



Ardglen Quarry Extension

Response to Submissions

for Daracon Quarries

November 2007

0038419

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Project No. 0038419

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Environmental Resources Management Australia Pty Ltd Quality System

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For over 100 years, NSW Railways has been operating a hard rock quarry at Ardglen, adjacent to the Main Northern Railway. Buttai Gravel Pty Limited, trading as Daracon Quarries (Daracon), recently purchased the quarry and wishes to continue the production of high quality hard rock products generally used in railway and civil construction. Existing reserves of hard rock are diminishing and, therefore, Daracon proposes to extend the extraction area to the west to enable up to 500 000 tonnes of material to continue to be extracted each year for a period of up to 30 years. This extraction will ensure the continuing availability of high quality aggregates for rail and civil construction in the Upper Hunter and New England regions.

Ardglen Quarry is adjacent to the village of Ardglen, a small rural community approximately 4.5 kilometres northwest of Murrurundi.

A local road connects Ardglen Quarry with State Highway No. 9, the New England Highway. The quarry also has a connection to the Main Northern Railway (via a railway siding) east of the quarry.

Ardglen Quarry is in the Liverpool Range, part of the Great Dividing Range on the western boundary of the Hunter Valley. The proposed extension area has an elevation ranging from 660 to 744 metres Australian Height Datum (AHD). The quarry and proposed extension area are visible from Nowlands Gap lookout and from the New England Highway as it descends from the Gap.

Ardglen Quarry is on Lot 1 DP 1001734, Quarry Road, Ardglen, and consists of a pit and ancillary processing works, weighbridge, railway siding, office facilities and car parking, and a quarry extension area that was approved by Murrurundi Shire Council on 20 May, 1994 (DA1/1994/158). Lot 1 DP 1001734, which is approximately 32 hectares in area, is owned by Daracon.

The application area to the west of the existing quarry incorporates Lot 218 DP 751028.

1.2

SUBMISSIONS RECEIVED

Submissions have been received from the following Government instrumentalities:

- Roads and Traffic Authority;
- Liverpool Plains Shire Council;
- Department of Environment and Climate Change;
- Namoi Catchment Management Authority;
- Department of Primary Industries; and
- Department of Water and Energy (formerly the Department of Natural Resources).

Submissions were also received from several community members landholders.

2.1

ROADS AND TRAFFIC AUTHORITY

Roads and Traffic Authority refers to their email of 25.07/2006 whose specific requirements were notably not included in the Director General's Requirements. The RTA email requested a traffic assessment focussing on the following issues. The quarry extension does not change the existing traffic arrangements or impacts. A detailed traffic impact assessment was prepared and included in the EA. The following list summarises the RTA's email issues and provides page reference or comment on each issue:

- total impact on the road network (In consultation with the RTA, further information was requested on the volume of non-quarry traffic that uses the intersection with the New England Highway. There are an estimated 30 non-quarry movements per day through this intersection. No traffic count data is available and these figures are an estimate based on existing residence numbers and other known movements such as the single daily school bus;
- intersection sight distances (Annex G sections 4.3.1, 4.3.2 and 4.3.3);
- Austroads requirements for intersections at grade (Annex G section 4.3);
- Council standards for local roads (there are no changes proposed to the local road system);
- existing and proposed access arrangements (Annex G sections 3.1 and 3.4);
- parking and servicing arrangements (Annex G section 3.5);
- impacts on safety and operations (Annex G section 4.3);
- impacts on road users (Annex G page 16);
- road traffic noise and dust impacts (EA main text section 6.3.4 page 38 and Table 7.2 on page 46 of EA main text respectively);
- contribution arrangements for road maintenance (contributions are expected to be an approval requirement in lieu of road reconstruction);
- State Rail level crossing requirements (this issue was not considered as there were no proposed changes to the current arrangement and ARTC is well advanced with plans to upgrade this crossing to a grade separation. The current crossing is controlled with lights and bells); and
- provision of signage (Daracon is prepared to fit these signs as required).

The RTA also requested that "The DA should be submitted in digital format to the RTA via email at" We were unable to do this as there is no DA form per se, but the project application form is available off DOP's webpage.

Road haulage is a critical part of aggregate transport from Ardglen Quarry and Daracon is committed to maximising trucking efficiency while minimising potential impacts to residents along the haul route and other road users. Daracon's code of driver behaviour will be extended to all haulage operators who pick up from Ardglen to more strongly establish a culture of safe and courteous driving.

Separate advice has been sent to RTA representative outlining these points.

2.2

LIVERPOOL PLAINS SHIRE COUNCIL

Council's letter refers to 23 points and is addressed as follows in order. Discussions have recently been held with David Koppers of Liverpool Plains Shire Council, and the outcomes of these discussions are summarised in the following sections.

Point 1

Daracon's current operating hours and those requested and assessed in the latest application are as follows.

- quarry opening hours 6.00 am to 5.30 pm six days per week;
- truck loading and haulage, 6.00 am to 5.30 pm six days per week;
- rail loading and haulage, 24 hours per day, seven days per week, but limited to 7.00 am to 6.00 pm wherever possible;
- overburden stripping or extraction, 7.00am to 5.00pm six days per week; and
- processing, 7.00 am to 5.00pm six days per week.

Drilling and blasting will produce broken stone. Approximately 15 blasts are proposed each year however this number may vary depending on the demand for the product. Detonation of blasts will generally be scheduled for between 10.00 am and 4.00 pm Mondays to Fridays. As is the current practice at the quarry, the surrounding residents in the immediate vicinity of the quarry will be notified of the forthcoming blast.

Council has been informed that these requested times are required for flexible and profitable operations and that the Council suggested hours are not workable. Conversely though, in accordance with Council's suggestion, to prevent the nuisance of idling trucks near residences, such trucks awaiting

opening times will wait within the quarry site rather than within the confines of the village, with engines off when possible.

Point 2

Council raises a point as to the validity of rehabilitation condition in consent DA 1/1994, previously granted by council. This consent remains in force and so is valid in all conditions.

The current application under part 3A of the Environment Planning and Assessment Act does not seek to modify the consent conditions relating to DA 1/1994, and nor has a section 96 modification been lodged.

