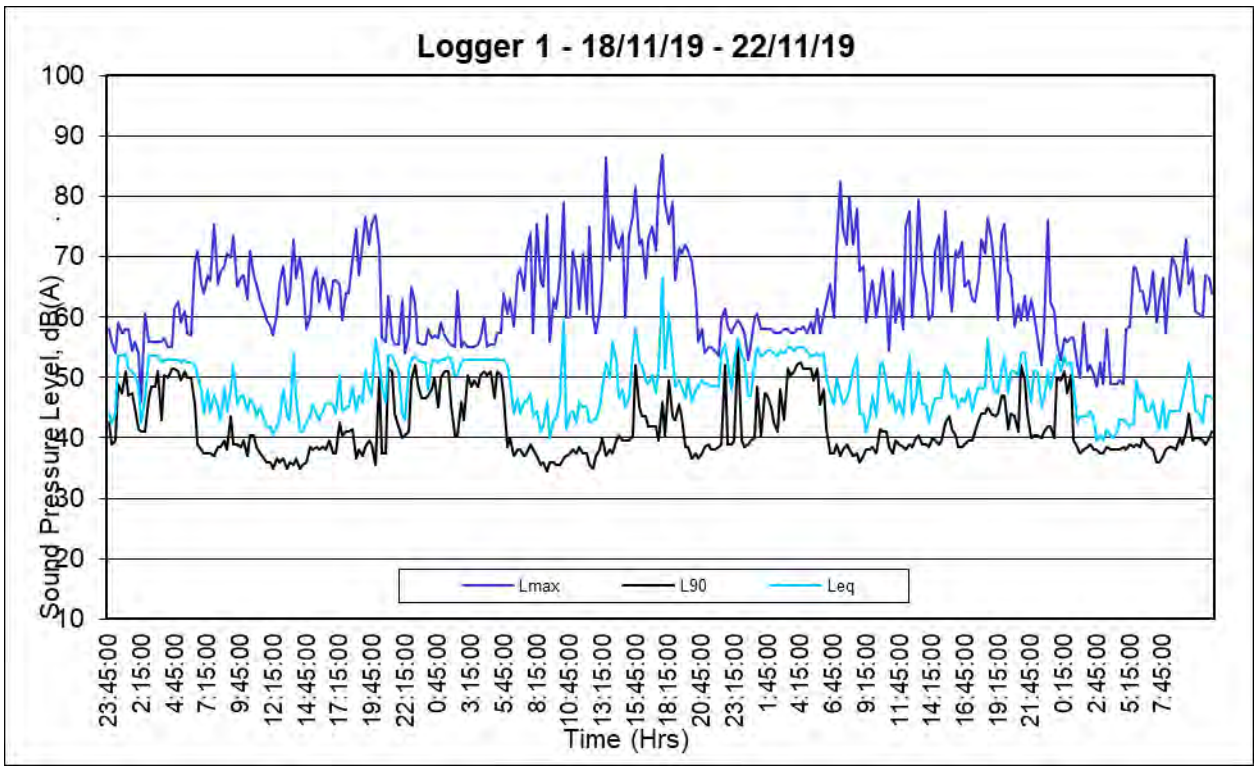
Yours faithfully,
SPECTRUM ACOUSTICS PTY LIMITED

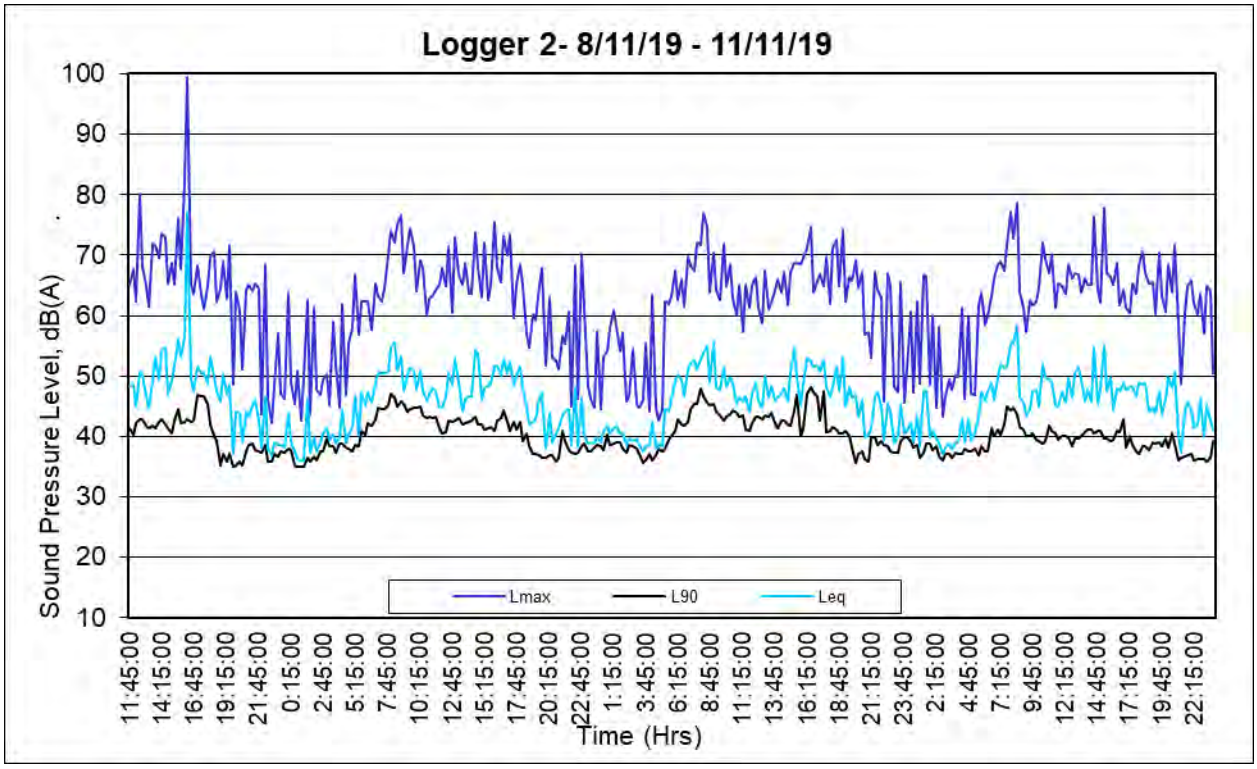
Author:

Ross Hodge
Acoustical Consultant

APPENDIX A
NOISE LOGGER CHARTS






Logger 2- 8/11/19 - 11/11/19
Sound Pressure Level, dB(A)
100
90
80
70
60
50
40
30
20
10
Lmax
L90
Leq
11:45:00
14:15:00
16:45:00
19:15:00
21:45:00
0:15:00
2:45:00
5:15:00
7:45:00
10:15:00
12:45:00
15:15:00
17:45:00
20:15:00
22:45:00
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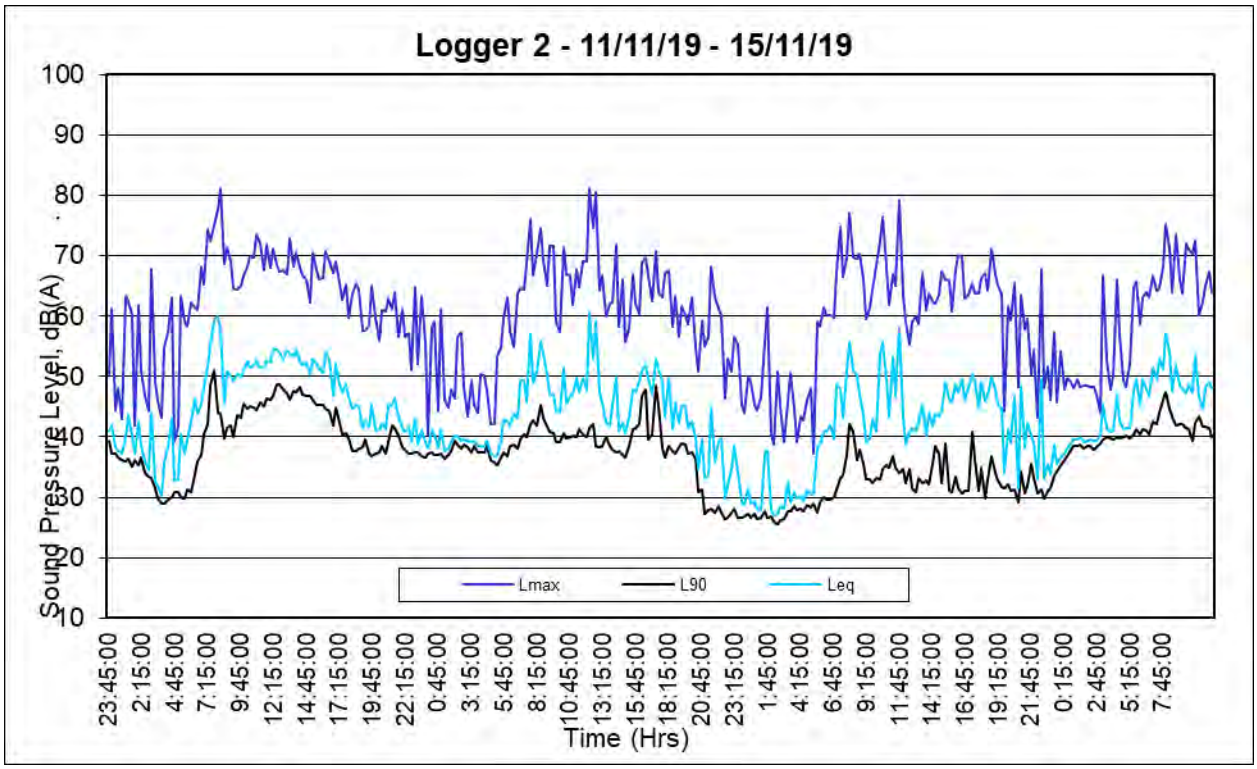
3:45:00
6:15:00
8:45:00
11:15:00
13:45:00
16:15:00
18:45:00
21:15:00
23:45:00
2:15:00
4:45:00
7:15:00
9:45:00
12:15:00
14:45:00
17:15:00
19:45:00
22:15:00
Time (Hrs)


Logger 2 - 11/11/19 - 15/11/19
Sound Pressure Level, dB(A)
100
90
80
70
60
50
40
30
20
10
Lmax
L90
Leq
23:45:00
2:15:00
4:45:00
7:15:00
9:45:00
12:15:00
14:45:00
17:15:00
19:45:00
22:15:00
0:45:00
3:15:00
5:45:00
8:15:00
10:45:00
13:15:00
15:45:00
18:15:00
20:45:00
23:15:00
1:45:00
4:15:00
6:45:00
9:15:00
11:45:00
14:15:00
16:45:00
19:15:00
21:45:00
0:15:00
2:45:00
5:15:00
7:45:00
Time (Hrs)

Appendix 3 2019 Community Consultative Committee Meeting Minutes

PEP Consulting
Positive Environmental Planning

Ardglen Quarry Community Consultative Committee
Meeting Notes

Murrurundi Library, 3-5pm Tuesday 7th May 2019

Attendees:
Shay Riley-Lewis (Independent Chairperson)

Luke Robinson (Daracon)

John Cannon (Daracon)

Dell Ross (Community Representative)

Megan Taylor (Community Representative)

Bill Avery (Community Representative)

Donna Ausling (Liverpool Plains Shire Council)

1. Welcome and introductions

2. Apologies

Apologies were received from Christine Thomson (Community Representative), and Anna Cronin (Crown Lands).

3. Confirmation of previous minutes of meeting held 16th October 2018

Request from MT that the minutes reflect that only CCC members can vote on the facilitator role and not the broader public. Minutes were otherwise confirmed.

4. Issues raised from previous minutes

- MT to advise registration/identification of speeding drivers when spotted.

  MT reported the following white trucks repeatedly speeding to/from the quarry: YN16KN and BT52YU. Caltex trucks also speed in and out. Other trucks are fine.

ACTION: JC to follow up drivers and reprimand.

- Daracon advise CCC before any blasting or crushing to occur.

  No crushing or blasting is planned at this stage and Daracon will notify the CCC before these are likely to occur.

- LR to arrange tidy up of vacant Daracon properties.

  Tidy up of Daracon properties commenced last week with general tidy up and vegetation management. Rubbish and dumped car remain and are to be removed in due course.

DA: Council has received complaints about the rubbish. Council's Compliance Officer (Steve Ryder) has been in contact with Daracon management.

ACTION: DA to arrange SR to contact LR directly regarding the complaints received.

ACTION: LR to action clean up.

5. Planned activities

Refer Daracon presentation slides.

ACTION: LR to upload Annual Report to dropbox.

Dust

- One exceedance recorded in August 2018 (dust deposition gauge (DDG), total suspended particulates and PM10), related to the severe dust storms.
- The majority of in the DDG was organic matter.
- EPA criteria is an annual average. Therefore one spike does not exceed the site approved criteria.
- Two non-compliances were reported in December 2018 where the High Volume Air Sampler (HVAS) did not run for the required 24hours due to power outages.
- All non-compliances and incidents were reported to the DPE in accordance with the consent.
- Additionally, all relevant monitoring data is reported to the Environment Protection Authority (EPA) in the Annual Return documentation.

Environmental Audit

Audit of compliance with conditions of consent identified the following key issues (refer to the table in slides for complete audit list of actions):

1. Increase noise monitoring to quarterly
2. Rehabilitation to commence shortly. Landscape and Rehabilitation Plan being updated to be submitted to DPE in May 2019.
3. Biodiversity offsets committed for the extension area approvals are undergoing formal protection process. Daracon land is undergoing BAM certification (or similar subject to further advice from the Biodiversity Conservation Trust (BCT)) to ensure ongoing protection as required by the legislation.
4. Road safety audit action recommendations have commenced.
5. JC has investigated wild goat control.

ACTION: LR or JC to advise residents before any feral controls are implemented.

Q (DR): Will actions address wild deers too? Presence of deers has attracted unwanted poachers onto private properties recently.

JC: A licenced hunter has approached Daracon to assist with this process.

Q (BA): It would be good if they could reduce the noise of the airbag trucks but know it's unlikely.

LR: We will speak with the drivers but we agree with BA that it's unlikely that we'll be able to reduce noise of airbag trucks (when empty) unfortunately.

Scone Bypass

Carting to continue for another few months.

DA: Human shaped signs are being used throughout the construction site to reduced change of barricades being run over. Hands up indicates powerlines overhead, hands down indicates a hole.

6. Section 75W modification – Proposed consent modification #2

As advised by the DPE, this is now being processed via the state significant development, section 4.55(2) pathway.

Modification includes increasing road haulage to 100%.

Noise bunds have been included to address EPA concern regarding compliance. Noise mitigation measures comprise:

- crusher pad height reduced
- 7m high, 14m long barrier at jaw crusher
- 4m high barrier at the northern ridge of the site
- 5m high noise bund at pad embankment

The modification has been updated in consultation with EPA, LPSC and Crown Lands. It is not clear if DPE plan to re-exhibit the updated modification.

DA: It would be confusing to the community if it were re-exhibited. The community won't realise it's only a function of the legislation and not a demonstrable change from the proposal that was already exhibited.

DA: What happens to the fixed plant?

LR: fixed plant will be demolished and disposed of appropriately

LR met with Anna Cronin (Crown Lands) onsite who confirmed there is no Travelling Stock Reserve (TSR) within the quarry land or access road. Anna offered to address any further community inquiries regarding TSR directly.

LR has discussed the potential increase in truck movements with the local bus company 'Howards' who did not express any specific concerns.

