



**KARUAH EAST QUARRY**

# **INDEPENDENT ENVIRONMENTAL AUDIT**

for

**Karuah East Quarry Pty Ltd**

October 2020

# KARUAH EAST QUARRY

## INDEPENDENT ENVIRONMENTAL AUDIT

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October 2020

*for:*

**KARUAH EAST QUARRY PTY LTD**

Blue Rock Close  
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## LIMITATIONS OF REPORT

In preparing this audit report, Hansen Bailey has assessed all activities appropriate and necessary to evaluate the environmental status of the site and operations on it. Hansen Bailey has addressed all technical matters which might reasonably be considered to be relevant to such an assessment conducted to standards which apply in NSW. Based on observations of the site, interviews with appropriate staff and a review of available documentation, it is Hansen Bailey's opinion that the potential critical environmental issues associated with the site and operations are those discussed in this report. However, Hansen Bailey can only advise on the basis of the information available to them and therefore cannot dismiss absolutely the possibility that parts of the site, or adjacent properties, may give rise to additional issues.

The conclusions presented in this report are professional opinions based solely upon Hansen Bailey's visual observations of the site and the immediate site vicinity, and upon Hansen Bailey's interpretations of the documentation reviewed, interviews and conversations with personnel knowledgeable about the site and other available information, as referenced in this report. These conclusions are intended exclusively for the purposes stated herein, at the site listed, and for the project indicated.

Opinions presented in this report apply to the site's conditions and features as they existed at the time of Hansen Bailey's site visit on 27 August 2020, and those reasonably foreseeable. They necessarily cannot apply to conditions and features which Hansen Bailey is unaware of and has not had the opportunity to evaluate.

This report does not, and does not purport to, give legal advice on the actual or potential environmental liabilities of any individual or organisation, or to draw conclusions as to whether any particular circumstances constitute a breach of relevant legislation.

## KARUAH EAST QUARRY INDEPENDENT ENVIRONMENTAL AUDIT

*For*  
**Karuah East Quarry Pty Ltd**

### 1 INTRODUCTION

#### 1.1 BACKGROUND

Hansen Bailey has been commissioned by Karuah East Quarry Pty Ltd (KEQPL) to conduct an Independent Environmental Performance Audit (IEA) for the Karuah East Quarry Project (KEQ). KEQ operates under Project Approval (PA) 09\_0175 which was approved in 2014 and modified on two occasions in 2018.

Schedule 5, Condition 9 of PA 09\_0175 specifies the requirement for the completion of an IEA for KEQ every three years. **Appendix B** includes a list of all conditions of KEQ approvals that have been assessed as part of this IEA, including PA 09\_0175 and Environment Protection Licence (EPL) 20611.

The auditing period that this report applies to is from 28 April 2017 to 27 April 2020 (the audit period). This IEA was completed by Hansen Bailey Exemplar Global International Certified Auditor, Dorian Walsh (No: 201881) and:

- Theresa Folpp – Assistant Auditor (Hansen Bailey);
- Andrew Wu – Surface and groundwater specialist (Hansen Bailey);
- Katrina Wolf – Biodiversity specialist (Cumberland Ecology); and
- Mark Bridges – Noise specialist (Bridges Acoustics).

The audit consisted of a desktop review of documentation, interviews with KEQ staff and a field inspection of the site in August 2020. The audit was conducted generally consistent with 'ISO 14010 - Guidelines and General Principles for Environmental Auditing', and 'ISO 14011 - Procedures for Environmental Auditing' and the 'Independent Audit post-approval requirements June 2018' (Audit Guidelines) (DPE, 2018).

Key documents reviewed during the audit included:

- PA 09\_0175 and Statement of Commitments (SOCs) (as modified);
- EPL 20611; and
- KEQ environmental management plans and procedures.

The IEA consisted of a detailed desktop review of approval documentation and contributions from key KEQPL staff. Joel Fleming (JF) and Greg Dressler (GD) of KEQPL were the primary

contacts for the audit and were present during the audit site inspection on 27 August 2020.

## **1.2 REPORT STRUCTURE**

**Section 1** provides an introduction, describes the requirement for the IEA and provides a summary of the structure of this report;

**Section 2** provides a description of KEQ as relevant to this IEA;

**Section 3** outlines the requirements for this IEA and where each has been addressed in this report;

**Section 4** describes operational environmental performance during the audit period based on a review of documentation and key observations made during the audit site visit;

**Section 5** of this report lists the non-compliances identified during the audit; and

**Section 6** provides a list of recommendations made from the audit.

## 2 SITE DESCRIPTION

KEQ is located off the Pacific Highway on Blue Rock Close, approximately 3 km north-east of Karuah, NSW. The area approved for the development of KEQ covers approximately 33 hectares within Lots 12 and 13 of DP 1024564.