The potential for confusion and ease of compliance referred to by council has been prevented by the request for a deferred commencement that would see operations in the extension only commence once the existing approved reserves are depleted.

Discussions with Council suggest that they would prefer a combined rehabilitation plan and consent. The previous operator of the quarry did no rehabilitation but Daracon has a strong and proud record of restoring old quarry lands to productive uses. The Belmont Quarry in Newcastle is but one example. Daracon is committed to planning and implementing self-sustaining and diverse rehabilitation landscapes.

Point 3

Council requests a clearer definition of acceptable impacts. In general terms this would mean compliance with relevant guidelines, or if these cannot be met, then the mitigation of these impacts by economically feasible best practice procedures and modifications. This clarification was discussed with council representatives.

Council state that the EA "*seems to indicate that there are very little no [sic] impacts associated with the proposal...*" The EA factually quantifies impacts and lists mitigation measures.

Council requests a listing of all impacts, and the reader can find these in the relevant sections of the EA. For example if the reader chooses to understand the impacts of the proposal on ecology, reference to the table of contents will show a cross reference to *Section 5.2*. Similarly for acoustic impacts, the table of contents reveals that impacts are detailed in *Section 6.3*.

The EA lists many measures and procedures that Daracon has and will implement to reduce impacts as far as practicably possible. Many of these are listed in the statement of commitments.

Point 4

A 24 hour complaints line has been in operation since Daracon took over Ardglen Quarry and this number will be painted on the entry sign.

Daracon has a code of behaviour for employees that will be extended in modified form to contract truck drivers.

Discussions with Council suggest that they had not been informed of the 24 hour line, and they specifically requested that the phone number be painted on the entry sign and communicated to Council. Further discussions with council clarified that the rural zoning in Ardglen did not support a village landuse.

Point 5

The EA does not state that there are existing use rights at the quarry, but rather continuing use rights. In any event this application covers operations in and over the area of continuing use right insofar as the extension area affects it. The impact assessments have included the area of existing use rights. Council staff do not believe continuing use rights exist at the site.

Point 6

Council raises a point regarding the sale of overburden and its retention for use in rehabilitation. While bulk overburden can assist in rehabilitation, it is the topsoil that is critical. Accordingly, Daracon will not sell topsoil, but may well sell a proportion of subsoil and weathered rock to avoid the need to use higher quality rock products for bulk fill applications. The proposed rehabilitation program will rely on careful quarry planning and shaping of final benches and batters, with topsoil applied as needed. With the chosen staged and benched quarry plan, overburden is not necessary in providing a stable and self-sustaining landscape.

Discussions with council staff show that their main concern was one of topsoil retention and reuse rather than overburden retention.

Point 7

The draft statement of commitments already contains the requirement to notify neighbours prior to blasting. It is expected that the approval conditions will require the preparation of a blast management plan, which will specify the notification process.

Council staff suggested that a notification register be kept, detailing the date of blasts and what notification processes had occurred prior to the blast.

Daracon guards its position as a community member and employer and is committed to maintaining good relations with all local community members.

Point 8

The EA considers the impacts of the proposal as defined, but it should be remembered that there is further resource beyond the application area. This application is for a finite area and time, but it is probable that further applications for quarrying will be made at Ardglen. Already the site has demonstrated that it can produce high quality aggregates for 100 years. Daracon's operation and requested extension will add another several decades to this long history of quarrying.

Discussions with Council suggest that their main concern was that the extension limit is set and clear to all, to prevent any future operator on the site extending beyond the approved limits.

Point 9

Council has stated that the following are applicable:

- SEPP 44 - Koala Habitat Protection;
- SEPP 37 - Continued Mines and Extractive Industries;
- SEPP 45 - Permissibility of Mining; and
- Hunter Regional Environmental Plan 1989.

Council staff have verbally requested that the reasons for why these SEPPs are relevant or not be outlined.

SEPP 44 applies to a number of local government areas listed in Schedule 1 of the policy. This list does not contain Murrurundi LGA (now part of Liverpool Plains Shire Council) or Liverpool Plains LGA, so the SEPP is not relevant.

SEPP 37 applied to the continuing lateral expansion of quarries that commenced without consent but before development orders required such consent. It does not relate to Ardglen as this site was not placed on the SEPP 37 register, and therefore is not privy to the rights that would have been so awarded. The existing quarry has development consent, so SEPP 37 is not applicable to that lot.

SEPP 45 does not apply as Ardglen is not a mining proposal, but quarrying.

SEPP 37 and SEPP 45 were repealed by State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007, which was gazetted on 16 February 2007. According to the savings and transitional provisions of the SEPP (Clause 19), the policy does not apply to or with

respect to an application for an approval under Part 3A of the Act that has been made but not finally determined before the commencement of the policy. The project application was made on 29 November 2006 and is yet to be determined. Therefore, the policy does not apply.

Under section 75R of the EP&A Act, environmental planning instruments other than State Environmental Planning Policies (SEPPs) do not apply to 'Major Projects', therefore the Hunter Regional Environmental Plan, 1989 is not relevant.

Point 10

While the EA does refer to SEPP 33, the policy does not strictly apply to the project as the proposed use does not fall within the definition of 'industry' adopted by the relevant planning instrument i.e. the *Murrurundi Local Environmental Plan 1993* (LEP 1993).

While LEP 1993 does not include a definition of 'industry', the plan adopts the *Environmental Planning and Assessment Model Provisions 1980* and the Model Provisions define 'industry' as:

- "(a) any manufacturing process within the meaning of the Factories, Shops and Industries Act 1962, or*
 - (b) the breaking up or dismantling of any goods or any article for trade or sale or gain or as ancillary to any business*
- but does not include an extractive industry".*

'Extractive industry' is separately defined as:

- (a) the winning of extractive material, or*
- (b) an undertaking, not being a mine, which depends for its operations on the winning of extractive material from the land upon which it is carried on, and includes any washing, crushing, grinding, milling or separating into different sizes of that extractive material on that land".*

The proposal clearly falls within the definition of 'extractive industry' and as such is not 'industry'. Therefore according to the Department's guidelines (Applying SEPP 33, 1994) the policy does not apply. This position was outlined to Council staff on 9 November.