Pedestrian and stock access over the rail bridge to be incorporated into the management plan. If stock are to be moved, Daracon are happy to manage truck movements while stock cross the road in consultation with the relevant community members.

Rail transport may still be used in the future.

DR: How many years until the proposed modifications are implemented?

LR: We do not specifically know the exact timeframes with the modification process but expect it to be approximately six months for DPE approval of the modification and then approximately six months for construction. However Daracon are unlikely to start construction until there is a market need due the high cost of equipment (eg the crusher alone is around $850K).

Noise

Construction noise is predicted to exceed criteria by 2-3dBA at Christine Thomson's and Bill Avery's properties. EPA require Daracon to contact affected property owners to discuss potential mitigation options.

Mitigation measures include arranging noisy work to periods when affected residents are not home, house treatments, noise screens, temporary relocations etc. Potential noise mitigation measures will be included on the management plan and refined post-approval.

ACTION: SRL to contact CT to invite a discussion with LR regarding noise mitigation options.

[Note: Action completed – SRL contacted CT on 9.5.19 to discuss the predicted noise impacts and inquire if LR could contact her to discuss suitable noise mitigation measures for construction. CT declined the offer to discuss options with LR and will not accept any exceedance of EPA criteria]

ACTION: LR to discuss noise mitigation options with BA.

7. Questions/Issues

Operating Hours [Issue raised prior to meeting]

CT contacted SRL on 18th April 2019 at 6:30am concerned that trucks were entering and leaving the site outside the approved hours. SRL contacted LR who referenced the conditions of consent that certain activities (including truck access/egress to site) are permitted from 6:30am. This information was promptly conveyed to CT who was satisfied.

MT: Council water cart is on the access road regularly. Where is the water coming from? Does it affect the availability of local bore water?

LR: To assist LPSC with their ongoing unsealed road maintenance, Daracon intermittently permit the LPSC watercart access to site to obtain small amounts of water from the pit sump.

ACTION: LR to investigate source of water and advise if there is potential for groundwater impacts on bore water availability.

MT: The Quirindi Advocate 27/3/19 article that High Street is being divested by Council. All of High Street from the causeway to east needs maintenance.

DA: A report presented to Council describes the context of this divestment.

ACTION: DA to provide a copy of the Council report to the CCC.

[Note: Action complete. Council report provided as Attachment 4]

ACTION: DA to confirm who is responsible for maintenance of the gravel section.

BA: Car with trailer arrived at the quarry Monday night. Who is available after hours for any security concerns?

JC: If you are worried for your safety then call LR, SRL or 'Snow' (Scott Brown). However the quarry is insured so don't risk yourself.

DR: The quarry has security signs and cameras to deter trespassers.

8. Pecuniary interests

- SRL is no longer working on the Scone Bypass project. A conflict of interest concern was raised by a community member to the DPE. SRL responded to the DPE (refer Attachment 2) outlining the roles on both the Scone Bypass and Ardglen CCC have no influence on decision making and present no conflict of interest. This has been accepted by DPE.

  A letter (refer Attachment 3) was also sent to the Ardglen residents outlining the role of the Ardglen CCC and the facilitator and encouraging residents to contact SRL with any queries. No feedback has been received.

- Dell Ross leases Daracon owned property in Ardglen. DPE have been advised and are satisfied with Dell's role on the CCC.

9. Date of next meeting

Next meeting is scheduled for 9:00am Tuesday 26th November 2019.

Meeting Closed at 4:40pm.

Attachments:

1. Daracon presentation
2. Conflict of Interest response to DPE (dated 27th November 2018)
3. Letter to Ardglen residents (dated 4th February 2019)
4. Council Report regarding High Street divestment

PEP Consulting
Positive Environmental Planning

Ardglen Quarry Community Consultative Committee
Meeting Notes

Murrurundi Library, 9am Tuesday 26th November 2019

Attendees:
Shay Riley-Lewis (Independent Chairperson)
Dan Smith (Daracon)
John Cannon (Daracon)
David Mingay (Daracon)
Dell Ross (Community Representative)
Megan Taylor (Community Representative)
Bill Avery (Community Representative)
Christine Thompson (Community Representative)
Alice Elsley (Liverpool Plains Shire Council)
Michelle Reed (Crown Lands Department)
Jeff Phillips (Crown Lands Department)

Observers:
Lauren Evans (Department Planning, Industry and Environment)
Genevieve Lucas (Department Planning, Industry and Environment)
David Bates (Community member)

1. Welcome and introductions

2. Apologies

Apologies were received from Luke Robinson of Daracon.

3. Confirmation of previous minutes of meeting held 7th May 2019

Minutes were confirmed. CT noted the summary did not accurately reflect the conversation but no edits were provided since the issue is to be discussed later in this agenda.

4. Pecuniary Interest

- The Chair is engaged by Daracon as per the Conditions of Consent in accordance with the NSW Government "Community Consultative Committee Guideline, State Significant Projects, January 2019".
- Dell Ross rents a Daracon owned property at a reduced market rate in return for maintaining the property.
- CT queried whether Liverpool Plains Shire Council (LPSC) receive a discount rate for gravel purchased from the quarry.

ACTION: AE to advise if any discount is provided to Council.

- CT queried if LPSC use of Daracon quarry dam water is a pecuniary interest.

ACTION: AE to advise if LPSC pay for the water.

- CT queried whether provision of the Murrurundi Library free of charge amounted to a pecuniary interest. The quarry is a private commercial entity and should be paying rental for the venue if others are required. SRL noted that the library is part of the Upper Hunter Shire Council which is not the governing council of the quarry.

ACTION: SRL to enquire as to the rate for hire for all other community and commercial entities

SRL discussed the rental hire arrangements and was advised that all public and private entities are available to hire what was the library room free of charge. However, since the internal layout alterations, the room used for the Ardglen CCC meeting on 26/11/19 was the 'office meeting room' which attracts a hire fee of $17.50/hr. This fee will be charged to SRL and passed into Daracon.

5. Issues raised from previous minutes

a) John Cannon to follow up drivers and reprimand

COMPLETE.
JC advised the identified drivers were spoken to and all drivers were toolboxed again about arrival times and driving speed.

MT: Drivers have been seen driving through the village to site at 6:25am.

DS: Acknowledged the complaint received via DPIE. Trucks GPS were reviewed and there was no breach identified. Daracon have however implemented a new procedure requiring trucks to wait until the weighbridge operator calls through at 6:30am confirming approval to proceed to site.

b) Donna Ausling (LPSC) to arrange Steve Ryder (LPSC) to contact Luke Robinson (Daracon) directly regarding the complaints received

COMPLETE.

c) Luke Robinson to action clean up of Daracon property

DS: Daracon have undertaken weed spraying and tidying up of the sites.

CT: It is great Lot 10 was also slashed. However Lot 11 remains overgrown and there are still sleepers on the corner of the level crossing on the corner of Lot 11.

MT: Why has it taken a year to tidy up?

ACTION: DS to investigate if Daracon are able to remove the rubbish that may belong to State Rail. If it can be removed, Daracon will remove it promptly.

ACTION: DS to investigate Lot 11 and tidy up if required.

d) Luke Robinson to upload Annual Report to dropbox.

COMPLETE.

ACTION: SRL to resend the link to the drop box and post a hard copy of Annual Report and Daracon slide presentation to CT.

SRL noted any questions regarding the annual report to contact SRL and answers will be sourced and communicated.

e) Daracon to advise residents before any feral controls are implemented

ONGOING.

JC: Shooter sends text message to properties he will be accessing. There has been shooting feral deer, foxes and pigs and trapping goats. DR confirmed messages are received before access.

f) Luke Robinson to discuss noise mitigation options with Bill Avery

Not complete.

ACTION: Daracon to discuss noise mitigation associated with the proposed modification with BA.

SRL explained the noise modelling for the modification identified potential exceedances in worse case conditions at CT and BA properties. The Environment Protection Authority (EPA) require Daracon discuss mitigation measures with the affected property owners.

CT: Not willing to accept any increase in noise at her property.

JC: Modelling predicted 1-2dBA exceedance of the current allowable noise level during a temporary portion of the construction phase in worse case conditions.

DS: Current approval is 44dBA, modelled predictions at CT and BA properties is 47dBA. Six scenarios were modelled to account for the range of works proposed that includes demolition of existing equipment, earthworks, stabilization of rail corridor and construction of a noise wall.

CT: Current consent requires consideration of property acquisition. Will not accept any increase in noise.

SRL: Yes acquisition and other noise mitigation measures such as window treatments, tree planting, temporary noise walls etc are the range of options that Daracon wish to discuss with CT and BA to ensure noise levels at the properties remain below the approved 44dBA during the proposed works.

JC: Daracon are not requesting a change to the approved noise criteria. The predictions are modelled on worse case environmental conditions that may never eventuate. If no agreement is made as to noise mitigation measures, the proposal may be able to proceed with a requirement for real-time monitoring where work must cease if noise levels are exceeded.

g) Luke Robinson to investigate source of water and advise if there is potential for groundwater impacts on bore water availability

JC: Warren Faulkner of LPSC inspected the dam and advised the dam was not related to the groundwater. Noting that all surrounding bores are much lower than the dam.

DB (observer) was permitted to speak: LPSC tankers of water have been observed being taken from the Daracon dam. How is this affecting the groundwater for everyone else. Why should Council get the water when no-one else can?

CT: Council benefits from taking that water. An independent assessment of the dam source should be undertaken.

LE: A complaint about the water use has been received by DPIE and is being investigated.

ACTION: LE to advise the process for independent review of complaints

ACTION: SRL to liaise with LE on the appropriate independent hydrological assessment process.

SRL and LE agreed to initially request WF of LPSC formalise his inspection advice with technical justification as to the disconnection of the dam from groundwater sources.

h) Donna Ausling to confirm who is responsible for maintenance of the gravel section

AE: High Street east of the culvert is managed by LPSC. Crown lands have confirmed these sections of roads have been handed over to Council

CT: Have complained to Alan Hyder at LPSC about the poor condition of that section of road. Now it's confirmed LPSC are responsible, will be able to pursue further.

ACTION: AE to raise a customer request to have the road graded and maintained. NB. This would add the job to the roster and would be attended to when the location is scheduled.

6. Section 75W modification – Proposed consent modification #2

CT: Planting of tree has not been undertaken as per the conditions of consent. Not happy for a modification to the existing approval if the existing conditions are not being implemented.

SRL: As part of the modification application, Daracon have updated their Landscape Management Plan. At the previous meeting, LR provided a slide listing the non-compliances the DPIE identified with the existing consent and the status of how these were being actioned.

ACTION: SRL to post a hard copy of the May 2019 Daracon slide presentation to CT.

Refer Daracon presentation slides.

CT: Will earthworks to the rail siding make it operational again?

DS: Yes the hope is that ARTC will enable opening of the rail siding again.

7. Planned activities

Daracon presentation of monitoring results.

<u>Dust</u>

CT: How can there be such good air result when there's been such bad air pollution?

BA: The quarry's not working at the moment so there's virtually no dust. No excavation of crushing, just loading trucks with material previously excavated.

There'll probably be another exceedance in the results with the recent dust storms.

CT: There's been dust all through the house so surely it will show up in the monitoring results.

DS: The Annual Report will include results of the calendar year and will be presented at the April 2020 meeting.

<u>Noise</u>

DS: Noise monitoring is undertaken by an independent consultant on a random basis as required by the conditions of consent.

SRL: Clarified this noise monitoring if different from the noise mitigation discussed previously. The noise monitoring is in relation to the current consent conditions.

ACTION: DS to update the slides and have the noise monitoring report amended to report the monitoring times in AM instead if PM.

ACTION: SRL to post a hard copy of Daracon slide presentation to CT.

Landscaping

DS: Landscape planting (250 plants including 4 species of Eucalypts and 10 types of shrubs) was undertaken in September 2019. The Landscape Management Plan has been updated.

CT: How many plants are still alive/ It's been hard keeping planting alive during this drought.

DS: Plantings are watered weekly and some have still died.

Community Engagement

DS: In response to complaints received, Daracon have committed to re-advertise for community representatives to join the CCC.

LE: Existing CCC members are automatically retained and do not need to reapply.

ACTION: SRL to contact the CCC members prior to the advertisement being released. Noting that a notice may include the list of current members if agreeable.

8. Questions/Issues

CT: Site inspection requested.

ACTION: Next meeting to include a site inspection.

9. Date of next meeting

Next meeting is scheduled for 9:00am Tuesday 28th April 2020, followed by a site inspection.

Meeting Closed at 10:30am.

Attachments:

1. Daracon presentation

Appendix 4 2019 Community Complaints Register

Date received	***Complaint was received regarding?***	***Complaint was received from?***	***Buttai Gravel response***	***Buttai Gravel action following complaint***	***Closed out (Y/N)***
14/05/19	A complaint was received from a member of the community (with Daracon promptly notifying DPIE) alleging excessive truck speed through the township of Ardglen.	A member of the community	All drivers were formally reminded of the CoC requirement to appropriately access the site. Preclusion from site would result from any further breaches.	This matter was appropriately addressed and closed in consultation with the DPIE	Y
01/10/19	A complaint was received from a member of the community via the NSW Department of Planning Industry and Environment (DPIE) on the 1st October 2019 that a truck entered the township of Ardglen prior to 6.30am.	A member of the community via the NSW Department of Planning and Environment (DPIE)	GPS tracking records indicated that although the complainant was adamant the truck entered Ardglen before 6.30am, it was actually after 6.30am.	This matter was appropriately addressed and closed in consultation with the DPIE	Y

Appendix 5 Rubicon (formerly TREES) Erosion & Sediment Control Inspection Report

RUBICON ENVIRO PTY LTD
ABN: 75 616 518 211

Inspection Report – Daracon Group

CLIENT	Daracon Group	REPORT DATE	19th July 2018	REPORT NO.	3	REPORT TO:	Luke Robinson, Jason Gorton – Daracon Group
PROJECT	Ardglen Quarry	INSPECTION DATE	17th July 2018	ATTENDEES:	Luke Robinson – Daracon Group, Andrew Littlewood – Rubicon Enviro		
WEATHER	Cool, Fine, Moderate winds	COMMENT	The quarry has been operating from time to time undertaking de-stocking of stockpiled quarry materials. The remainder of the quarry areas remain generally dormant. A wheel wash for departing transport vehicles has been established in the time since the previous inspection. Minor maintenance activities continue and no significant issues with drainage or erosion and sediment control were identified. Weed suppression continues across the quarry areas, however, some minor outbreaks were noted as detailed below.				

ISSUE NO.	LOCATION	ISSUE/MATTER	RECOMMENDATION/COMMENT	PHOTOGRAPH
1.	Entrance road.	As noted above, a wheel wash for departing transport vehicles has been established in the period since the previous inspection.	Continue to implement control measures to reduce sediment tracking and dust emissions when the quarry is operating.	
2.	Entrance road and haul roads.	A water cart was noted to be operating from the quarry entrance and around the internal haul roads.	Continue to implement control measures to reduce dust emissions when the quarry is operating.	
3.	Lube shed and fuel storage area.	The lube shed area remains secure and dormant with adequate bund storage and controls. Ponded water in the surrounding areas was clear and no oil sheens were present.	Continue maintain the area and visually monitor water quality in the surrounding areas.	