Operations at KEQ commenced under the current Project Approval for the site, which is the subject of this IEA (PA 09\_0175). PA 09\_0175 was originally granted on 17 June 2014 by the now Department of Planning, Industry and Environment (DPIE).

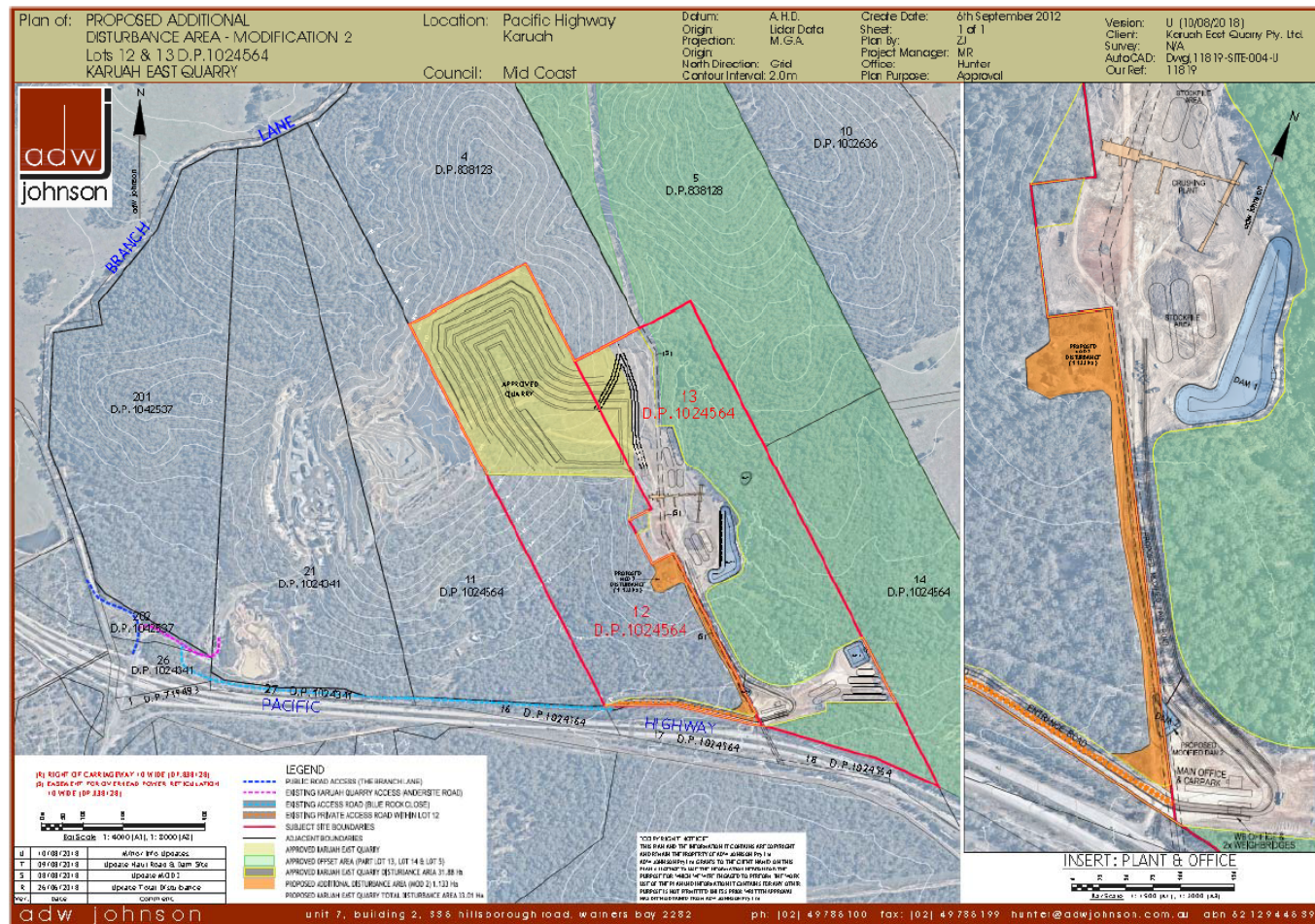
PA 09\_0175 was generally approved for the following (ADW Johnson, 2013):