Point 11

The various new measures to reduce impacts from road transportation include:

- cessation of trucks waiting in the village;
- introduction of a code of conduct for drivers;

- sealing of the quarry access road;
- agreed installation of quarry truck warning signs on the highway; and
- installation of a truck wheel wash at the quarry.

Daracon is committed to a nil-complaints policy for any aspect of the quarry operation including truck transport.

Point 12

There is no proposal to increase truck haulage beyond past limits, and therefore a claim by Council for reconstruction of the road from the New England Highway to the quarry is excessive. Daracon is prepared to pay reasonable section 94 contributions to maintain the local road network and expects this to be a condition of approval.

Point 13

Council notes some concern that the removal of areas of a threatened ecological community was assessed as not significant because species were not sighted during survey. It should be noted that there is a difference between ecological communities and species and that the assessment of significance of the community had nothing to do with the presence or absence of individual species. The ecology assessment in the EA gives a clear and detailed description of species, communities and habitats on the site. To clarify, a total of six person days were spent in ecological assessments.

Point 14

The Draft guidelines of Aboriginal Consultation were strictly adhered to in preparation of the EA.

The working log of communication and correspondence with Aboriginal groups and individuals can be supplied on request of the Department of Planning. This log was not published in the EA due to certain privacy issues.

Point 15

Chapter 9 of the EA is entirely devoted to water management and impact assessment. Without repeating this chapter, in essence, the extensions would see the diversion of small volumes of ephemeral storm runoff away from Doughboy Hollow Creek. Balanced against this is the fact that the current pumping direct from the creek's more important intermittent water resources will cease. In addition the EA water balance clarifies the occasions when there would be controlled releases off site.

The proposed water management system will maximise the quarry's self sufficiency in water supply while ensuring only high quality water leaves the site under controlled situations. When fully implemented, the quarry will be entirely independent of Doughboy Hollow Creek.

ERM staff discussed the content of this chapter with Council staff explaining in particular the monthly water balance model.

Point 16

Satellite imagery is a very poor substitute for ground survey, and could only give an indication of condition. ERM's survey procedures provided a robust and detailed data set on which to base reliable impact assessment.

Point 17

Part 3A of the EP&A Act, provides a streamlined assessment and approvals process for major infrastructure and other projects for which the Minister for Planning is the approval authority.

The provisions of Part 3A apply to major projects where the Minister has made a declaration relating to the specific development or a class of developments to which that project belongs. The Minister may declare a development to be a major project in a State Environmental Planning Policy (SEPP) or in an order published by the Minister in the Government Gazette.

The proposal is defined as a major project in SEPP (Major Projects) 2005. A project approval under section 75J of the EP&A Act is being sought for the proposed quarry extension.

Under section 75R of the EP&A Act, environmental planning instruments other than State Environmental Planning Policies (SEPPs) do not apply to 'Major Projects'.

Section 5A of the EP&A Act outlines seven matters which must be taken into account in deciding whether a proposed development is likely to have a significant effect on threatened species, populations or ecological communities, or their habitats. Section 5A of the EP&A Act does not, however, apply to major projects assessed under Part 3A of the Act.

An assessment of the potential effects of the proposal on threatened species, populations or ecological communities listed under the TSC Act has been carried out in accordance with the draft Guidelines for Threatened Species Assessment (Department of Environment and Conservation and Department of Primary Industries, 2005). These guidelines identify factors that must be considered when assessing potential impacts on threatened species, populations or ecological communities for applications assessed under Part 3A of the EP&A Act.

Point 18

Council is correct in stating that no threatened flora species was identified, although a threatened community was found.

Point 19

On further consultation with Council, it was made apparent that Council was ensuring that not only the site was considered, but that it was considered in the broader regional context. The EA ecological annex considers in close detail the site itself, but in the broader context of how this site interacts with adjacent communities, corridors and linkages.

Point 20

Annex D of the EA considers the koala, but its presence is unlikely due to the lack of suitable feed trees. Koalas eat only particular eucalypt species.

Point 21

Annex D of the EA states the following.

The following species are assessed in Annex A as having a moderate to high likelihood of occurring in the area:

- *Bothriochloa biloba* (lobed bluegrass);
- *Dichanthium setosum* (bluegrass);
- *Digitaria porrecta* (finger panic grass);
- *Eucalyptus glaucina* (slaty red gum);
- *Xanthomyza phrygia* (regent honeyeater);
- *Polytelis swainsonii* (superb parrot);
- *Neophema pulchella* (turquoise parrot);
- *Geophaps scripta* (squatter pigeon);
- *Nyctophilus timoriensis* (greater long-eared bat);
- *Anomalopus mackayi* (five clawed worm skink); and,
- *Hoplocephalus bitorquatus* (pale headed snake).

Point 22

The Ardglen area does not support critical habitat.

Point 23

The offset area ratio was determined in consultation with DOP and provides a suitable offset to quarrying, although further consultation with Council suggest its officers believe a larger offset area to be more appropriate. An outline of the offset plan was provided in the EA and a detailed plan will be prepared in consultation with DOP, DECC and NSW Fisheries. Daracon is committed to planning and implementing a robust offset plan to maximise habitat quality in lands around the quarry.

2.3 *DEPARTMENT OF ENVIRONMENT AND CLIMATE CHANGE*

DECC's response covers three main aspects, noise, ecology and air quality and also provided partial recommended consent conditions.

2.3.1 *Noise*

Issue 1

Information Requirements

'Clearly identify all receptors potentially impacted by the proposal and indicate whether they are project related (through acquisition and/or documented noise agreements).'

Response

Figure C1, Annex E of the EA identifies receiver positions close to the Quarry.

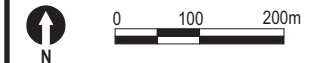
Location four (4) is representative of nearby houses that can be identified from and includes the two receivers close to the north east of this location as presented in *Figure 1*.