Inspection Report – Daracon Group

PROJECT:	Ardglen Quarry	INSPECTION REPORT NO.	3	INSPECTION DATE	17 July 2018

ISSUE NO.	LOCATION	ISSUE/MATTER	RECOMMENDATION/COMMENT	PHOTOGRAPH
4.	Central Dam	The recent destocking and material movement had resulted in accumulated materials being windrowed around the northern aspect of the dam which would impede flows draining to the dam, potentially bypassing the dam and flowing to downslope areas.	As discussed, we recommend excavating several 'notches' in the windrow at key locations to allow free drainage into the dam. Completed 31.07.19	
5.	Weed control – main quarry	As noted above, weed suppression has been effective across most areas, with no significant outbreaks noted in the main quarry floor and surrounds .	Continue to monitor the workings and perimeter areas and implement periodic weed control as required. Weed control ongoing for the remainder of 2019	
6.	Warra Street rail siding area.	As noted previously, stockpiles in the area had been reworked, and the control berm along the rail siding road had been trimmed and topsoiled. We recommended the control bund should be seeded to establish vegetative cover when suitable weather conditions returned.	As recommended, the control berm has revegetated and is now stabislised.	

PROJECT:	Ardglen Quarry	INSPECTION REPORT NO.	3	INSPECTION DATE	17 July 2019
7.	Warra Street rail siding area – lower stockpile area..	On the previous inspection the stockpile area had been partially re-worked and destocked, and weed outbreaks had been controlled. We noted one area on the stockpile where an outbreak of what was believed to be 'Paterson's Curse' had established.	As discussed, we recommend the outbreak is treated as soon as practical as this species is a late winter flowering weed. We noted another minor outbreak on the batter between the weighbridge and rail siding access road. Weed control ongoing for the remainder of 2019		
8.	Warra Street rail siding area.	As noted previously, the stockpile area had been reworked and a stand of sediment has been installed downslope from the stockpile area.	The sediment fence remains functional and the adjacent batter areas are being colonised with encroaching vegetation. No actions required.		
9.	Warra Street rail siding area embankment – west of the rail loader.	We noted a small outbreak of Blackberry Vine which has established on the upper portion of the rail siding area embankment.	As discussed, proceed to treat the area with an appropriate control measure to suppress the spread of the blackberry. Weed control ongoing for the remainder of 2019		

Report by: Andrew Littlewood – Senior Soil Conservationist & CPESC No. 5988	Signed :	Date: 16 July 2018

Appendix 6 Rehabilitation and nesting inspection report - Ardglen Quarry

umwelt
Environmental & Social Consultants

DARACON Group

2019 ARDGLEN QUARRY ANNUAL BIODIVERSITY OFFSET MONITORING

Ardglen Quarry

FINAL

February 2020

2019 ARDGLEN QUARRY ANNUAL BIODIVERSITY OFFSET MONITORING

Ardglen Quarry

FINAL

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
Daracon

Project Director:	Shaun Corry
Project Manager:	Amber Wilson
Report No.	4739/R01
Date:	February 2020

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This report was prepared using Umwelt's ISO 9001 certified Quality Management System.

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Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
FINAL	Shaun Corry	27 February 2020	Shaun Corry	27 February 2020

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1.0 Introduction

Umwelt (Australia) Pty Limited (Umwelt) was engaged to undertake the 2019 annual biodiversity offset monitoring program at Ardglen Quarry on behalf of Buttai Gravel Pty Limited (Daracon Quarries). This report documents the methods and results of the 2019 monitoring and presents the baseline monitoring results to assist with securing the offset properties under a Conservation Agreement in accordance with the *Biodiversity Conservation Act 2016* (BC Act).

The 2019 monitoring was undertaken in accordance with the Landscape Management Plan (LMP) (Umwelt 2019) for the site, in turn satisfying the relevant conditions contained in the Project Approval 06_0264, and the Environment Protection and Biodiversity Conservation Approval (EPBC2007/3442).

1.1 Background

Buttai Gravel Pty Limited (Daracon Quarries) operates the Ardglen Quarry (the quarry), a hard rock quarrying, processing and handling operation located approximately 5 kilometres (km) northwest of Murrurundi in Ardglen, NSW (refer to Figure 1.1). The Quarry has been in operation for over 100 years with Daracon Quarries (Daracon) holding ownership of the Quarry since 2005. The site is approximately 64 hectares (ha) and is situated in the small rural community of Ardglen, NSW which supports mainly agricultural land.

Three existing Biodiversity Offset Areas (BOAs) are located adjacent to the quarry, being Offset A, Offset B and Offset C (refer to Figure 1.1). The land contained in these offset areas consists of box gum woodland and cleared pastoral lands, with a small ephemeral creek line (Doughboy Hollow Creek) and associated riparian vegetation. A small weir was historically established on the creek as the water supply access point for the quarry. A small causeway located approximately 200 metres (m) north of the weir provides access across Doughboy Hollow Creek.

Monitoring results from previous years (Conacher Consulting 2018; Kendall & Kendall 2013) has been referenced in this report, where appropriate, in order to track the trajectory of conservation commitments in the BOAs.

It is understood that Daracon is in consultation with the Biodiversity Conservation Trust (BCT) to secure the BOAs under a Conservation Agreement, in accordance with the BC Act. In addition to the standard monitoring program, baseline monitoring and establishment of permanent monitoring sites within each vegetation zone are required for a Conservation Agreement for the proposed Conservation (offset) Areas.

Legend

Biodiversity Offset Area Boundary

FIGURE 1.1

Location Map

Image Source: Nearmap (2015); DFSI (2013; 2011); Data source: Geoscience Australia; DFSI (2017; 2019)

1.2 Objectives

The key objective of this report is to describe the relevant methods, results and recommendations of the monitoring program, and assess performance outcomes with completion criteria outlined in the LMP. The LMP states that the program should monitor:

- condition of perimeter fencing around offset properties to exclude livestock
- weed composition within BOAs including the need for any works to control weeds during the following 12 month period
- the location, condition and usage of salvaged hollows which have been placed in the BOAs
- the location and usage of nest boxes of which have been placed within the BOAs
- the extent of natural regeneration within BOAs
- whether any assisted revegetation is required within BOAs.

As described in the LMP:

"*The completion of this offset monitoring will then inform whether any additional management or remediation measures are required to be implemented with the results of the Offset Monitoring reported in the Annual Review*".

Where appropriate, management recommendations have been provided (**Section 6**) to guide the improvement of biodiversity values.

2.0 Methods

2.1 Existing Offset Monitoring Program

The field monitoring program covered 11.76 ha, encompassing three BOAs, being Offset A, Offset B and Offset C (refer to Table 2.1). This program was conducted in accordance with the requirements of the LMP and generally follows the methods undertaken by Conacher Consulting (2018).

Table 2.1 Biodiversity Offset Areas (BOAs)

Biodiversity Offset Area (BOA)	Lot Number	Total Area (ha)
Offset A	Lot 187 DP 751028	4.12
Offset B	Lot 39 DP 751028	4.89
Offset C	Lot 49 DP 751028	2.75
	Total	**11.76**

It is understood that rehabilitation works had not been undertaken along Doughboy Hollow Creek in 2019, as a review of the Doughboy Hollow Creek Rehabilitation Strategy will be undertaken in 2020. Upon consultation with Daracon, erosion transect monitoring as described in the 2017 monitoring report (Conacher Consulting 2018) was not undertaken during this annual monitoring period.

2.1.1 Walkover Assessment

A walkover assessment was undertaken across the BOAs, which involved observation of:

- condition of perimeter fencing around BOAs to exclude livestock
- weed composition within BOAs, including the need for any works to control weeds during the following 12 month period.

2.1.2 Natural Regeneration Monitoring

Natural regeneration was assessed within Derived Native Grassland communities at each of the BOAs. Four 50 m x 20 m plots were established in the grassland area within each BOA (12 plots in total), with a small wooden picket marking the north east corner of each permanent plot. The canopy cover (projective foliage cover %) was assessed within each plot. The location of the natural regeneration monitoring plots is shown on Figure 2.1.

Additionally, the number of saplings was counted within each natural regeneration plot. Saplings were defined as individuals of native canopy species with a diameter at breast height (DBH) <5 cm. This number was then multiplied to give the number of saplings per hectare.

The locations of natural regeneration monitoring plots have been modified since the previous monitoring event, as the previous locations yielded canopy cover results that were not considered representative of the Derived Native Grassland areas.

2.1.3 Nest Box Monitoring

Nest box monitoring was undertaken for 27 nest boxes installed in Offset A (Lot 187 DP 751028) which are shown in Figure 2.2. These boxes were comprised of:

- 9 brush-tailed phascogale boxes (rear entry)
- 9 glider boxes (front entry)
- 9 microbat boxes (bottom entry).

Boxes were inspected using a pole-mounted camera. Monitoring comprised content and condition assessment and included the following:

- Content monitoring:
    - Target species use
    - Signs of presence such as nesting material or feathers
    - Predator use
    - Presence of native fauna
    - Presence of non-target species such as bees, wasps and introduced birds.
- Condition monitoring:
    - Collapsing joints
    - Missing lids
    - Bowing timber
    - Perishing timber
    - Tree attachment.

Legend

- Biodiversity Offset Area Boundary
- Natural Regeneration Monitoring Plot

FIGURE 2.1

Natural Regeneration Monitoring Plots

Image Source: Nearmap (2015); DFSI (2013; 2011); Data source: Geoscience Australia; DFSI (2017; 2019)

Legend

- Biodiversity Offset Area Boundary
- Lot Boundary

Nest Box Locations

- Glider
- Microbat
- Phascogale

FIGURE 2.2

Nest Box Locations

Image Source: Nearmap (2015); DFSI (2013; 2011); Data source: Geoscience Australia; DFSI (2017; 2019)

2.2 Conservation Agreement Baseline Monitoring

Four permanent monitoring plots were established within each of the four vegetation zones in the BOAs identified by Orogen (2010). Each plot was marked in the north east corner (of the 20 m x 20 m subplot) with a steel picket and high visibility flagging tape. Plot locations are shown in Figure 2.3. Photo monitoring, floristic and biometric data collection and a walkover assessment were completed according to the BBAM methodology (OEH 2014) and are further described in the following sections.

2.2.1 Photo Monitoring

Photo monitoring was undertaken at each site and will be used to identify any observable changes in the vegetation condition and development of vegetation structure over time. Photo monitoring was completed at the north-east plot corner, with photos taken facing north, south, east and west.

2.2.2 Floristic and Biometric Data Collection

Floristic and biometric monitoring was completed four permanent monitoring sites established at each of the vegetation zones previously outlined by Orogen (2010) in the BOAs. This monitoring was completed in a manner consistent with the BBAM (2014) and consisted of a:

- 50 m transect
- 50 m by 20 m plot
- 20 m by 20 m sub-plot.

For each flora monitoring site, roughly 45 to 60 minutes was spent searching for vascular species present within the 20 m x 20 m sub-plot. Searches were generally undertaken through parallel transects from one side of the plot to another. Most effort was spent on examining the groundcover, which usually supports well over half of the species present, however the composition of any shrub, mid-storey, canopy and emergent layers were also thoroughly examined.

For each species recorded in the plot, the scientific name, common name, stratum, cover and abundance were recorded. The total native species richness was then calculated for the 20 m x 20 m sub-plot.

Along the 50 m transect, and within the 50 m x 20 m plot, the following were noted:

- overstorey foliage cover
- mid-storey foliage cover
- groundcover – grasses foliage cover
- groundcover – shrubs foliage cover
- groundcover – other foliage cover
- proportion of overstorey regeneration
- exotic cover
- hollow-bearing trees
- length of fallen logs.

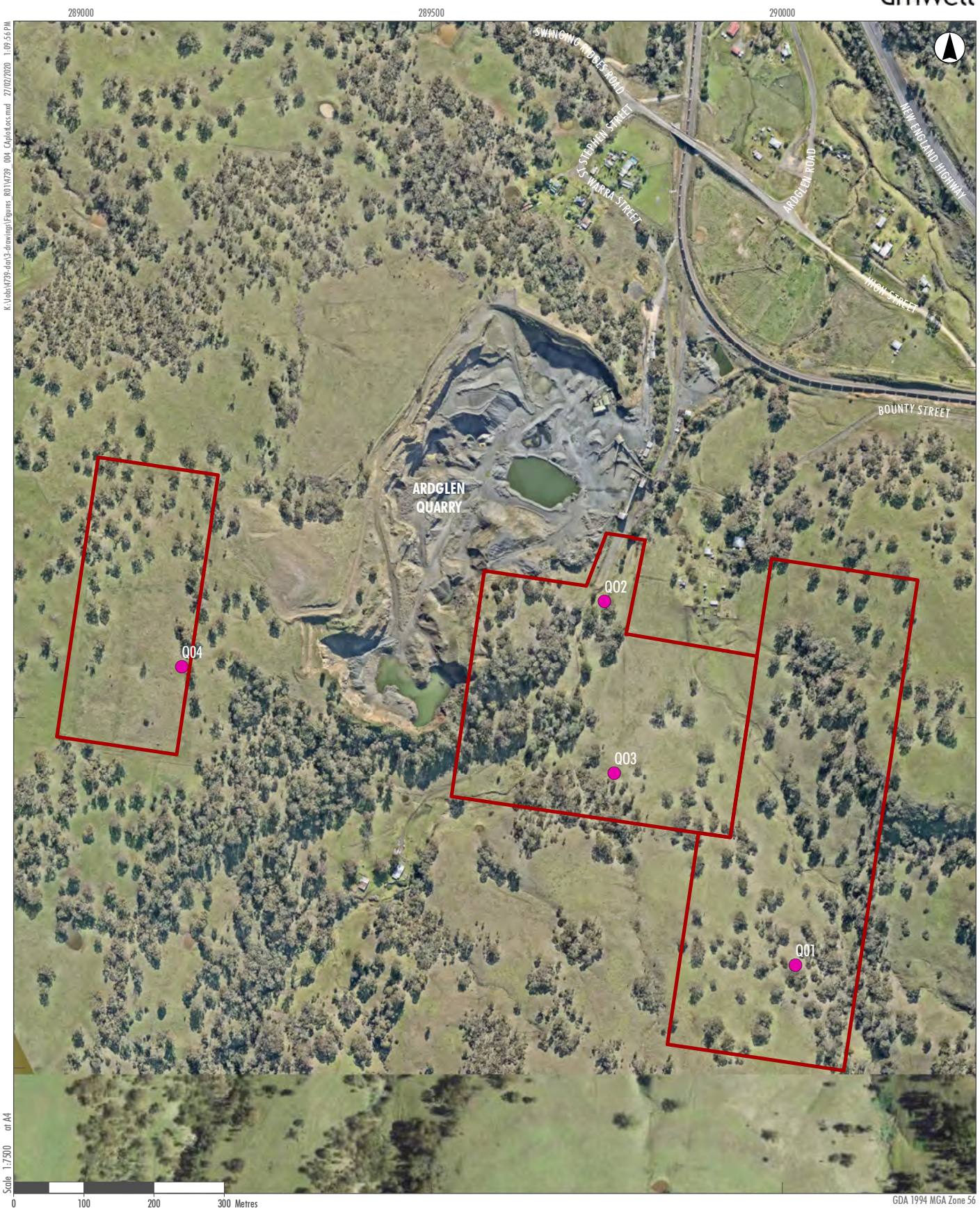
This data was then compared to benchmark levels for each Plant Community Type (PCT) as outlined in the Vegetation Information System (VIS) database (BCD 2020).

2.2.3 Walkover Assessment

As outlined in the BBAM, a walkthrough assessment of opportunistic sightings was undertaken across the proposed Conservation (offset) Areas, making observations of:

- fire events or impacts of fire management
- weeds (including compilation of list of exotic species and recording new weed infestations including location and extent)
- pest animals (species and location must be recorded, including evidence of pest animals such as burrows, scats or disturbance)
- visitor impact and vehicle access (including evidence of any recent usage, and the presence of any new access trails or tracks)
- rubbish dumping
- natural regeneration of previously disturbed areas
- sightings of threatened species.