- Staged extraction of approximately 29 million tonnes of “andesite” over a 20-year timeframe;
- Extraction of up to 1.5 million tonnes of andesite material per year;
- Removal and stockpiling of an estimated 380,000m<sup>3</sup> of overburden (approximately 750,000 tonnes) from the quarry extraction area in accordance with the Rehabilitation Plan prepared for the project. Removal of overburden is not included in the proposed extraction rate of 1.5 million tonnes of andesite annually;
- Haulage of up to 1.5 million tonnes of andesite per year from the site to market by 25 to 30 tonne haul trucks via the Pacific Highway;
- Up to 216 truck loads per day (at maximum production);
- Implementation of water management and erosion and sediment control works to ensure
- no loss of sediment, dust minimisation and to control discharges from the site to ensure
- that all discharges are within acceptable volumetric and water quality criteria;
- Roadworks to secure access to the site including upgrade & extension of Blue Rock Lane, realignment of Andesite Road & Blue Rock Lane intersection and adjust road markings at Branch Lane & Andesite Road intersection;
- Employment of 28 on-site staff;
- Construction of new haul road and access through adjoining RMS land;
- Roadworks to secure access to the site including upgrade & extension of Blue Rock Lane, realignment of Andesite Drive & Blue Rock Lane intersection and adjust road markings at Branch Lane & Andesite Road intersection;
- Staged clearing;
- Drilling and blasting activities;
- Loading and hauling of extracted material;
- Crushing and screening of extracted material;
- Stockpiling of material on-site; and
- Location of plant on Lot 13 comprised of office buildings, workshops, parking areas, crushing plant, wash plant, weigh bridge and product storage areas.

PA 09\_0175 has been modified on two occasions in 2018 for:

- An increase to the approved KEQ disturbance footprint from 31.63 ha to 31.88 ha (MOD1). MOD1 was approved by DPIE on 27 April 2018; and
- A further increase to the approved KEQ disturbance footprint from 31.88 ha to 33.01 ha (MOD2). MOD2 was approved by DPIE on 19 December 2018.

**Figure 1** shows the layout of the site as approved under Appendix 1 of PA 09\_0175 (MOD2).



**Figure 1**  
**Approved Site Layout (source: PA 09\_0175 (MOD2))**

### 3 AUDIT REQUIREMENTS

#### 3.1 PROJECT APPROVAL

This IEA has been prepared pursuant to Schedule 5, Condition 9 and 10 of PA 09\_0175 (as modified). Each requirement under this condition is listed in **Table 1**, along with where each is addressed in this audit report.

**Table 1**  
**PA 09\_0175 IEA Requirements**

Description	Where Addressed
Within 12 months of the commencement of development on the site, and every 3 years thereafter, unless the Planning Secretary directs otherwise, the Proponent must commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:	This Report
(a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Planning Secretary;	<b>Appendix A &amp; Appendix D</b>
(b) include consultation with the relevant agencies;	<b>Section 3.2 &amp; Appendix D</b>
(c) assess the environmental performance of the project and whether it is complying with the relevant requirements in this approval and any relevant EPL and/or Water Licence (including any assessment, plan or program required under these approvals);	<b>Section 4</b>
(d) review the adequacy of any approved strategy, plan or program required under these approvals; and	<b>Section 5</b>
(e) recommend measures or actions to improve the environmental performance of the project, and/or any assessment, plan or program required under these approvals.	<b>Section 6</b>
Note: This audit team must be lead by a suitability qualified auditor and include experts in any fields specified by the Planning Secretary.	<b>Appendix D</b>
Within three months of commencing an Independent Environmental Audit, or within another timeframe agreed by the Planning Secretary, the Proponent must submit a copy of the audit report to the Planning Secretary, and any other NSW agency that requests it, together with its response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations. The recommendations must be implemented to the satisfaction of the Planning Secretary.	KEQPL to submit this Report

#### 3.2 AUDIT GUIDELINES

This audit report has been prepared in accordance with the Audit Guidelines (DPE, 2018). **Table 2** lists key requirements from the Audit Guidelines and indicates where each is addressed in this report.