Other receivers outside the modelled map limits have been identified to be commercial receivers and are approximately 650m to the north west of quarry operations. The noise criteria for these receivers in accordance with the Industrial Noise Policy (INP) are 65 dBA (acceptable) and 70 dBA (Maximum) respectively. Noise levels of this amplitude are not expected to occur at these receivers due to distance and some topographic shielding.



Figure 1
Receivers Representative of
Location 4

Client:	Daracon Engineering		
Project:	Ardglen Quarry		
Drawing No:	0038419hv_om review_1_01		
Date:	15/10/07	Drawing size:	A4
Drawn by:	JD	Reviewed by:	OM
Source:	-		
Scale:	Refer to Scale Bar		



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Location 2 has been acquired by the quarry and recent information identifies that location 5 also has been acquired; this information was provided following the recent attended noise survey.

Issue 2

Information Requirements

'The assessment should use LAeq, 15-minutes (day/evening/night) 35 dB(A) as the noise assessment criteria (PSNL) for all non-project related premises unless additional ambient noise monitoring is undertaken in accordance with the INP to demonstrate an alternative level is appropriate.'

Response

Further to recent communications (26 October 2007) with the DECC's Mr Stephen O'Donoghue and comments from Mr Gordon Downey identified that the DECC were concerned that logger data presented in the EA for daytime background noise levels from Mondays to Saturdays may have been influenced by the quarry'.

Three methods have been adopted to establish a new RBL level surrounding Ardglan and to determine the existing quarry noise contribution. These are an analysis of Sunday logger data, new attended noise surveys and independent noise logger surveys, all detailed as follows

Analysis Of Sunday Background Data

Analysis of relevant background noise levels in the absence of the quarry has been undertaken using Sunday background data. While it is acknowledged that this is not strictly in accordance with the INP, it does provide a guide as to the non-quarry background noise levels.

Background noise levels when quarry operations are not occurring are dominated by the New England Highway and this is evident from analysis of the available logger noise data for Sunday daytime periods. Analysis of the data is reproduced in *Table 1* and identifies that the adoption of 30 dBA background and according project specific noise criterion (PSNC) of 35 dBA is highly conservative.

Table 1 *Sunday Background Noise Levels*

Location	Period	Background LA90 Noise Level	Measured LAeq Noise Level
		Rating Background Level	
Location 6 (North)	Day	38 dBA	54 dBA
Location 2 (East)	Day	33 dBA	48 dBA

Attended Noise Surveys

Following submission of this information to the DECC, the DECC suggested further assessment and analysis be undertaken to determine the quarry contribution to receivers surrounding Adglen Quarry. The comments from the DECC from the email received on 26 September 2007 are reproduced below :

- *'Attended monitoring at the nominated locations to attempt to estimate the noise contribution of the existing quarry to the background noise environment. The quarry's contribution can then be subtracted from the measured RBL. This type of approach would be largely dependant on the subjective judgment of the acoustic practitioner. It may well be, that the existing quarry noise is sufficiently intermittent that the RBL approach may have successfully "filtered out" the quarries contribution, however this was not indicated, or supported in the EA. So in this sense the consultant would be estimating not only the level of noise contribution, but also the amount of time that it is present sufficiently long enough to influence the background noise.'*
- *'Using an alternative representative monitoring location with similar environmental noise exposure, other than the quarry, as suggested below,'*
- *'Adopting a more conservative "number crunching" of the available data using a 90th percentile approach of daily ABL's in lieu of the median.'*

The last two points have not been undertaken, as the first point has been addressed by the following monitoring and analysis.

Monitoring was conducted using a type one sound level meter (Brüel & Kjær 2250) complying with the requirements of AS 1259.2-1990, "Sound Level Meters". Additionally, all equipment used hold current NATA or manufacturer calibration certificates and all instrumentation was calibrated before and after each measurement survey. The tolerance of each unit did not vary by more than ± 0.5 dBA.

Additional analysis of the attended measurements was undertaken with Brüel & Kjær Evaluator Analysis Software (Type 7820), that can remove extraneous or unwanted noise that contributes to the overall measurement parameters (eg removing quarry noise emissions from the data set to determine the background contributions).

Monitoring locations were selected on the basis of their offset distance to the New England as this is the main noise source within the locality of Ardglen.

Monitoring was undertaken at positions relevant to locations 3 (representative of location 4), 5 (representative of locations 9 and 10) and 8 (representative of locations 6 and 7) surrounding the Ardglen Quarry. *Figure 2* presents these positions graphically.

Quarry processing (crushing and screening) were not occurring at the time of the measurements due to a breakdown (for approximately seven to ten days), although a loader and articulated truck were operating near the quarry stockpile for the first 10 minutes of the noise survey for location 8. Quarry





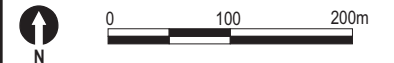
- Legend**
-  Nearest Residences
 -  Background Noise Assessment Locations

Figure 2
Background Noise Monitoring Locations

Client:	Daracon Engineering		
Project:	Ardglan Quarry		
Drawing No:	0038419hv_om review_1_02		
Date:	01/11/07	Drawing size:	A4
Drawn by:	JD	Reviewed by:	OM
Source:	-		
Scale:	Refer to Scale Bar		



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noise contributions for this period were removed from the data set. Quarry road trucks adjacent to or nearby any monitoring position were also excluded from the data set to obtain background data with no quarry influence.

Results of the background noise survey were dominated by New England Highway traffic and to a lesser extent, rural or insect noise. The resultant LA90 noise level for all locations was 42 dBA.

Independent Noise Surveys

Noise monitoring recently conducted by Sinclair Knight Mertz Pty Ltd (SKM) as contained in report 'Noise assessment – Construction and Operation of Crossing Loops Extension at Ardglen ', 5 September 2007 has been referenced below to provide verification on background noise levels in the locality of Ardglen including determining the contribution of quarry operations.

Noise logging was conducted at residences equivalent to ERM Locations 9 and 7. The results of the SKM monitoring are reproduced *Table 2*.