As this methodology is similar to the walkover assessment in the existing offset monitoring program, the results for each of these have been combined for readability in **Section 4.1**.



Legend

- Biodiversity Offset Area Boundary
- Permanent Floristic Monitoring Plots

FIGURE 2.3

Conservation Agreement Plot Locations

Image Source: Nearmap (2015); DFSI (2013; 2011); Data source: Geoscience Australia; DFSI (2017; 2019)

3.0 Weather

Table 3.1 provides the range of weather conditions that occurred in 2018 and 2019 prior to monitoring (which occurred on 15 November 2019). These results show the Murrurundi region experienced somewhat drier conditions in 2019 than historical averages (though note the historical average ranges from 2003 - 2019). Monthly rainfall levels were lower than the long term mean (with the exception of March 2019) and maximum temperatures consistently exceeded the average.

Temperature ranges experienced in summer, autumn and spring had extremes that fluctuated significantly from the average conditions. Lower rainfall accompanied by higher than average temperatures in the lead up to floristic monitoring likely resulted in lower seedling emergence than during years with more typical weather. Plant wilting may also have made key plant identification features such as seed heads and flowers difficult to identify. Subsequently, actual floristic diversity is likely to be much higher than identified during the 2019 event.

Table 3.2 shows the weather conditions that were experienced during the November 2019 monitoring.

3.1 Drought Conditions

The weather conditions experienced during the November 2019 monitoring, and the 2019 climate trends in general were consistent with drought conditions experienced across most of NSW over the last few years.

The Combined Drought Indicator (CDI), developed by the NSW Department of Primary Industries, uses three indices (Rainfall Index, Plant Growth Index and Soil Water Index) to determine the drought category at any given time. The CDI classifies each parish in NSW into one of five drought categories:

- **Non drought:** At least one indicator is above the 50th percentile
- **Recovering phase:** All indicators are below the 50th percentile but above the 30th percentile
- **Drought Affected:** At least one indicator is below the 30th percentile
- **Drought:** At least one indicator is below the 5th percentile
- **Intense Drought:** All three indicators (rainfall, soil water, plant growth) are below the 5th percentile

Using the CDI (DPI 2020), the Ardglen area is classified at the time of monitoring as in “Intense Drought”. These trends are shown in Figure 3.1 (DPI 2020) for the Temi Parish, which is the representative Parish for Ardglen Quarry. The CDI graph shows that Temi Parish has been in either a “Drought” or “Intense Drought” state since November 2017, with conditions trending more towards “Intense Drought”.

This has substantial implications in terms of vegetative performance, cover and ultimately landscape functioning of the BOAs at Ardglen Quarry. Drought conditions lead to decreased soil moisture, plant growth and groundcover, and reduces the capacity of plants to regenerate and reproduce. Drought affects plant and soil nutrient flows, limiting the ability of plants to uptake nutrients and increasing susceptibility of nutrient loss during the next rainfall flush (Lucci 2019).

Table 3.1 Temperatures and Rainfall Data from Murrurundi Gap AWS (Station 061392) during 2020 (BOM 2020)

	2018	2019										
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Maximum Temperature (°C)	33.7	39.2	35	31.8	27.3	20.9	19.3	17.7	21.7	27.5	33.3	33.7
Mean Maximum Temperature (°C)	28.2	33.6	29.1	26.1	22	16.9	14.1	14.4	16.1	20.4	24.5	27
Long Term Mean Maximum Temperature (°C)	*26.8*	*28.6*	*27.5*	*24.6*	*21.1*	*16.9*	*13.0*	*12.6*	*14.6*	*18.4*	*21.8*	*24.6*
Minimum Temperature (°C)	8.8	15.8	12.6	5.5	7.2	0.7	1.8	0.9	-0.2	2.9	5.0	7.3
Mean Minimum Temperature (°C)	16.5	20.4	16.6	15.1	11.8	9	6.6	5.6	5.8	9.1	11.7	13.9
Long Term Mean Minimum Temperature (°C)	*15.0*	*16.7*	*15.8*	*14.2*	*11.3*	*8.3*	*6.0*	*4.9*	*5.7*	*8.6*	*11.0*	*13.2*
Rainfall (mm)	**82.6**	**27.0**	**7.6**	**134.0**	**0.8**	**35.2**	**14.6**	**1.0**	**2.6**	**9.6**	**25.8**	**32.8**
Long Term Mean Rainfall (mm)	*83.2*	*66.3*	*67.3*	*75.7*	*31.7*	*33.9*	*67.8*	*43.8*	*38.6*	*43.8*	*47.6*	*80.9*

Table 3.2 Temperatures and Rainfall Data from Murrurundi Gap AWS (Station 061392) during the November 2019 Monitoring Event (BOM 2020)

	15/11/2019
Maximum Daily Temperature (°C)	28.4
Minimum Daily Temperature (°C)	15.1
Rainfall (mm)	**0**

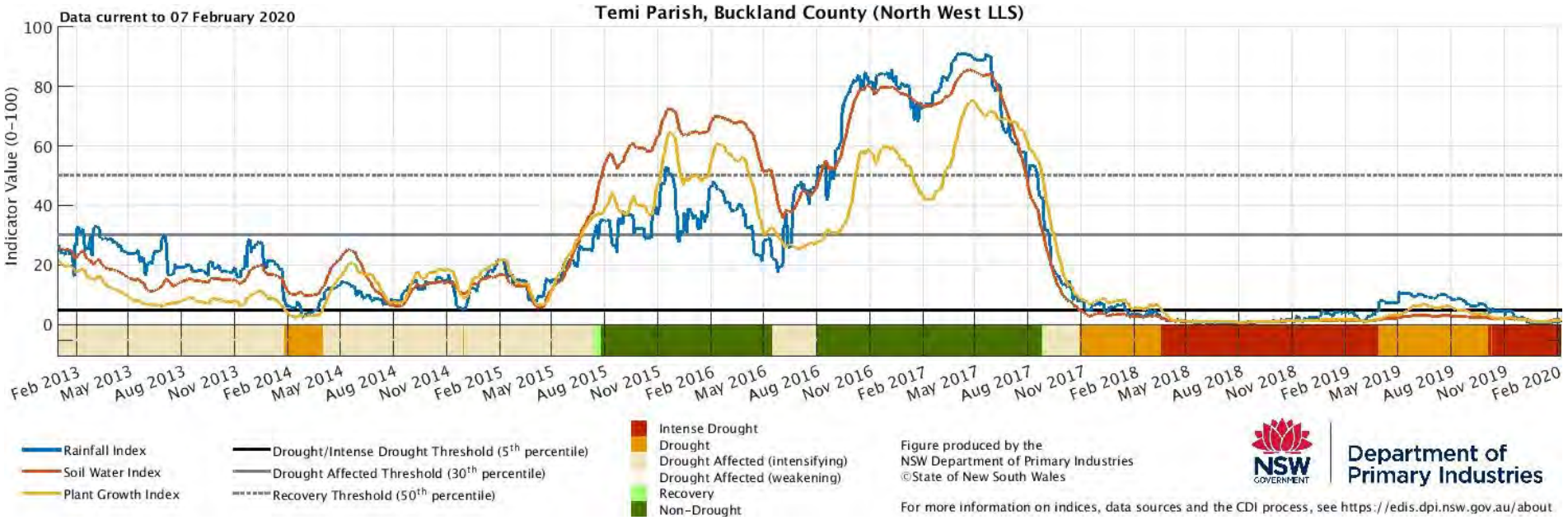


Figure 3.1 Combined Drought Indicator record for Temi Parish, 2013 - 2020 (DPI 2020)

4.0 Results

4.1 Walkover Assessment

4.1.1 Fence Condition

A walkover assessment was conducted across all three BOAs. Inspection of fences showed that all external fences of the BOA properties are functioning adequately, and no breaches were observed. Fences are not however appearing to deter feral livestock, but increased security measures (e.g. mesh fencing) is not recommended, as this may also deter native animals. Internal fencing was noted in several cases, particularly between Offset B and Offset C, and this can be removed.

4.1.2 Pests and Livestock

Feral animals and livestock such as sheep, goats, and rabbits continue to remain an issue in the BOAs (see Plate 4.1). A horse has also managed to access Offset C; a problem which remains from 2018 (Conacher Consulting 2018). As a result, there are areas of intense grazing, trampling and digging that has had a noticeable and detrimental effect on the condition and quality of the ground cover (see Plate 4.2). It is noted that goat traps have been established in attempt to reduce numbers of the goat mobs that access the BOAs. Daracon have engaged the services of a feral animal shooter, and it is recommended that this practice continues in order to reduce the detrimental effects of feral animals on the condition of the BOAs.

Plate 4.1 Feral goat mob observed on a hill in Offset A

Plate 4.2 Evidence of livestock trampling at the base of trees in Offset A

4.1.3 Fire Events or Impacts of Fire Management

No fire events or fire management actions were undertaken in 2019.

Bushfire fuel loads were low given the low grass height, absence of a dense shrub layer and the open nature of the woodland. Despite the prolonged dry conditions and recent bushfire prevalence, the sparse canopy and low fuel load would likely reduce the intensity of fire if ignition occurred. Bushfire risk is not considered any higher than usual, and hazard reduction measures are not currently recommended.

4.1.4 Weeds

Weeds generally observed at low levels throughout BOAs. Weed control of the previously abundant St John's wort (*Hypericum perforatum*) appeared successful, as no individuals were sighted during the walkover or when conducting floristic monitoring. There were a few instances of localised prickly pear (*Opuntia stricta*) (Plate 4.3) and Paterson's curse (*Echium plantagineum*) infestations. Weed control in the areas outlined in Figure 4.1 is highly recommended.

Willow trees (*Salix* sp.) were prominent along the Doughboy Hollow Creek banks in Offset B. These are recommended to be left in situ as their removal may cause soil instability and creek bank erosion.

Plate 4.3 Large prickly pear (*Opuntia stricta*) infestation in Offset C

4.1.5 Rubbish and Dumping

Rubbish was noted at some locations in the BOAs (Figure 4.1). A significant dump site was found in Offset B, filled with tyres, tiles, glass (Plate 4.4). Large concrete pipes were also noted within permanent monitoring plot Q02 (Figure 2.3).

Plate 4.4 Rubbish dump in Offset B

4.1.6 Visitor and Vehicle Impacts

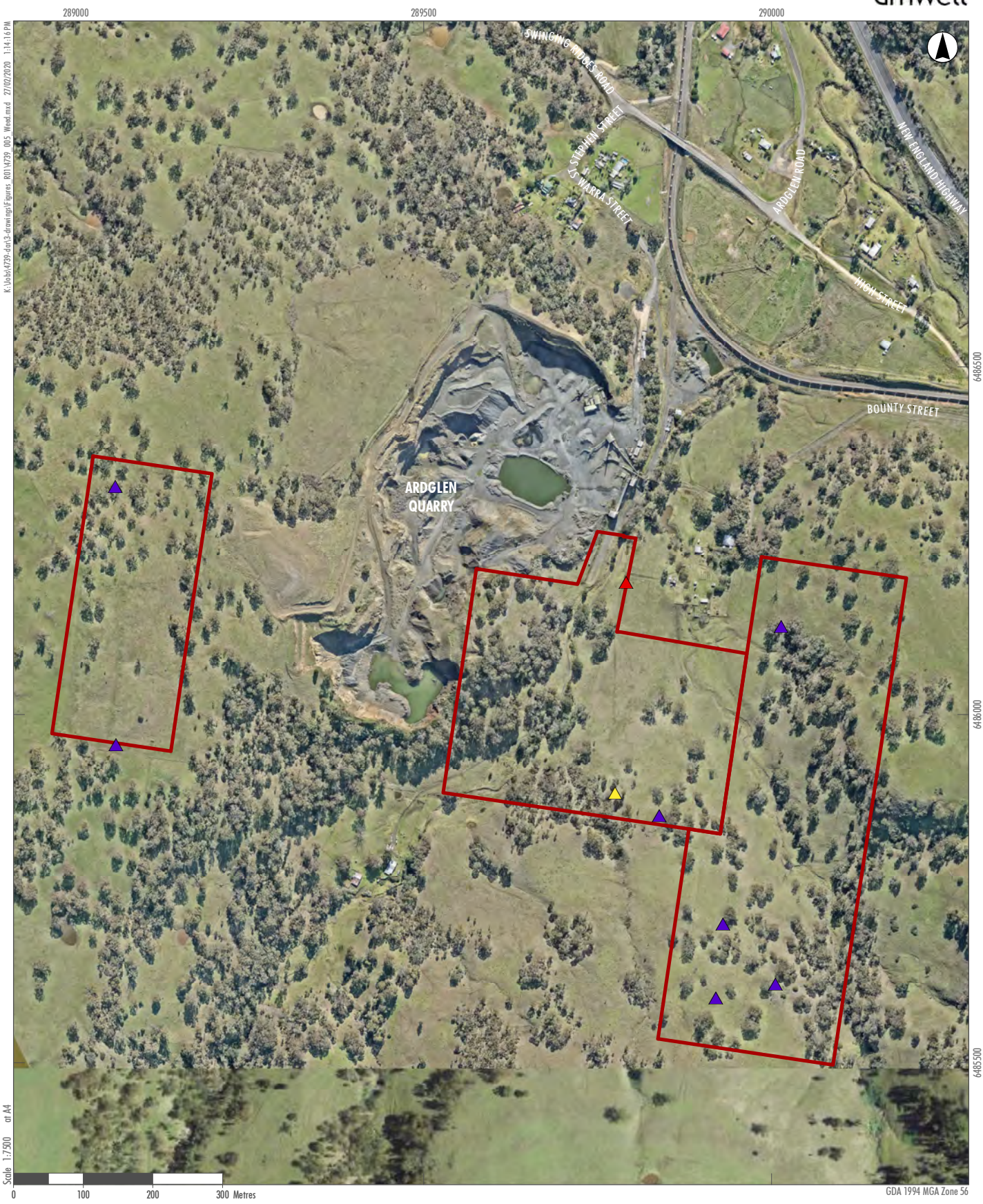
None observed in 2019.

4.1.7 Natural Regeneration of Previously Disturbed Areas

Discussed further in **Section 4.2**.

4.1.8 Threatened Species Sightings

No targeted threatened species searches are undertaken as part of this monitoring, however the little lorikeet (*Glossopsitta pusilla*) was identified in the offset areas in 2019 during the walkover.



Legend

- Biodiversity Offset Area Boundary
- Paterson's Curse
- Prickly Pear
- Rubbish Dump

FIGURE 4.1

Weed Infestations and Rubbish Dump

Image Source: Nearmap (2015); DFSI (2013; 2011); Data source: Geoscience Australia; DFSI (2017; 2019)

4.2 Natural Regeneration Monitoring

The results of the natural regeneration monitoring for Offset A, Offset B and Offset C are presented in Table 4.1.

As noted in **Section 2.1.2**, the locations of the natural regeneration plots were modified in 2019. The GPS co-ordinates in each of the tables below were taken from the north east corner of each 50 m x 20 m plot.

Table 4.1 Natural Regeneration Results

Plot Name	Easting	Northing	Cover (%)	Sapling Count (per plot)	Sapling Count (per hectare)
Offset A					
A1	289077	6486201	0	0	0
A2	289062	6486145	0	0	0
A3	289060	6486090	0	0	0
A4	289150	6485973	0	0	0
Offset B					
B1	289822	6486108	0.1	1	10
B2	289821	6486014	0.5	3	30
B3	289945	6485915	0	0	0
B4	289854	6485906	0.1	1	10
Offset C					
C1	290061	6486188	0.1	1	10
C2	290034	6485967	0	0	0
C3	289953	6485745	0	0	0
C4	289943	6485582	0	0	0

The canopy cover (%) and sapling counts for natural regeneration plots were very low, however this is to be expected of derived native grassland areas. This will increase once assisted regeneration (planting) commences in these areas. Four plots (33%) had one or more saplings already present, which is a positive sign of recruitment already occurring in these areas without assistance.