Table 2 *SKM Background Noise Data*

Location	Period	Background LA90 Noise Level	LAeq (15-minute) Project Specific Noise Goal
		Rating Background Level	
Location 9	Day	36 dBA	41 dBA
Location 7	Day	39 dBA	44 dBA

Discussions within the SKM report identify that background noise levels at residences where the noise loggers were positioned are primarily dominated by traffic noise emissions from road traffic from the New England Highway. Additionally, the only audible quarry noise emissions were quarry trucks on the public road having some impacts on 'high noise levels' such as the LAeq parameter rather than the LA90.

Summary

From attended monitoring and from analysis of other background noise data for the area of Ardglen, the original RBL provided in the *Table 6.2* in EA have been verified as applicable for the Ardglen locality. Recent measurements and review of SKM data and findings identify that the quarry noise contribution to the measured levels at the time of each survey were negligible and representative of background noise in the absence of the quarry. Therefore, the original EA RBL and consequent PSNC are provided in *Table 4*.

Table 3 *EA Background Noise Data*

Location	Period	Background LA90 Noise Level	LAEq (15-minute) Project Specific Noise Goal
		Rating Background Level	
Location 6	Day	36 dBA	41 dBA

Therefore, the resultant impacts for typical operation (extraction) compared with the PSNC are reproduced in *Table 4*. It should be noted that residences 2 and 5 have been bought by Daracon and so have been excluded from calculations.

Table 4 *Modelled Emissions - Quarry Extraction Operations*

Location	Proposed Extraction Operations	EA PSNC
		Daytime 7.00am to 6.00pm
1	25	35
3	38	41
4	44	41
6	44	41
7	39	41
8	46	41
9	44	41
10	45	41

1. Location 2 and Location 5 have been acquired by the quarry and therefore has not been assessed
2. Rail loading has not been provided in the above results
Mitigation options are being adopted by the quarry as per the Environmental Assessment and therefore have been included in the above results.

Post-exhibition correspondence and discussion with DECC clarifies that the agency cannot support any development that exceeds the PSNC by more than 5 dBA. identify that current policy approves licenses for development that do not exceed the PSNC by more than 5 dBA. Table 5 clarifies that the quarry will not exceed the PSNC by more than 5 dBA at any receiver.

Ongoing discussion with DECC representatives on 8 November 2007 informed the agency of the RBL findings of 36 dBA to be the representative RBL in the absence of quarry contributions.

Issue 3

Information Requirements

'Undertake adequate assessment in accordance with the INP for inversions during night time period proposed for operations including truck haulage and train loading operations.'

Response

Inversion parameters were not modelled in this assessment due to the predominantly daytime operations of the quarry. Notwithstanding this, ERM acknowledge that night time activities would occur on occasion, consisting of train load out and some truck movements. An analysis of the morning shoulder period was also undertaken for receivers surrounding location 6, resulted in an LA90 of 38 dBA. In the absence of quality data, a morning shoulder LA90 of 33 dBA was adopted for location 1 and location 2. For night time periods and RBL of 30 dBA had been adopted, resulting in a project specific criteria of 35 dBA.

Table D1 of Appendix D of the INP provides indicative inversion parameters for receivers at varying distances. *Table 5* and *Table 6* present the results during the occurrence of a 3°/100m inversion.

Table 5 *Rail Loading Modelled Noise Levels - Inversion*

Receiver	Rail Loading (LAeq)	During Inversion (LAeq)	Night Project Specific Criteria (LAeq)	Morning Shoulder Criteria (LAeq)
1	<30	<30	35	38
2 ¹	62	63.5	35	38
3	42	43.5	35	43
4	50	51.5	35	43
5 ¹	49	50.5	35	43
6	49	50.5	35	43
7	30	31	35	43

1. Residence is owned by the quarry.

Table 6 *Truck Hauling Modelled Noise Levels - Inversion*

Receiver	Truck Hauling (LAeq)	Night Project Specific Criteria (LAeq)	Night Project Specific Criteria (LAeq)	Morning Shoulder Criteria (LAeq)
1	<30	<30	35	38
2 ¹	<30	<30	35	38
3	<30	<30	35	43
4	<30	<30	35	43
5 ¹	<30	<30	35	43
6	<30	<30	35	43
7	<30	<30	35	43
8	<30	<30	35	43
9	<30	<30	35	43
10	<30	<30	35	43

1. Residence is owned by the quarry..

Noise emissions associated with rail loading will increase only slightly during inversion conditions, as inversions do not enhance noise level emissions significantly where receptors are close to the noise source.

The potential for drainage flows to occur around quarry operations have been analysed and are not relevant as sources are below that of nearby receivers, or there is intervening topography present between the sources of the quarry and nearby receivers.

It should be reinforced that night train loading historically occurs only once per year on average. This frequency is not predicted to change as night loading is subject to rail track scheduling and is beyond the control of quarry management.

Notwithstanding the above, all reasonable and feasible mitigation measures have been incorporated into the load out facility. The quarry management will notify the local community when night-time loading is planned.

Issue 4

Information Requirements

'Undertake additional noise assessment in accordance with the INP process including:

- Identifying and properly assessing all feasible and reasonable noise mitigation measures for existing and proposed activities (including consideration of modification of the proposal); and*
- If all feasible and reasonable mitigation measures cannot demonstrate compliance with noise criterion than negotiate an acceptable level of impact through negotiation with approval body (as conditions of approval) and/or negotiation directly with affected community/receptors.'*

Response

Significant mitigation measures have been undertaken by the management of the quarry in an attempt to reduce its overall noise emissions including :

- a 4m high noise wall west of the rail spur will be built along the edge of the haul road to provide noise mitigation to Locations 3, 4 and 5;
- a 4m high noise wall north of the quarry expansion boundary will be built to provide noise mitigation to Locations 6 and 7;
- rail loading will be limited to the day period (7am to 6pm) as much as practicable;
- surge bin is to 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; and
- two scrapers initially assigned for overburden stripping are to be replaced by one excavator and two articulated dump trucks.

Typical operations of the quarry are represented by the scenario 'extraction only' as stripping will only occur for a limited duration until plant excavate to lower elevations within the pit, while rail loading typically occurs once a week (and night time loading is rare, only once per year).

Therefore, the levels modelled for extraction are representative of general use of the quarry and do not exceed at non-owned receivers by more than 5 dBA when adopting the relevant PSNC.

Notwithstanding the above, noise level reductions from the implementation of noise control and management strategies will see a significant reduction in overall quarry levels as compared to its current operation, which in turn is a significant community benefit.

The proponent is willing to adopt a more stringent criteria based on the Sunday derived PSNC for the development and in ongoing monitoring program to determine quarry noise contributions at sensitive receivers with the aim of meeting the proposed (as per *Table 2*) criteria during typical operations. It is believed that due to the conservative nature of the modelling assessment adopting all plant operating simultaneously, that noise emission levels may be lower than that modelled. Additionally, site specific monitoring would allow for the dominant noise contributors on-site to be identified and so be targeted for further mitigation.

Issue 5

Information Requirements

'The NIA should present overall (total) noise from the Swinging Bridges Road including noise from the quarry truck movements.'

Response

The Environmental Criteria for Road Traffic Noise (ECRTN) identifies that traffic arising from the development should not lead to an increase in existing noise levels of more than 2 dBA.

The maximum of vehicles to the quarry has been identified to be 5 truck movements per hour. To identify potential increases existing and predicted road traffic noise levels, analysis for Sunday data from monitoring position 6 (closest receiver) was undertaken, to provide indicative levels from road traffic unaffected by quarry operations. Road traffic noise predictions for daytime are presented in *Table 7*.

Table 7 *Road Traffic Noise Predictions – Daytime*

Location	Existing Traffic Noise	Predicted Maximum Traffic Noise Contribution of Quarry	Predicted Maximum Including Future Traffic Noise	Noise Design Criteria
	L _{Aeq} (1hour) Daytime	L _{Aeq} (1hour) Daytime	L _{Aeq} (1hour) Daytime	L _{Aeq} (1hour) Daytime
Receiver 6	59.6 dBA	46 dBA	53.8 dBA	60 dBA

Table 8 *Road Traffic Noise Predictions – Night*

Location	Existing Traffic Noise	Predicted Maximum Traffic Noise Contribution of Quarry	Predicted Maximum Including Future Traffic Noise	Noise Design Criteria
	L _{Aeq} (1hour) Night	L _{Aeq} (1hour) D Night	L _{Aeq} (1hour) Night	L _{Aeq} (1hour) Night
Receiver 6	56.6 dBA	46 dBA	57 dBA	55 dBA

Predicted traffic noise associated with the proposed quarry extension travelling along Quarry Road is calculated to remain below the relevant ECRTN criteria and will not increase the overall noise levels from the current situation.

2.3.2 *Ecology*

DECC’s submission refers to comments made previously on a draft report. This response document will only discuss those issues DECC states are not satisfactorily resolved.

Flora surveys

The flora surveys as shown on *Figure 3.2* are correct with 9 quadrats and 7 meander transects undertaken on site.

Flora surveys were conducted on Lot 1 to ascertain its potential as an offset area and identify vegetation community.

Lot 39 and 49

An additional site visit has performed the following to reconfirm the previous identification of the box gum EEC:

- ten 100 metre random meanders and nine quadrats on lot 49; and
- five 100 metre transects and five quadrats on lot 39.

The results were consistent with previous advice that both lots contain the EEC, apart from areas of cultivation and house gardens.

Grassland conservation rating system

DECC raises a question as to methodology in assessing EEC condition. The EA took a precautionary approach and has considered the whole of the EEC in development of the offset plan. Ongoing drought conditions do not allow ideal ground cover survey.

Hollow bearing trees

The pre-clearance survey was proposed to reduce direct impacts to animals that may be roosting or nesting in hollows at the time of clearing.

DECC raises the question of whether there are sufficient trees in which to place nest boxes to replace hollows one for one. There are sufficient trees in the offset area to support equal numbers of nest boxes to hollows.

The detailed offset plan proposed to be prepared as part of the approval conditions will detail the type, number and location of nest boxes and hollow replacements.

Discussions were held with Steve O'Donoghue from DECC in Armidale office on 9 November outlining the latest vegetation surveys and methodology on Lot 39 and Lot 49.

2.3.3

Air

DECC concurs with the air quality assessment methodology and outcomes and recommends the continuation of the current air quality monitoring program. Daracon will continue with this program unless varied in agreement with DOP. DECC recommends on site meteorological monitoring, and this was commenced some months ago.

DECC specifically recommends that water sprays be fitted to the crushing hopper and applied during dumping to stockpiles. Sprays are currently fitted to the crusher hopper, the primary crusher receiver, and at the conveyor stockpile discharges.

Front end loader stockpiling operations are unable to be effectively watered.

On its takeover of Ardglen Quarry from the previous operator, Daracon has implemented numerous practical modifications and measures aimed at reducing dust emissions. Further measures have been proposed and incorporated into dust modelling and the statement of commitments to further reduce dust impacts. Dust monitoring in the last few months at Quambi and on top of the quarry highwall (well within the quarry boundary) show PM10 averages of 18 and 30 micrograms per cubic metres respectively. These averages are under the predictions in the EA and within the relevant criteria. Daracon is committed to maintaining dust levels below predictions by implementing the best feasible mitigation measures and rigorous monitoring programs.

2.4 *NAMOI CATCHMENT MANAGEMENT AUTHORITY*

The Namoi CMA is essentially supportive of the proposal and agree that the loss of the 17.8 hectares of EEC will not be significant. The CMA has requested two specific conditions of consent, both of which are in keeping with the proposed offset plan and are agreeable to Daracon.

Daracon is committed to planning and implementing a sound and beneficial offset plan to maximise the habitat quality of their lands adjacent the Ardglen Quarry.

2.5 *DEPARTMENT OF PRIMARY INDUSTRIES*

The DPI has several divisions, and this response is from the Minerals Resources Division and the Fisheries Division.

The Minerals Resources Division is supportive of the proposal but requests additional information. This information request was not raised in the Director General's Requirements, and accordingly was not addressed in the EA. Should the DOP request additional data regarding rock quality, these can be forwarded on request. This position was accepted by Division representatives in recent conversations.