4.3 Nest Box Monitoring

The full nest box monitoring results are detailed in **Appendix A**. A summary table of results is outlined in Table 4.2**.**

Table 4.2 Nest Box Monitoring Results Summary

Box Type	No. with signs of occupation*	No. with pest species	No. with actual occupation	Target Species Identified	Nest Boxes requiring Repair/ Replacement
Phascogale (rear entry) (9 boxes)	glider nest (3) bird nest (2) spider (4) **Total = 9**	0	0	No phascogales. Glider (sugar or squirrel - undetermined) identified - species known to use this box type.	NB17/TT158 - part of lid stuck to inner box cavity.
Microbat (9 boxes)	spider (3) **Total = 3**	wasp nest (1) **Total = 1**	0	none	Mesh worn on four boxes (consider removal of mesh on all boxes). NB19/TT156 facing east (morning sun); consider repositioning.
Glider (front entry) (9 boxes)	glider nest (1) worn or chewed entry (8) nesting material/leaf debris (2) spiders (2) **Total = 13**	ant nest (2) wasp nest (1) **Total = 3**	0	glider (sugar or squirrel - undetermined)	NB7/TT171 - box lid could not be opened. NB12/no tree tag - carpet on underside of lid has fallen into box.
Total = 27	**25**	**4**	**0**	**2**	**8**
% of Boxes	**92.5**	**14.8**	**0**	**-**	**29.6**

* Sometimes these numbers will add to more than their total as a number of fauna species may utilise the same nest box

This year's monitoring period showed greater usage of nest boxes by fauna, with target glider species utilising four nest boxes (14.5%) as shown in Plate 4.5. Aside from invertebrate species, no fauna species were directly identified using any of the boxes, however there were positive signs of use of a high percentage of boxes (92.5%). Pest species (ants and wasps) were present in 14.5% of boxes.

Plate 4.5 Glider nest in Nest Box 15/Tree Tag 161

4.4 Conservation Agreement Baseline Monitoring

Four permanent monitoring plots were established within each of the four vegetation zones in the BOAs identified by Orogen (2010). These vegetation zones have been assigned a Plant Community Type (PCT) in order to be comparable with PCT benchmarks and track condition and progress over time. These PCTs have been described using floristic data, broad-scale vegetation mapping (DPIE 2019) and using knowledge of the local topography and landscape. The vegetation zones with their corresponding PCT and site locations are outlined in Table 4.3**.**

Table 4.3 Vegetation Zones and Corresponding PCT and Plot Information

Plot Name	Easting	Northing	Zone	Vegetation Zone (Orogen 2010)	PCT Name
Q01	290019	6485647	56	Blakelys Red Gum (+/- Yellow Box) Dry Sclerophyll Grassy Woodlands/Open Woodland	PCT 496 - Yellow Box - White Box - Silvertop Stringybark - Blakely's Red Gum grass shrub woodland mainly on the Liverpool Range, Brigalow Belt South Bioregion
Q02	289747	6486167	56	River Oak (*Casuarina cunninghamiana*) Dry Sclerophyll Woodland	PCT 485 - River Oak riparian grassy tall woodland of the western Hunter Valley (Brigalow Belt South Bioregion and Sydney Basin Bioregion)
Q03	289761	6485921	56	White Box (*Eucalyptus albens*) and Rough barked Apple (*Angophora floribunda*) Dry Sclerophyll Grassy Woodland	PCT 433 - White Box grassy woodland to open woodland on basalt flats and rises in the Liverpool Plains sub-region, Brigalow Belt South Bioregion
Q04	289144	6486073	56	Derived Native Grassland	PCT 796 - Derived grassland of the NSW South Western Slopes

The full flora list, biometric data and photo monitoring results for the establishment of the permanent Conservation Agreement monitoring sites are presented in **Appendix B**. A comparison of the data collected at each of the monitoring sites to their corresponding PCT benchmarks is outlined below:

Q01 - PCT 496 - Yellow Box - White Box - Silvertop Stringybark - Blakely's Red Gum grass shrub woodland mainly on the Liverpool Range, Brigalow Belt South Bioregion

Native species richness met 78% of the benchmark, which is an excellent result given the prolonged drought conditions. Overstorey foliage cover is at 58% of the benchmark, and mid storey foliage cover is absent.

Native grasses are doing well in this zone, and exotic cover is low, at 6%. Fallen logs almost met the benchmark, at 92%.

Q02 - PCT 485 - River Oak riparian grassy tall woodland of the western Hunter Valley (Brigalow Belt South Bioregion and Sydney Basin Bioregion)

Native species richness was low, meeting just 39% of the benchmark. Overstorey foliage cover is at 42% of the benchmark, and mid storey foliage cover is low. Native grass cover met 62% of the benchmark, whereas native groundcover - other (e.g. forbs and herbs) met 100% of the benchmark.

Fallen logs were very low and exotic cover was very high at 58%.

Q03 - PCT 433 - White Box grassy woodland to open woodland on basalt flats and rises in the Liverpool Plains sub-region, Brigalow Belt South Bioregion

Native species richness was somewhat low, meeting 42% of the benchmark. Overstorey foliage cover was also low, similarly meeting 42% of the benchmark. The mid-storey was absent, however native grass cover almost met the benchmark at 95%. Native groundcover - other (e.g. forbs and herbs) was fairly high also at 70%.

Length of fallen logs was low, but exotic cover was also very low at just 4%.

Q04 - PCT 796 - Derived grassland of the NSW South Western Slopes

Native species diversity was quite high in this vegetation zone, meeting 80% of the benchmark. Overstorey and mid-storey cover were appropriately absent.

Native grass cover met 65% of the benchmark due to the prevalence of exotic species and bare patches of earth both from drought stress related dieback and trampling and grazing from feral livestock. Exotic cover was quite high at 24%. Total fallen log length exceeded the benchmark, likely due to this zone's close proximity to open woodland areas.

5.0 Compliance with LMP

An evaluation of the BOAs against the relevant performance/completion criteria outlined in the LMP is provided in **Table 5.1**. Note that these criteria are preliminary and are subject to change in the next review of the LMP.

Table 5.1 Assessment of the BOAs against LMP performance criteria

Feature	Aspect	Preliminary Performance/ Completion Criteria	Completion Status and Notes
Vegetation Establishment	Overstorey Restoration	Fencing has been established around all offset areas and is maintained	**Achieved.**
	Overstorey Restoration - Natural	>10 – 15% cover threshold in more than 50% of the monitoring plots	**Not achieved.** Cover in the natural regeneration monitoring plots did not meet this threshold. While natural recruitment was occurring in some areas, assisted revegetation is required to support the trajectory of the BOAs towards this performance criteria.
	Overstorey Restoration – Assisted	Mature tree density of 30 - 40 trees/ha (following the completion of assisted revegetation)	**Not applicable.** Assisted revegetation has not yet been completed.
	Understorey Restoration	Weed control works undertaken.	**Partially achieved.** Previous weed control works have been successful, however further monitoring works should continue to be undertaken.
Habitat Material	All salvageable hollows shall be re-erected within 12 weeks from completion of staged clearing operations.	Hollows are installed as required	**Not achieved.** At the time of survey, hollows were not salvaged from the last clearing event. In order to achieve this criteria, any salvageable hollows must be re-erected as soon as practicable.
Long Term Security of Offset Site	Security of Offset	Offset security mechanism as detailed in **Section 5.6** of the LMP established and implemented.	**Not achieved.** BOAs not yet secured under a Conservation Agreement.

6.0 Recommendations

The following recommendations are provided for consideration in the 2019 Annual Review:

- Perimeter fencing of the BOAs is adequate, but internal fences can be removed. These may hinder the movement of native fauna throughout the BOAs.
- Liaison with neighbouring properties is recommended to determine the origin of visiting livestock (horses, sheep) and to restrict their access. Daracon should continue to engage the services of a feral animal shooter for vermin and livestock that are found to be feral (as in the case of the goats).
- Weed management works of prickly pear (*Opuntia stricta*) and Paterson's curse (*Echium plantagineum*) is recommended at the infestation sites shown in Figure 4.1.
- Rubbish removal is recommended at the rubbish dump site shown in Figure 4.1.
- A numbering system for nest boxes should be determined. Currently, tree tags are not on all trees that support boxes, and the numbering system given by Conacher Consulting (2018) is not displayed on boxes. Tree tags should either be installed on all nest box trees, or alternatively the nest boxes can be numbered as per the Conacher numbering system.
- The mesh protruding from the microbat nest boxes was worn and frayed in many instances, however replacement is not recommended as claws can get stuck in fine mesh. It is recommended that the mesh is removed from these 9 boxes at a time when they are found to be unoccupied.
- Assisted revegetation should be prioritised in Offset A and B, as Offset C is generally quite well vegetated. Planting should begin in derived native grassland areas closest to existing canopy cover (i.e. where there is the most protection), and progress further out into areas with lower canopy cover over time.

An indicative species list to be utilised in assisted revegetation includes:

Trees

- white box (Eucalyptus albens)
- Blakely's red gum (Eucalyptus blakelyi)
- yellow box (Eucalyptus melliodora)

Small Trees/Shrubs

- box-leaf wattle (*Acacia buxifolia*)
- hickory wattle (*Acacia implexa*)
- kangaroo thorn (*Acacia paradoxa*)
- western rosewood (*Alectryon oleifolius*)
- kurrajong (*Brachychiton populneus*)
- blackthorn (*Bursaria spinosa*)

- *Cassinia quinquefaria*
- sticky hop-bush (*Dodonaea viscosa*)
- wilga (*Geijera parviflora*)
- native olive (*Notelaea microcarpa*)
- smooth darling-pea (*Swainsona galegifolia*)
- sticky daisy-bush (*Olearia elliptica*)
- peach heath (*Lissanthe strigosa*)
- urn-heath (*Melichrus urceolatus*)

7.0 Conclusion

The key findings of the 2019 biodiversity offset monitoring include the following:

- The vegetation was generally in low condition and poor cover, however there was good native diversity for these types of landscapes despite prolonged drought conditions.
- Floristic diversity is likely higher in years with good rainfall.
- Weed species were common but only of real concern in infestation areas previously discussed.
- Feral animals are a detriment to the condition of the BOAs, particularly in terms of ground cover.
- PCT benchmarks for a range of biometric parameters were rarely met, however this was the baseline monitoring event and represents a starting point from which the offset areas can improve.
- Weeds and feral animals (in addition to drought) are the main hindrances to the progression of the offsets towards benchmark conditions.
- Natural recruitment and regeneration are occurring to a small degree, but the BOAs would benefit from assisted revegetation.
- A high percentage of nest boxes are showing positive signs of use with 14.5% have evidence of use by target species.

8.0 References

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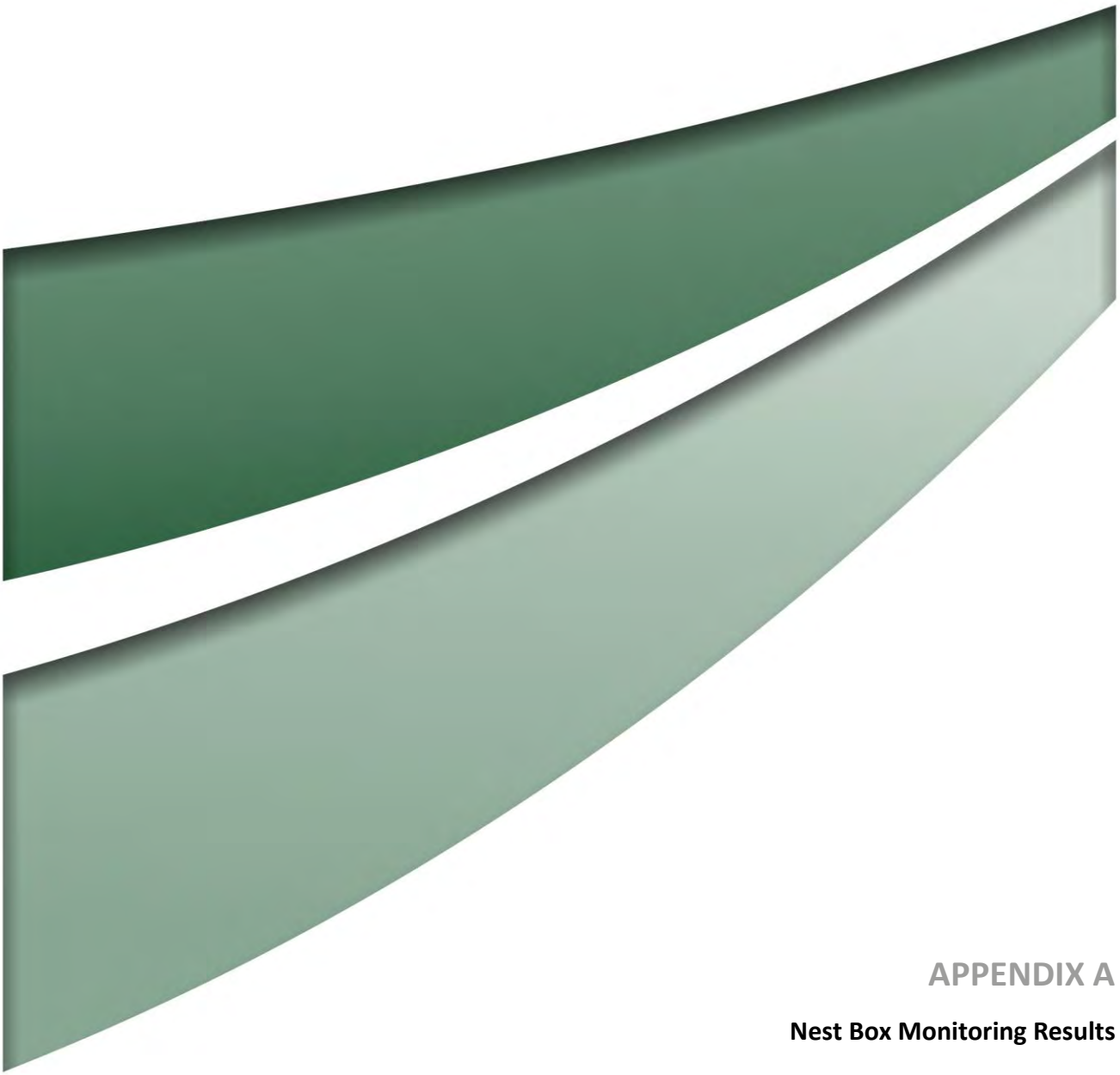
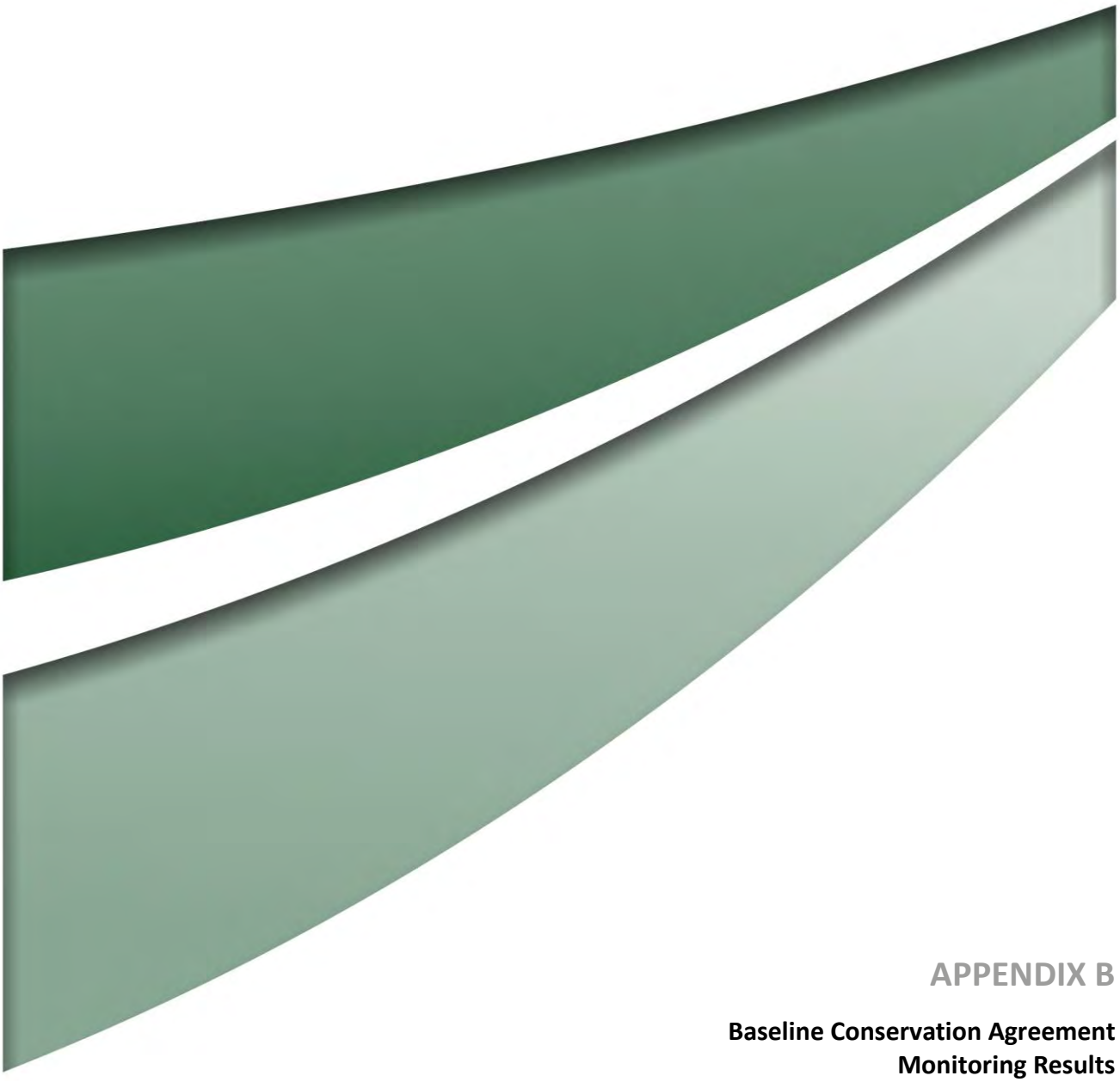