Recent discussions have been held with Cressida Gilmore from Minerals Resources Division and the proponent is agreeable to the inclusion of the Division's suggested consent condition requesting annual production data.

The Fisheries Division is supportive of the proposal and mitigation measures and agrees that as the development is high in the catchment, it is likely that direct impacts on key fish habitat will be low.

Fisheries support the proposal to cease pumping from Doughboy Hollow Creek, but have requested removal of the existing weir. While this has merit and Daracon does not object, it is suggested that this issue be considered on site with representatives of Fisheries to consider inadvertent impacts of such

demolition and the need for permitting. Discussions with a NSW Fisheries representative (David Ward) suggest that the most appropriate vehicle to consider and permit such demolition is via a post-approval application for a Dredging and Reclamation Permit, in consultation with NSW Fisheries and DWE.

Fisheries also supports the proposal to remove stock, control weeds and revegetate parts of the offset area, but also suggest replanting along the riparian zone of Doughboy Hollow Creek. This would be a worthy adjunct to the offset proposal and is acceptable to Daracon. These details can be formalised during preparation of the detailed offset plan discussed in the statement of commitments and recent discussions with a Fisheries' representative suggest the agency would be supportive of this process. It is suggested that an approval condition be included to the effect of:

The operator shall prepare a Dredging and Reclamation Permit application under the Fisheries Management Act, 1994 or a 3a permit application under the Rivers and Foreshores Improvement Act, 1948 for the removal of the weir in Doughboy Hollow Creek, adjacent to the rail loader.

2.6

DEPARTMENT OF WATER AND ENERGY

DWE's submission has requested the following:

- the potential to intercept groundwater;
- the volume of groundwater make;
- any approvals required as a consequence of interception;
- existing groundwater resources;
- potential impacts on groundwater; and
- piezometer/bore logs.

In regard to these, the EA states the following,

The Department of Natural Resources Bore Search database show clusters of alluvial bores around Murrurundi and Blandford for town water supply. No bores are registered in Ardglen, which is expected given the lack of shallow alluvial aquifers. There may however be small volume, shallow domestic, unregistered bores. These are most likely to occur in or close to Doughboy Hollow Creek, tapping into the limited and localised surficial aquifer adjacent to the creek.

The potential for local groundwater was examined during geological investigations. Numerous holes were recently drilled into the targeted resource area and all holes were dry. Anecdotal data from the previous quarry operator has also shown that

production drill holes, even for blasting the current in-pit sump, were dry. Heavy rain sometimes enters the holes.

Regular inspections of the quarry face over several months have shown no evidence of seepage through the intensive jointing in the basalt. Accordingly, it is apparent that there is no surficial basalt aquifer, although this investigation has not considered the potential for a deeper aquifer.

Given the lack of a surficial aquifer and the absence of groundwater dependent ecosystems or groundwater dependent fauna on the extension site, further consideration of site groundwater is not justified. However, given that the site may be a recharge area for a larger groundwater system, the statement of commitments outlines various controls to prevent the egress of fuels and oils.

As clearly stated in the EA, there is no potential for groundwater interception, nor as a consequence any need for approvals. Should the DOP require driller's logs of exploration holes, these can be forwarded, but are to be considered commercial in confidence.

To further protect any unidentified aquifer, Daracon will monitor for the presence of groundwater during all drilling campaigns, and should a previously unidentified aquifer be intersected, will immediately contact local representatives of DWE for advice and direction.

Discussions were held with the Manager of DWE's Major Projects and Assessments Branch, who accepted the results of the assessments but was to liaise further with members of his own department for clarification. Further discussions with the Licensing Officer-Northern clarified the lack of groundwater resources and further supported Daracon's proposal to monitor for the presence of unidentified aquifers during blast drilling.

3 COMMUNITY SUBMISSIONS

3.1 INTRODUCTION

Several submissions were received from community members at Ardglen, covering the following issues:

- visual impact;
- community consultation;
- landownership details;
- noise modelling;
- vibration;
- employment opportunities;
- operating times; water impacts; and
- dust.

These issues are addressed as follows.

3.2 VISUAL IMPACT

Some community member have questioned the outcomes of the visual impact detailed in the EA that concludes:

The existing quarry has been a part of the Ardglen community for over 100 years. While the quarry does impact on the visual quality of the existing landscape, the visual impact of the proposed development will not represent a significant decrease in the current visual amenity.

For full assessment of the current and expected impacts of the quarry on the local visual amenity, readers are directed to the full assessment in the EA.

Daracon is aware that the quarry is visible and is a strong visual component of the Ardglen Valley. The planned offset plan and rehabilitation measures will in the long term soften the visual appearance. Daracon is committed to managing the environmental impacts of the quarry and will continue to look for ways to visually shield the site from the view of both residents and motorists. Daracon will offer a range of local endemic trees and shrubs free of charge to all landholders within the Ardglen township.

3.3 *COMMUNITY CONSULTATION*

Some residents voiced a concern as to the extent of consultation. The EA reports that the consultation process involved personal visits and discussions with community members to obtain a broad perspective of view and an understanding of how the quarry operation interacts with this community. These communications have been undertaken by Daracon site representatives and Senior and Executive Management. *Figure 4.1* in the EA shows the geographic extent of landowners consulted.

A community newsletter was circulated to landowners during the preparation of the EA, providing an outline of the project, approvals process and environmental assessment methodology. A copy of the newsletter was provided in the EA.

Daracon is committed to being a good neighbour, and staff will always remain available for discussions with local residents.

3.4 *LANDOWNERSHIP DETAILS*

One resident notes some possible inaccuracies in the landholder data presented in the EA. This data was sourced from Liverpool Plains Shire rates database so is assumed to be correct at the time of publication.

3.5 *NOISE MODELLING*

A full discussion of noise assessment is provided in the DECC response in an earlier section of this report.

3.6 *VIBRATION*

One resident voiced specific concern related to blast induced vibration.

Blasting is required to produce sized rock for processing into aggregate, and has been conducted for the 100 years of operations at the site. One resident comments that blast frequency appears to have increased in the last year or so over the levels he and his family had noted over recent years. This is correct and is due in part to smaller blasts to reduce impacts and also due to a ramp up in production that still now is below average production levels from when the quarry was operated by the State Government.

The ANZECC guidelines specify that air-blast overpressure should not exceed 115 dB(L_{peak}) for more than 5% of the total number of blasts over a period of 12 months. However, the maximum level should not exceed 120 dB(L_{peak}) at

any time. The dB(L_{peak}) unit of sound measurement considers the low frequency sounds which are not audible to the human ear but can be 'felt'.

The ANZECC guidelines specify that the peak particle velocity from ground vibration should not exceed 5 mm/s for more than 5% of the total number of blasts over a period of 12 months. However, the maximum level should not exceed 10 mm/s at any time. The ANZECC guidelines also recommend that a level of 2 mm/s be the long-term regulatory goal for the control of ground vibration.

The ANZECC guidelines state that blasting should generally be limited to the hours from 9am to 5pm, Monday to Saturday, and should not take place on Sundays or public holidays. The ANZECC guidelines recognise that under some circumstances, blasting cannot always be restricted to general working hours and achieve compliance within blast level limits. This may be due to prevailing winds being less favourable during these periods.

Theoretical predictions in the EA suggest that exceedances of the criteria are likely for overpressure and ground vibration at some residences. Results of actual blast monitoring at the quarry, however, indicate much lower overpressure and ground vibration than predicted using empirical formulae. In addition, blast design and, hence, corresponding air blast overpressure and ground vibration is within the control of operators. The existing site blast management strategy will be used to ensure criteria are met. All blasting will continue to be monitored to optimise blast performance and minimise impacts and to ensure all blasts are within relevant criteria.

Daracon is well aware that blast induced vibration and overpressure can be a cause of community concern and is working with blasting contractors and explosives manufacturers to further reduce emissions from blasts at Ardglen.

3.7 *EMPLOYMENT OPPORTUNITIES*

One resident notes that closure of the quarry would not be an economic loss to Ardglen as the quarry only employs two town residents. While it is acknowledged that the overall Australian employment rate is high, this is not the case in all rural communities, and given the very small population of Ardglen, the loss of two full time jobs is significant.

3.8 *OPERATING TIMES*

Daracon's current operating hours and those requested and assessed in the latest application are as follows:

- quarry opening hours 6.00 am to 5.30 pm six days per week;

- truck loading and haulage, 6.00 am to 5.30 pm six days per week;
- rail loading and haulage, 24 hours per day, seven days per week, but limited to 7.00 am to 6.00 pm wherever possible;
- overburden stripping or extraction, 7.00am to 5.00pm six days per week; and
- processing, 7.00 am to 5.00pm six days per week.

Daracon will ensure that all operations comply with these limits, including the activities of road haulage contractors.

3.9

WATER IMPACTS

Several residents have noted concerns regarding changes in water quantity and some discrepancies in licensing data.

One resident voiced some concerns about the in-pit storage dam and loss of water from Doughboy Hollow Creek. The storage has been in-pit for more than ten years and was formed during quarrying by the NSW Railways. The EA contains a water balance that quantifies the pit inflows and discharges. Given the very large area of the Doughboy Hollow Creek catchment, the intermittent capture of pit runoff water into this sum would have an unmeasurable effect on creek flows.

One resident's assertion that it is Daracon rather than the prolonged drought that is responsible for lack of flows in Doughboy Hollow Creek is difficult to support, as Daracon's water management at the quarry is no different to the NSW Railways, apart from the Daracon's reliance on pumping from their-pit storage rather than Doughboy Hollow Creek. This change will have reduced withdrawals from the creek, further suggesting that the drought is responsible for the low flows reported.

One resident refers to a bore licence in his name, which oddly did not appear in ERM's previous bore search. The groundwater assessment in the EA noted the following:

The Department of Natural Resources Bore Search database show clusters of alluvial bores around Murrurundi and Blandford for town water supply. No bores are registered in Ardglen, which is expected given the lack of shallow alluvial aquifers. There may however be small volume, shallow domestic, unregistered bores. These are most likely to occur in or close to Doughboy Hollow Creek, tapping into the limited and localised surficial aquifer adjacent to the creek.

So notwithstanding the bore search error, this is of no consequence as the EA assumed the presence of bores in the shallow alluviums, which are not connected to the hard rock geology.

3.10

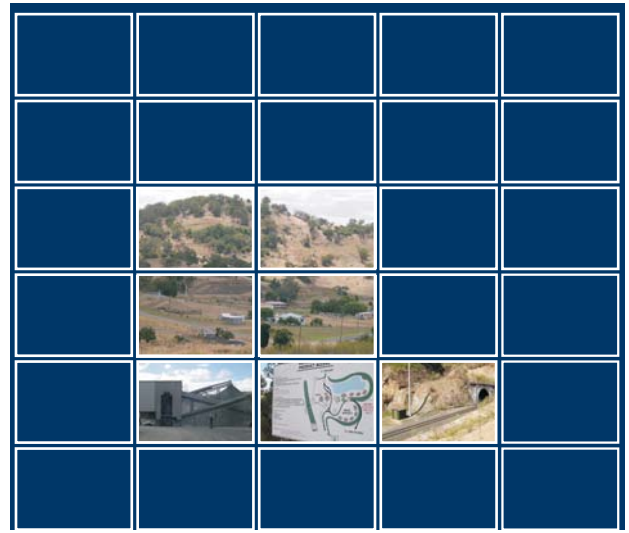
DUST

One resident refers to dust emissions. Data collected in the past six months at Quambi and on top of the quarry highwall (well within the quarry boundary) show PM10 averages of 18 and 30 micrograms per cubic metres respectively. These averages are under the predictions in the EA and within the relevant criteria.

Daracon will continue with newly implemented dust controls on site and will continue to seek new ways to further reduce dust levels. Daracon will continue to maintain a system of dust monitors to check compliance with guidelines and measure improvements over time.

ERM has over 100 offices
across the following
countries worldwide

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