APPENDIX A

Nest Box Monitoring Results

Nest Box Monitoring Results

Date Monitored	Box Number	Tree Tag Number	Type	Contents	Condition
15/11/2019	1	175	phascogale	glider nest (sugar or squirrel)	good
15/11/2019	2	-	glider	spider; chewed entry	good
15/11/2019	3	178	phascogale	glider nest; spider + eggs	good
15/11/2019	4	177	glider	2 x huntsman spiders; wasp nest	good
15/11/2019	5	172	phascogale	empty	good
15/11/2019	6	173	microbat	empty	good
15/11/2019	7	171	glider	chewed entry; could not open	box lid closed
15/11/2019	8	168	phascogale	empty	good
15/11/2019	9	169	phascogale	glider nest; cobwebs	good
15/11/2019	10	164	phascogale	old bird nest (feathers)	good
15/11/2019	11	165	glider	chewed entry; ant nest	good
15/11/2019	12	-	glider	chewed entry; ant nest	carpet on lid has fallen into box
15/11/2019	13	-	microbat	worn entry; cobwebs	mesh is worn
15/11/2019	14	163	microbat	view obscured by mesh; webs	good
15/11/2019	15	161	glider	worn entrance; glider nest	good
15/11/2019	16	159	microbat	empty	worn mesh
15/11/2019	17	158	phascogale	spider; view into box blocked	part of lid stuck to inner box - view obscured
15/11/2019	18	157	glider	worn entry; cobwebs; leaf debris	good
15/11/2019	19	156	microbat	empty	facing east (morning sun), consider re-positioning
15/11/2019	20	114	glider	worn entry; some leafy debris	good
15/11/2019	21	113	microbat	empty	good
15/11/2019	22	112	phascogale	fresh chewed leaf; mass of spiders	good
15/11/2019	23	111	glider	worn entry; empty	good
15/11/2019	24	115	phascogale	old bird nest (feathers)	good
15/11/2019	25	-	microbat	empty	mesh frayed
15/11/2019	26	176	microbat	wasp nest	mesh worn
15/11/2019	27	160	microbat	spider	good



APPENDIX B

Baseline Conservation Agreement
Monitoring Results

Biometric Plot and Transect Data

The following abbreviations or symbols are used in the list:

NPS	number of native plant species
NOC	native overstorey cover
NMC	native mid-storey cover
NGCG	native ground cover (grasses)
NGCS	native ground cover (shrubs)
NGCO	native ground cover (other)
EPC	exotic plant cover
NTH	number of trees with hollows
OR	overstorey regeneration, and
FL	total length of fallen logs.

Plot Name	NPS	NOS	NMS	NGCG	NGCS	NGCO	EPC	NTH	OR	FL	Easting	Northing	Zone
PCT 496 - Yellow Box - White Box - Silvertop Stringybark - Blakely's Red Gum grass shrub woodland mainly on the Liverpool Range, Brigalow Belt South Bioregion													
Q01	29	25	0	32	0	4	6	0	0.5	24	290019	6485647	56
Benchmark	37	43	7	45	7	13				26			
PCT 485 - River Oak riparian grassy tall woodland of the western Hunter Valley (Brigalow Belt South Bioregion and Sydney Basin Bioregion)													
Q02	11	16	2	22	0	8	58	1	0.5	5	289747	6486167	56
Benchmark	28	38	10	35	10	8				36			
PCT 433 - White Box grassy woodland to open woodland on basalt flats and rises in the Liverpool Plains sub-region, Brigalow Belt South Bioregion													
Q03	13	7.5	0	40	0	10	4	0	1	2	289761	6485921	56
Benchmark	31	18	2	42	2	7				41			
PCT 796 - Derived grassland of the NSW South Western Slopes													
Q04	17	0	0	52	0	2	24	0	0	1	289144	6486073	56
Benchmark	21	0	1	80	1	6				0			

Floristic Results

Flora specimens recorded or collected were identified using the nomenclature and keys from Harden (1992, 1993, 2000 & 2002) and Wheeler et al. (2002). Recent changes to classification as identified from PlantNET (Botanic Gardens Trust 2020) were incorporated into floristic results.

The following abbreviations and symbols are used in the table below:

PC Percent Cover
AA Actual Abundance
* exotic species
** high threat weed

Family Name	Scientific Name	Common Name	PCT 496 - Yellow Box - White Box - Silvertop Stringybark - Blakely's Red Gum grass shrub woodland mainly on the Liverpool Range, Brigalow Belt South Bioregion		PCT 485 - River Oak riparian grassy tall woodland of the western Hunter Valley (Brigalow Belt South Bioregion and Sydney Basin Bioregion)		PCT 433 - White Box grassy woodland to open woodland on basalt flats and rises in the Liverpool Plains sub-region, Brigalow Belt South Bioregion		PCT 796 - Derived grassland of the NSW South Western Slopes	
			Q01		*Q02*		*Q03*		*Q04*	
			PC	AA	PC	AA	PC	AA	PC	AA
Filicopsida (ferns)										
Adiantaceae	*Cheilanthes distans*	bristly cloak fern	3	0.01						
Adiantaceae	*Cheilanthes sieberi*	rock fern	2	0.01						
Magnoliopsida – Liliidae (monocots)										
Cyperaceae	*Cyperus spp.*		4	0.01	50	5	50	2	15	1
Juncaceae	*Juncus spp.*	a rush			1	0.01				
Lomandraceae	*Lomandra confertifolia*	matrush	300	0.2			3	0.01		
Lomandraceae	*Lomandra filiformis*		150	1					60	1
Lomandraceae	*Lomandra longifolia*	spiny-headed mat-rush							20	1
Phormiaceae	*Dianella longifolia*	blueberry lily	2	0.01						

Family Name	Scientific Name	Common Name	PCT 496 - Yellow Box - White Box - Silvertop Stringybark - Blakely's Red Gum grass shrub woodland mainly on the Liverpool Range, Brigalow Belt South Bioregion		PCT 485 - River Oak riparian grassy tall woodland of the western Hunter Valley (Brigalow Belt South Bioregion and Sydney Basin Bioregion)		PCT 433 - White Box grassy woodland to open woodland on basalt flats and rises in the Liverpool Plains sub-region, Brigalow Belt South Bioregion		PCT 796 - Derived grassland of the NSW South Western Slopes	
			Q01		*Q02*		*Q03*		*Q04*	
			PC	AA	PC	AA	PC	AA	PC	AA
Phormiaceae	*Dianella spp.*						30	0.02		
Poaceae	*Aristida ramosa*	purple wiregrass	60	0.5					15	1
Poaceae	*Aristida spp.*	a wiregrass			6	0.01				
Poaceae	*Aristida vagans*	threeawn speargrass			8	0.01				
Poaceae	*Austrodanthonia racemosa*	wallaby grass							20	5
Poaceae	*Austrostipa spp.*	a speargrass	6	0.02					50	3
Poaceae	**Avena fatua*	wild oats			50	0.2				
Poaceae	**Avena sativa*	oats							3	0.01
Poaceae	*Bothriochloa spp.*	redgrass; bluegrass							6	0.2
Poaceae	**Bromus catharticus*	prairie grass							300	3
Poaceae	**Cenchrus clandestinus*	kikuyu grass			500	40				
Poaceae	*Chloris ventricosa*	tall chloris	50	0.5			100	3		
Poaceae	**Lolium perenne*	perennial ryegrass	50	0.1	100	2				
Poaceae	*Panicum spp.*	panicum	1	0.01						
Poaceae	*Rytidosperma spp.*		200	3	5	0.01	100	3		
Poaceae	*Themeda avenacea*	native oatgrass							70	6

Family Name	Scientific Name	Common Name	PCT 496 - Yellow Box - White Box - Silvertop Stringybark - Blakely's Red Gum grass shrub woodland mainly on the Liverpool Range, Brigalow Belt South Bioregion		PCT 485 - River Oak riparian grassy tall woodland of the western Hunter Valley (Brigalow Belt South Bioregion and Sydney Basin Bioregion)		PCT 433 - White Box grassy woodland to open woodland on basalt flats and rises in the Liverpool Plains sub-region, Brigalow Belt South Bioregion		PCT 796 - Derived grassland of the NSW South Western Slopes	
			Q01		*Q02*		*Q03*		*Q04*	
			PC	AA	PC	AA	PC	AA	PC	AA
Magnoliopsida – Magnoliidae (dicots)										
Anacardiaceae	**Schinus areira*	pepper tree			2	4				
Apocynaceae	**Araujia sericifera*	moth vine					1	0.01		
Apocynaceae	**Gomphocarpus fruticosus*	narrow-leaved cotton bush			2	0.01				
Asteraceae	**Aster spp.*				1	0.01				
Asteraceae	*Calotis spp.*	a burr-daisy	4	0.01						
Asteraceae	**Carthamus lanatus*	saffron thistle			200	1			25	1
Asteraceae	*Cassinia quinquefaria*		1	0.01	3	0.2				
Asteraceae	**Cirsium vulgare*	spear thistle							6	0.01
Asteraceae	**Conyza bonariensis*	flaxleaf fleabane	1	0.01						
Asteraceae	*Euchiton spp.*	a cudweed					10	0.01		
Asteraceae	**Gamochaeta spp.*								20	0.01
Asteraceae	*Vittadinia cuneata*	a fuzzweed							1	0.01
Boraginaceae	***Echium plantagineum*	Paterson's curse			100	2				
Brassicaceae	**Brassica spp.*	brassica			200	3			1	0.01
Cactaceae	***Opuntia stricta*	common prickly pear; smooth pest pear	5	0.01						

Family Name	Scientific Name	Common Name	PCT 496 - Yellow Box - White Box - Silvertop Stringybark - Blakely's Red Gum grass shrub woodland mainly on the Liverpool Range, Brigalow Belt South Bioregion		PCT 485 - River Oak riparian grassy tall woodland of the western Hunter Valley (Brigalow Belt South Bioregion and Sydney Basin Bioregion)		PCT 433 - White Box grassy woodland to open woodland on basalt flats and rises in the Liverpool Plains sub-region, Brigalow Belt South Bioregion		PCT 796 - Derived grassland of the NSW South Western Slopes	
			Q01		*Q02*		*Q03*		*Q04*	
			PC	AA	PC	AA	PC	AA	PC	AA
Campanulaceae	*Wahlenbergia communis*	tufted bluebell							8	0.01
Caryophyllaceae	**Petrorhagia nanteuilii*	proliferous pink			10	0.02			100	0.2
Casuarinaceae	*Casuarina cunninghamiana subsp. cunninghamiana*	river oak			2	30				
Chenopodiaceae	*Einadia nutans*	climbing saltbush	2	0.02						
Chenopodiaceae	*Einadia trigonos*	fishweed	1000	2			100	6		
Convolvulaceae	*Dichondra repens*	kidney weed	50	0.5			1	0.01	1	0.01
Fabaceae (Faboideae)	*Desmodium spp.*	tick-trefoil	1	0.01						
Fabaceae (Faboideae)	*Glycine clandestina*	twining glycine					4	0.01	3	0.01
Fabaceae (Faboideae)	*Glycine spp.*								2	0.02
Fabaceae (Faboideae)	*Glycine tabacina*	variable glycine	1	0.01			2	0.01		
Fabaceae (Faboideae)	**Medicago polymorpha*	burr medic	1	0.01						
Fabaceae (Faboideae)	**Medicago spp.*	a medic							3	0.01

Family Name	Scientific Name	Common Name	PCT 496 - Yellow Box - White Box - Silvertop Stringybark - Blakely's Red Gum grass shrub woodland mainly on the Liverpool Range, Brigalow Belt South Bioregion		PCT 485 - River Oak riparian grassy tall woodland of the western Hunter Valley (Brigalow Belt South Bioregion and Sydney Basin Bioregion)		PCT 433 - White Box grassy woodland to open woodland on basalt flats and rises in the Liverpool Plains sub-region, Brigalow Belt South Bioregion		PCT 796 - Derived grassland of the NSW South Western Slopes	
			Q01		*Q02*		*Q03*		*Q04*	
			PC	AA	PC	AA	PC	AA	PC	AA
Geraniaceae	**Geranium spp.*		6	0.01						
Lamiaceae	**Marrubium vulgare*	white horehound					1	0.01		
Lamiaceae	*Mentha satureioides*	native pennyroyal	1	0.01			20	0.01	80	0.1
Malvaceae	**Malva parviflora*	small-flowered mallow			50	1				
Malvaceae	*Sida corrugata*	corrugated sida	1	0.01						
Myrtaceae	*Eucalyptus albens*	white box	1	5			9	30		
Myrtaceae	*Eucalyptus blakelyi*	blakely's red gum	11	35						
Oleaceae	*Notelaea microcarpa*	native olive	7	3					1	0.01
Oxalidaceae	*Oxalis perennans*		1	0.01	1	0.01				
Oxalidaceae	*Oxalis spp.*				1	0.01				
Plantaginaceae	*Plantago debilis*	shade plantain							2	0.01
Plantaginaceae	**Plantago lanceolata*	lamb's tongues			500	5	3	0.01	100	1
Plantaginaceae	*Plantago spp.*	plantain	4	0.01						
Plantaginaceae	*Veronica plebeia*	trailing speedwell	1	0.01						
Polygonaceae	*Rumex brownii*	swamp dock			1	0.01				
Rubiaceae	*Asperula conferta*	common woodruff	1	0.01			20	0.01	10	0.01
Solanaceae	***Cestrum parqui*	green cestrum			1	0.01				
Solanaceae	**Solanum spp.*		2	0.01						
Thymelaeaceae	*Pimelea curviflora*	rice flower	2	0.01						

Family Name	Scientific Name	Common Name	PCT 496 - Yellow Box - White Box - Silvertop Stringybark - Blakely's Red Gum grass shrub woodland mainly on the Liverpool Range, Brigalow Belt South Bioregion		PCT 485 - River Oak riparian grassy tall woodland of the western Hunter Valley (Brigalow Belt South Bioregion and Sydney Basin Bioregion)		PCT 433 - White Box grassy woodland to open woodland on basalt flats and rises in the Liverpool Plains sub-region, Brigalow Belt South Bioregion		PCT 796 - Derived grassland of the NSW South Western Slopes	
			Q01		*Q02*		*Q03*		*Q04*	
			PC	AA	PC	AA	PC	AA	PC	AA
Urticaceae	*Urtica incisa*	stinging nettle	2	0.01	100	3				
Verbenaceae	**Verbena bonariensis*	purpletop			4	0.01				
Verbenaceae	**Verbena rigida var. rigida*	veined verbena			20	0.01				
Verbenaceae	**Verbena spp.*		3	0.01			3	0.01		

Photo Monitoring

Plot Q01: Blakelys Red Gum (+/- Yellow Box) Dry Sclerophyll Grassy Woodlands/Open Woodland	
North	**East**
	

Plot Q01: Blakelys Red Gum (+/- Yellow Box) Dry Sclerophyll Grassy Woodlands/Open Woodland	
South	**West**
	

Plot Q02: River Oak (*Casuarina cunninghamiana*) Dry Sclerophyll Woodland	
North	**East**
	

Plot Q02: River Oak (*Casuarina cunninghamiana*) Dry Sclerophyll Woodland	
South	**West**
	

Plot Q03: White Box (*Eucalyptus albens*) and Rough barked Apple (*Angophora floribunda*) Dry Sclerophyll Grassy Woodland	
North	**East**
	

Plot Q03: White Box (*Eucalyptus albens*) and Rough barked Apple (*Angophora floribunda*) Dry Sclerophyll Grassy Woodland	
South	**West**
	

Plot Q04: Derived Native Grassland	
North	**East**
	

Plot Q04: Derived Native Grassland	
South	**West**
	

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Appendix 7 Waste Register

FORM: WASTE MANAGEMENT RECORD

REPORT REFERENCE NO. : …BAR – 19 Ardglen Quarry……..

This form to be completed by the Project Manager, or designee, to record volumes of waste material generated on site and its method of disposal.

PERIOD: 01 / 01 / 19 TO 31 / 12 / 19

WASTE MATERIAL	LOCATION OF SOURCE	QUANTITY	RECYCLED/DISPOSAL LOCATION	METHOD OF RECYCLING OR DISPOSAL
TIMBER	N/A	Nil		
CONCRETE	N/A	Nil		
ASPHALT	N/A	Nil		
SURPLUS TOPSOIL	N/A	Nil		
SURPLUS FILL	N/A	Nil		
DICL PIPE	N/A	Nil		
OILS / GREASES	N/A	Nil		
GLASS	N/A	Nil		
PAPER	N/A	Nil		
STEEL	N/A	Nil		
BRICKS	N/A	Nil		
ROCK	N/A	Nil		
PLASTERBOARD	N/A	Nil		
METALS	N/A	Nil		

FORM: WASTE MANAGEMENT RECORD

WASTE MATERIAL	LOCATION OF SOURCE	QUANTITY	RECYCLED/DISPOSAL LOCATION	METHOD OF RECYCLING OR DISPOSAL
BLOCKS	N/A	Nil		
MULCH	N/A	Nil		
GENERAL WASTE COLLECTED FROM RESIDENCES ADJACENT TO SITE DURING 2019 - COLLECTED AND DISPOSED OF IN EARLY 2020	Ardglen quarry and surrounds	4.94 T	As detailed in the disposal docket – SUEZ Recycling and Recovery Facility Raymond Terrace And one service of the 3.0 cubic metre waste bin by Cleanaway	To an authorised waste disposal facility
TYRES	N/A	Nil		
HAZARDOUS WASTE				
ASBESTOS		Nil		
ACID SULFATE		Nil		
HYDROCARBON (BTEX,Coal Tar etc)		Nil		

Project Manager	Signature	Date
Paul Walker	PW	31 / 12 / 19

Copy to client ☐YES ☑ NO

SUEZ Recycling & Recovery Pty Ltd
Delivery Docket

Raymond Terrace Waste Management Centre
330 Newline Road
Raymond Terrace 2324
Mon-Fri 6AM-4.30PM Sat 8AM-3.30PM
Phone: 02 4983 4100
ABN: 34071096421

Ticket No: **RT360027038.0**
Time In: 29/01/2020 12:39:14 PM
Time Out: 29/01/2020 1:01:00 PM
Vehicle Rego: **CN77MH**

3460025 - REMONDIS AUSTRALIA P/L NRL

Cust ref:

C&D Dry Waste
4.94t@
Source: External
Dest: Raymond Terrace Landfill

GROSS	21.28t
TARE	16.34t
NET Weight:	4.94t
Chargeable Weight:	4.94t
Each Item Weight:	0.00t

Total (ex GST):
GST :

Total Price:

------ Payment Details----------

Temporary Acc:
==========
Total Price:
==========

Total Amount Tendered:
Change Given:

Operator: WOKDS

....

Customer Service: 13 73 73
Accounts : 1300 882 922
ABN : 95002 429 781
www.remondis.com.au

REMONDIS®
WORKING FOR THE FUTURE

Service/Delivery Docket

Client Number - 113827.009

Client Name - DARACON - BERESFIELD

Address - 20 Kullara Cls

BERESFIELD

Service Date - 29/01/20

Booking # - 3296766

Service - Qty 1 HOOK LIFT 15M - DRY WASTE

Total Weight - 4.940

Appendix 8 Road Safety Audit

Table 1 – Ardglen Quarry Road Safety Audit (RSA) – Summary of responses August 2019

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 30th March 2020 (provided by Daracon to DPIE)
1	Intersection of Main Street and New England Highway Northbound and Southbound Delineation	The approach to the intersection of Main Street and New England Highway is missing delineation (i.e. RRPM's) and has faded line marking. This may increase the likelihood of readability issues for a driver. The likelihood of this risk may increase at night and / or adverse weather conditions. This may result in vehicle crashes and injury to occupants of a vehicle(s).	RMS Response – New England Highway (NEH) work will be addressed by works for Daracon	Mostly complete with essential delineation re-instated along New England Highway (NEH) by RMS prior to July 2019. Main Street Ardglen delineation installed on the 11th July 2019 by Daracon. All as shown in the images.	  	Longer term planning for additional NEH intersection upgrade works continues with final arrangements pending the proposed MOD #2 status.
2	New England Highway Southbound Delineation	The existing right turn bay into Main Street is missing right turn pavement arrows, which may lead to readability issues for approaching vehicles. The likelihood of this risk may increase at night and / or adverse weather conditions. This may confuse oncoming drivers for the purpose of lane and cause late lane change decisions. This may result in vehicle crashes and injury to occupants of a vehicle(s).	RMS Response – **RMS to install missing Right Turn Arrows**. RMS to arrange to be included in this year's AC linemarking program.	Completed by RMS prior to July 2019.		N/A

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 30th March 2020 (provided by Daracon to DPIE)
3	New England Highway Southbound Traffic signs	The advanced warning signage on approach to Main Street appears damaged, does not provide advanced warning to approaching vehicles, and has a reduced readability due to sightlines being obscured on the horizontal curve approach. This may lead to driver confusion and increase the likelihood of drivers slowing too early prior to the intersection and may result in vehicle crashes and serious injury to occupants of a vehicle(s).	RMS Response – **RMS to repair signs** from Routine Maintenance	Completed by RMS prior to July 2019.		N/A
4	Intersection of Main Street and New England Highway Northbound and Southbound Delineation and Road pavement	At the intersection New England Highway and Main Street there is a combination of damaged / deformed pavement, loose gravel in the mouth of the intersection and faded delineation. The faded delineation may cause drivers readability issues. The loose gravel and damaged pavement may increase the likelihood of vehicles being unable to gain the required traction when entering Ardglen Road from New England Highway. The likelihood of this risk may increase during adverse weather conditions. This may result in vehicle crashes and serious injury to occupants of a vehicle(s).	RMS Response – New England Highway (NEH) work will be addressed by works for Daracon.	Partially complete with essential delineation re-instated along New England Highway (NEH) by RMS prior to July 2019 as shown in Item (1) above. Loose gravel removed by Daracon on 3rd April 2019. Daracon continues to monitor for damage and /or further deterioration of the pavement in this area and repairs as required in accordance with the current maintenance arrangement with Liverpool Plains Shire Council (LPSC).		Longer term planning for additional NEH intersection upgrade works continues with final arrangements pending the proposed MOD #2 status.
5	Main Street South of the Intersection on the outside of the curve Northbound Road pavement	At the Main Street / rail site compound access and in front of the existing w-beam safety barrier there is loose gravel on the outside of the horizontal curve. This may lead to reduced skid resistance for an errant vehicle. The likelihood of this risk may increase at night and / or adverse weather conditions. This may result in vehicle crashes and serious injury to occupants of a vehicle(s).	As agreed with LPSC representative, the loose gravel on the outside of the curve will be removed by appropriate means by Daracon.	Daracon completed this on the 3rd April 2019 with street sweeper on site. Additional gravel removal on the 11th July 2019 before the line marking was installed		N/A

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 30th March 2020 (provided by Daracon to DPIE)
6	Main Street – South of the intersection of New England Highway Northbound and Southbound Roadside hazards	200m along Main Street from the intersection of New England highway, there is an existing culvert with steep embankments within the clear zone. The combination of narrow shoulder widths, steep batters, culvert headwalls within the clear zone, may limit a driver's manoeuvrability to avoid striking an object or have a reduced ability to gain control of their vehicle and strike objects within the clear zone. Narrow shoulders may also limit the available road width for wide vehicle loads and restrict vehicles in the opposing direction. This may increase the likelihood of drivers encroaching into the opposing travel lane and / or vehicles driving within the road shoulder / verge area to avoid a stationary object on the road. This may result in drivers striking the object or another object within the clear zone and lead to rapid deceleration of the vehicle. This may result in serious injury (not limited to) to occupants of a vehicle(s).	As agreed with LPSC representative, Daracon proposes to install a temporary barrier (type F concrete or similar) to highlight the presence of the existing culvert and minimise the likelihood of interaction with the roadside hazard. Subject to the ongoing operation of the quarry, Daracon may choose to install a permanent barrier (guardrail or similar) at some time in the future.	Effectively complete with the self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance for all trucks was imposed immediately. On the 11th July 2019, additional controls were installed to highlight the presence of the culvert. These additional controls were the extension of the line marking and installation of extra guideposts as shown in the image.		As of the 30th March 2020 and in consultation with LPSC, no issues or incidents have arisen at this location. This fact combined with the cessation of material export from Ardglen quarry (and the subsequent reduction in vehicular movements along Main St), combined with the fact that the additional guideposts are still present and operating effectively, means that this item remains unchanged at this time.
7	Main Street – Rail site compound access Northbound Road alignment and cross section and delineation	Approximately 150m from the intersection of New England Highway along Main Street there is an access track to a rail site compound. At the access there is a lack of delineation on the horizontal curve. This may give the oncoming driver the impression that the Main Street continues through rather the traveling to the right, especially at night. This may cause a driver to make a late change in direction. The combination of loose gravel on the outside of the curve and the late change in direction may result in crashes with other vehicles and result in injury to occupants of a vehicle(s).	As agreed with LPSC representative, Daracon proposes to install additional guide posts (or similar) to delineate the outside of the horizontal curve.	Completed on the 26th March 2019.		N/A

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 30th March 2020 (provided by Daracon to DPIE)
8	Main Street Northbound and Southbound Road pavement And Road alignment and cross section	The road carriageway width does not appear suitable for vehicles to pass (i.e. trucks passing other trucks and / or cars). The travel lane widths may limit a driver's manoeuvrability and increase the likelihood of readability issues to oncoming vehicles. Narrow travel lane may also limit the available road width for wide vehicle loads and restrict vehicles in the opposing direction. This may result in drivers striking oncoming objects or another object within the clear zone and lead to rapid deceleration of the vehicle. This may result in injury to occupants of a vehicle(s).	Please also refer to LPSC point #2 below. Although the AADT would be less than 300 vehicles per day including the quarry operating at 500,000T by road per year as proposed (approximately 60 outbound and 60 inbound truck movements), it was agreed with LPSC to install additional line marking only at the curves either end of Main St. The straight section of Main St will remain with no line marking. All existing line marking will also be renewed if not completed recently by LPSC. An additional control that has been implemented is the self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance for all trucks.	Completed on the 11th July 2019.	 	N/A
9	Main Street Intersection with Ardglen Road Northbound and Southbound Traffic signs	On Main Street approach to Ardglen Road, the existing speed zone repeater signage appears faded. This may increase the likelihood of readability issues for drivers, and increase the likelihood of a driver failing to travel to the sign posted speed limit. The likelihood of this risk may increase at night and / or adverse weather conditions. This may lead to vehicle crashes and injury to occupants of a vehicle(s).	As agreed with LPSC representative, Daracon proposes to install new speed limit signage as the existing sign is faded.	Completed on the 20th March 2019.		N/A
10	Main Street Approaching the Intersection with Ardglen Road Northbound and Southbound Roadside hazards	On Main Road approach to Ardglen Road, there is an existing power pole and fence posts within the clear zone. Errant vehicles at these locations may have a reduced ability to gain control of their vehicle and strike the power pole or fence post within the clear zone which may lead to rapid deceleration of the vehicle. This may be due to the combination of horizontal and / or vertical alignment of the road and / or drivers swerving to avoid striking an animal (i.e. animal carcass). The likelihood of this risk may increase at night and / or adverse weather conditions. This may result in vehicle crashes and injury to occupants of a vehicle(s), not limited to.	As agreed with LPSC representative, Daracon proposes to install delineation in the form of additional guideposts adjacent to the roadway to highlight the presence of the existing power pole.	Completed on the 26th March 2019.		N/A

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 30th March 2020 (provided by Daracon to DPIE)
11	Main Street Approaching the Intersection with Ardglen Road Northbound and Southbound Pavement	Approximately 65m along Main Road from the intersection of Main Road and High Road, there is loose gravel on the outside of the horizontal curve. This may lead to reduced skid resistance for an errant vehicle. The likelihood of this risk may increase at night and / or adverse weather conditions. This may result in vehicle crashes and serious injury to occupants of a vehicle(s).	As agreed with LPSC representative, the loose gravel on the outside of the curve will be removed by appropriate means by Daracon.	Completed on the 3rd April 2019 with street sweeper on site. Additional gravel removal occurred on the 11th July 2019 before the line marking was installed.		N/A
12	Main Street Intersection with High Street Delineation	At the intersection of Main Street and High Street, the existing delineation is faded. This may lead to readability issues for a driver and increase the likelihood of a vehicle failing to give way at the intersection. The likelihood of this risk may increase at night and / or adverse weather conditions. This may lead to vehicle crashes and injury to occupants of a vehicle(s).	As agreed with LPSC representative, Daracon proposes to refresh the existing line marking.	Completed on the 11th July 2019.	 	N/A

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 30th March 2020 (provided by Daracon to DPIE)
13	Main Street Intersection with High Street Westbound Traffic signs	Approaching the intersection of Main Street and High Street from the south eastern side traveling west there is a missing Stop sign. This may increase the likelihood of readability issues for drivers and lead to drivers failing to stop to oncoming vehicles. This may increase the likelihood of vehicle crashes, especially during adverse weather conditions. This could lead to crashes with other vehicles, thus may result in serious injury to occupants of a vehicle(s).	As agreed with LPSC representative, Daracon proposes to reinstate the existing stop sign.	Completed on the 20th March 2019.		N/A
14	High Street Approach to St Stephen Street intersection Westbound Traffic signs	On the south eastern side of the intersection of High Street and St Stephen Street, the advanced warning of T-intersection signage is loose, which has caused the sign to point in the wrong direction. This may increase the likelihood of readability issues for drivers and lead to drivers failing to negotiate the intersection. This may increase the likelihood of vehicle crashes, especially during adverse weather conditions. This could lead to crashes with other vehicles, thus may result in serious injury to occupants of a vehicle(s).	As agreed with LPSC representative, Daracon proposes to reinstate the existing T intersection sign.	Completed on the 26th March 2019.		N/A
15	High street Rail overpass bridge Eastbound and Westbound Road alignment and cross section	Traveling west along High Street towards the rail overpass bridge, the travel lanes appear to narrow and there is a kink in the alignment of the road. The narrow travel lane widths may limit a driver's manoeuvrability and increase the likelihood of readability issues to oncoming vehicles. Narrow travel lane may also limit the available road width for wide vehicle loads and restrict vehicles in the opposing direction. This may result in drivers striking oncoming vehicles or safety barriers and lead to rapid deceleration of the vehicle. This may result in serious injury (not limited to) to occupants of a vehicle(s).	As agreed with LPSC representative, all existing line marking will be renewed if not completed recently by LPSC. An additional control that has been implemented is the self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance for all trucks. Appropriate delineation already exists along the guardrail.	Self-imposed 40 kph speed limit imposed immediately. The line marking was completed on the 11th July 2019.		N/A

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 30th March 2020 (provided by Daracon to DPIE)
16	High Street Approach to St Stephen Street Intersection Eastbound and Westbound Delineation	At the intersection of High Street and St Stephen Street, the existing delineated is faded. This may lead to readability issues for a driver and increase the likelihood of a vehicle failing to give way / stop at the intersection. The likelihood of this risk may increase at night and / or adverse weather conditions. This may lead to vehicle crashes and injury to occupants of a vehicle(s).	As agreed with LPSC representative, all existing line marking will be renewed by Daracon if not completed recently by LPSC.	Completed on the 11th July 2019.	 	N/A
17	St Stephen Street Northbound and Southbound Road alignment and cross section	The road carriageway width along St Stephens Street does not appear suitable for vehicles to pass (i.e. trucks passing other trucks and / or cars). The travel lane widths may limit a driver's manoeuvrability and increase the likelihood of readability issues to oncoming vehicles. Narrow travel lane may also limit the available road width for wide vehicle loads and restrict vehicles in the opposing direction. This may result in drivers striking oncoming vehicles or objects within the clear zone and lead to rapid deceleration of the vehicle. This may result in serious injury (not limited to) to occupants of a vehicle(s).	As agreed with LPSC representative, Daracon will consult with the three residents along Warra and St Stephen Streets to discuss the potential installation of convex mirrors at strategic locations and will install as agreed. Daracon has also implemented a self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance as well as a mandatory "call up" protocol for St Stephens and Warra St's as detailed in the TTMP.	Complete with the self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance for all trucks was imposed immediately. The call up protocol for St Stephens and Warra St's was also implemented immediately as detailed in the TTMP. The residents along Warra and St Stephens St were also consulted with and agreed that the installation of "convex mirrors" located in strategic locations would assist to mitigate the issues identified. The "convex mirrors" were installed on the 15th August 2019 as shown in the images.	 	N/A

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 30th March 2020 (provided by Daracon to DPIE)
18	St Stephen Street Intersection with Warra Street Northbound and Southbound Road alignment and cross section And Road Pavement	Traveling along St Stephens Street towards Warra Street there is deteriorated / damaged pavement with excessive road cross fall, narrow lane widths and sight distance restrictions. The combination of all the above elements may limit a driver's manoeuvrability and increase the likelihood of readability issues to oncoming vehicles. Narrow travel lane may also limit the available road width for wide vehicle loads and restrict vehicles in the opposing direction. This may result in drivers striking oncoming objects or another object within the clear zone and lead to rapid deceleration of the vehicle. This may result in serious injury (not limited to) to occupants of a vehicle(s).	Refer to RSA CAR #17.	Refer to RSA CAR #17.		N/A
19	Warra Street Northbound and Southbound Road alignment and cross section	The road carriageway width along Warra Street does not appear suitable for vehicles to pass (i.e. trucks passing other trucks and / or cars). The travel lane widths may limit a driver's manoeuvrability and increase the likelihood of readability issues to oncoming vehicles. Narrow travel lane may also limit the available road width for wide vehicle loads and restrict vehicles in the opposing direction. This may result in drivers striking oncoming vehicles or objects within the clear zone and lead to rapid deceleration of the vehicle. This may result in serious injury (not limited to) to occupants of a vehicle(s).	Refer to RSA CAR #17.	Refer to RSA CAR #17.		N/A
20	Warra Street Near the quarry entrance Southbound Pavement And Road alignment And cross section	Near the entrance to the quarry and part of Warra Road the existing pavement is deteriorated and shoulder show evidence of erosion. This may lead to soft shoulders and may be unstable for heavy vehicle to use if divers need to move their vehicle to avoid oncoming traffic. This may result in injury to occupants of a vehicle(s), not limited to.	As agreed with LPSC representative, Daracon proposes to investigate and repair the shoulder as described in the RSA.	Completed 20th March 2019.		N/A

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 30th March 2020 (provided by Daracon to DPIE)
21	Warra Street Northbound and Southbound Roadside hazards	Along Warra Street the auditors observed trees within clear zone as well as narrow carriageway. Errant vehicles at these locations may have a reduced ability to gain control of their vehicle and strike the trees within the clear zone which may lead to rapid deceleration of the vehicle. This may be due to the narrow carriageway width of the road and / or drivers swerving to avoid striking oncoming vehicles. The likelihood of this risk may increase at night and / or adverse weather conditions. This may result in vehicle crashes and injury to occupants of a vehicle(s), not limited to.	As agreed with LPSC representative, Daracon proposes to install delineation in the form of additional guideposts adjacent to the roadway to highlight the presence of the trees. Daracon has implemented a self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance as well as a mandatory "call up" protocol for St Stephens and Warra St's as detailed in the TTMP.	Completed on the 26th March 2019.		N/A
22	Warra Street Northbound and Southbound Roadside hazards	Approximately 50m from the entrance of the quarry there is an existing culvert headwall with drop-off within the clear zone. Errant vehicles at these locations may have a reduced ability to gain control of their vehicle impact with the existing headwall and / or surrounding objects within the clear zone. This may be due to the narrow carriageway width of the road and / or drivers swerving to avoid striking oncoming vehicles. The likelihood of this risk may increase at night and / or adverse weather conditions. This may result in vehicle crashes and serious injury to occupants of a vehicle(s).	As agreed with LPSC representative, Daracon proposes to install a temporary barrier (type F concrete or similar) to highlight the presence of the existing culvert and minimise the likelihood of interaction with the roadside hazard. Additionally, **LPSC have committed to investigating the option of extending the existing storm water pipe** to permit widening of the formation thus eliminating the roadside hazard.	The self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance for all trucks was imposed immediately. The call up protocol for St Stephens and Warra St's was also implemented immediately as detailed in the TTMP. Temporary delineation was installed on the 1st April 2019 as shown in the image. These are considered appropriate short term rectification measures due to the fact that this location exists beyond the section of Warra St that requires private vehicular access and only quarry traffic utilises this section of road.		Longer term planning for additional works along Warra St are continuing in consultation with LPSC with final arrangements pending the proposed MOD #2 status. This matter was discussed and agreed with Warren Faulkner from LPSC on the 26th February 2020.

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 30th March 2020 (provided by Daracon to DPIE)
23	Warra Street Quarry entrance Northbound and Southbound Road alignment and cross section	At the site entry of the quarry, the entry appears narrow, lack of carriageway width for drivers to turn around as well as lack of restriction signage / no through road. This may lead to diver frustration and confusion which may contribute to diver error. The likelihood of this risk may increase at night and / or adverse weather conditions. This may result in vehicle crashes and serious injury to occupants of a vehicle(s).	As agreed with LPSC representative, Daracon has implemented a self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance as well as a mandatory "call up" protocol for St Stephens and Warra St's as detailed in the TTMP.	The self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance for all trucks was imposed immediately. The call up protocol for St Stephens and Warra St's was also implemented immediately as detailed in the TTMP. Additional "no entry" and "no through road" signage was installed on the 11th July 2019.	 	N/A
24	Warra Street Northbound and Southbound Delineation	It was noted that along Warra Street there is a lack of delineation. This may increase the likelihood of readability issues for drivers. The likelihood of this risk may increase at night and / or adverse weather conditions. This may result in vehicle crashes and injury to occupants of a vehicle(s).	As agreed with LPSC representative, Daracon proposes to install delineation in the form of additional guideposts adjacent to the roadway.	Completed on the 11th July 2019.		N/A

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 30th March 2020 (provided by Daracon to DPIE)
LPSC #1	Either side of the rail overpass bridge	The two 'T' intersections either side of the rail overpass bridge are not your normal 'T' intersections in that the approach roads to the top of the 'T' have right away, whereas the thru road normally has right of way. Whilst 'Give Way' and 'Stop Signs' along with line marking (that needs maintaining) exists, I think advance warning 'Give Way Sign Ahead' and 'Stop Sign Ahead' signs (W3-1B and W3-2B) should be considered to forewarn road users along High Street and Swinging Ridges Road as the thru road(s).	Daracon agree to install additional advance warning 'Give Way Sign Ahead' and 'Stop Sign Ahead' signs (W3-1B and W3-2B) to forewarn road users along High Street and Swinging Ridges Road as the thru road(s)	Completed on the 20th March 2019.	 	N/A

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 30th March 2020 (provided by Daracon to DPIE)
LPSC #2	Main Street	There is no centreline delineation along the Ardglen Road (it is being called Main Street in the RSA). High Street has centreline marking (albeit it is very faded and needs redoing). Given there are 2 curves along the Ardglen Road, the RSA should identify the lack of centreline marking along this road in greater detail.	Although the AADT would be less than 300 vehicles per day including the quarry operating at 500,000T by road per year as proposed (approximately 60 outbound and 60 inbound truck movements), it was agreed with LPSC to install additional line marking only at the curves either end of Main St. The straight section of Main St will remain with no line marking. All existing line marking will also be renewed if not completed recently by LPSC. An additional control that has been implemented is the self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance for all trucks.	Completed on the 11th July 2019.	  	N/A
LPSC #3	Main Street	The advance 'T' junction warning sign on Ardglen Road on approach to High Street does not depict the road alignment on approach to the intersection. The approach to the intersection has a horizontal curve between the Advanced intersection Warning Sign and the intersection. The sign should be changed to a Curved Intersection (W2-14B) sign.	Daracon agrees to change the advance 'T' junction warning sign on Ardglen Road on approach to High Street to a Curved Intersection (W2-14B) sign.	Completed on the 3rd April 2019.		N/A

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 30th March 2020 (provided by Daracon to DPIE)
LPSC #4	Warra Street	There is a deficiency in Safe Intersection Sight Distance (SISD) at and for the second house along Warra Street on the right as you head towards the quarry. AUSTROADS stipulates the SISD for 50km/h is 90 metres. There would only be 40m at this location. The RSA does not identify this deficiency.	Refer to RSA CAR #17.	Refer to RSA CAR #17.		N/A
Other observation #1	Main Street	Approximately 370m along Main Street from the intersection of New England Highway, the pavement surface appears deformed / subsided (near the abandoned house).	Daracon continues to monitor for damage and /or further deterioration of the pavement in this area and repairs as required in accordance with the current maintenance arrangement with Liverpool Plains Shire Council (LPSC).	Ongoing		Ongoing
Other observation #2	St Stephen Street and Main Street	There is a gap in the existing w-beam safety barrier for rail corridor access at the intersection of St Stephen Street and High Street. The auditors observed that the point of need for safety barrier may not protect an errant vehicle from the hazard at this location.	Ardglen Quarry has been operating as a hard rock quarry for over 100 years and Buttai Gravel (Daracon) has owned and operated Ardglen Quarry since 2005 after purchasing the quarry from the State Rail Authority. Sometime following Daracon's purchase of the quarry, ARTC commenced work on the construction of the rail overpass bridge which was completed sometime before 2009 (and whilst the quarry was still operating). With respect to the design and construction of the new rail overpass bridge, access road and associated structures, Daracon were not involved in the process and had no influence over the design parameters associated with the safety barriers associated with the new bridge and access roads. **However, Daracon and LPSC have recently renewed the line marking in this location which, combined with the additional signage and guideposts installed as well as the self-imposed mandatory speed limit of 40kph from the New England Highway to the Quarry entrance for all trucks, has significantly reduced the risk of an errant vehicle in this location.**	Completed on the 11th July 2019.	 Note – The dirt present on the road surface (as shown in the above image) was the result of LPSC unsealed road maintanence occurring along Swinging Ridges Rd and was in no way associated with truck movements to or from Ardglen Quarry.	N/A

RSA report identification number	Location / category	Description of risk to road safety	Specific actions Daracon commit to undertake	Completion date (if complete) with comments	Evidence of completion	If not complete, status update as at 30th March 2020 (provided by Daracon to DPIE)
Other observation #3	Rail overpass bridge	The audit makes no provision for allowing safe pedestrian access over High Street rail overpass bridge (complaint received August 2018). Provide a response action to address this issue.	Ardglen Quarry has been operating as a hard rock quarry for over 100 years. Buttai Gravel (Daracon) has owned and operated Ardglen Quarry since 2005, after purchasing the quarry from the State Rail Authority. Sometime following Daracon's purchase of the quarry, ARTC commenced work on the construction of the rail overpass bridge which was completed sometime before 2009 (and whilst the quarry was still operating). With respect to the design and construction of the new rail overpass bridge, Daracon were not involved in the process and had no influence over the design parameters associated with pedestrian movements at that location. Daracon are therefore unable to comment on the design parameters used as part of the rail bridge construction. **Although pedestrian activity through the township of Ardglen is irregular and limited, Daracon is however able to inform ALL truck drivers of the need to be vigilant to the increased presence of pedestrians and vehicles associated with the school bus drop offs, collections and also pedestrians utilising the rail bridge. Daracon are also willing to liaise with the local residents to understand and appropriately manage pedestrian movements across the bridge as required.** The Code of Conduct (CoC) and Traffic and Transport Management Plan (TTMP) were updated and resubmitted to the DPIE on the 5th August 2019.	5th August 2019		N/A