**Table 2**  
**Audit Guidelines Requirements**

Section	Description	Where Addressed
3.1.	Independent Audits must only be undertaken by a suitably qualified, experienced and independent auditor. Conditions of consent may require Independent Audits to be undertaken by an auditor and one or more technical specialists.	<b>Appendix A &amp; Appendix D</b>
3.2	The auditor must consult with the Department, and other agencies and stakeholders, including the Community Consultative Committee (if one is required for the project), to obtain their input into the scope of the audit. Comments received during such consultation must be recorded and reported in the Independent Audit Report. Specific environmental issues raised during consultation must be investigated and findings of the investigation must be reported in the Independent Audit Report.	<b>Section 3.2 &amp; Appendix D</b>
3.3	An independent audit must include: 1. an assessment of compliance with: a. conditions of consent applicable to the phase of the development that is being audited; b. all post approval documents prepared to satisfy the conditions of consent, including an assessment of the implementation of Environmental Management Plans and Sub-plans; c. all environmental licences and approvals applicable to the development excluding environmental protection licences issued under the <i>Protection of the Environment Operations Act 1997</i> ;	<b>Section 1, Section 5 &amp; Appendix B</b>
3.3	2. an assessment of the environmental performance of the development, including but not necessarily limited to, an assessment of: a. actual impacts compared to predicted impacts documented in the environmental impact assessment; b. the physical extent of the development in comparison with the approved boundary, and any potential off-site impacts; c. incidents, non-compliances and complaints that occurred or were made during the audit period; d. the performance of the development having regard to agency policy and any particular environmental issues identified through consultation carried out when developing the scope of the audit; e. feedback received from the Department, and other agencies and stakeholders, including the community or Community Consultative Committee, on the environmental performance of the project during the audit period;	<b>Section 4, Section 5 and Appendix D</b>



Section	Description	Where Addressed
3.3	3. the status of implementation of previous Independent Audit findings, recommendations and actions (if any);	<b>Appendix B</b>
3.3	4. a high-level review of the project's environmental management systems (if any), including assessment of any third party certification of them, the type, nature and scope of the systems having regard to the nature and scale of the development, and the implementation of the systems. It is not expected that an Independent Audit comprises a management system audit, however any key deficiencies identified in the system should be discussed;	<b>Section 4 &amp; Appendix B</b>
3.3	5. a high-level assessment of whether Environmental Management Plans and Sub-plans are adequate; and	<b>Section 4, Section 5, Section 6 &amp; Appendix B</b>
3.3	6. any other matters considered relevant by the auditor or the Department taking into account relevant regulatory requirements and legislation and knowledge of the development's past performance.	<b>Section 5, Section 6 &amp; Appendix B</b>
3.4	Audits must commence with an opening meeting and conclude with a closing meeting. The meetings must be attended by a representative of the proponent at manager level or above, the auditor and technical specialists (if any).	<b>Section 1 &amp; Appendix B</b>
3.5	Independent Audits must include interviews with key personnel involved in project delivery, including those with responsibility for environmental management, to assist with verifying the compliance status of the development.	<b>Section 1 &amp; Appendix B</b>
3.6	Independent Audits must include a physical site inspection. The site inspection must cover all development areas and environmental aspects that form part of the scope of the audit.	<b>Section 1, Section 4 &amp; Appendix C</b>

### 3.2.1 Stakeholder Consultation

During the preparation for this IEA, input was sought from the following KEQ stakeholders to confirm any areas of site operations or environmental compliance that should be of a particular focus:

- DPIE;
- NSW Environment Protection Authority (EPA);
- Regional NSW, Department of Mining, Exploration and Geoscience (MEG);
- NSW Natural Resources Access Regulator;
- MidCoast Council; and
- KEQ Community Consultative Committee (CCC) Chair.

Issues raised during consultation are listed in **Table 3** and where each issue has been addressed in this report. EPA and MEG replied with no issues to address.

**Table 3**  
**Stakeholder Requirements and Where Addressed**

Ref	Key Requirement	Where Addressed
<b>DPIE</b>		
1.	<p>The Department requests that the audit include an assessment of the following aspects of the development –</p> <p>1. The preparation and implementation of the following management plans –</p> <ul style="list-style-type: none"> <li>Noise Management Plan in accordance with Schedule 3 Condition 7 of the approval.</li> </ul> <p>Hunter Quarries has previously failed to meet the noise criteria specified in the consent and the requirement to implement appropriate noise mitigation measures identified in the Noise Management Plan.</p> <ul style="list-style-type: none"> <li>Air Quality Management Plan in accordance with Schedule 3 Condition 16 of the approval.</li> </ul> <p>The department is interested in the implementation of the AQMP, in particular implementation of mitigation measures and monitoring requirements, based on previous non-compliances reported to the Department and complaints received by the Department about dust emissions.</p> <ul style="list-style-type: none"> <li>Water Management Plan in accordance with the Schedule 3 Condition 21</li> </ul> <p>Hunter Quarries has failed to meet the criteria for surface water discharges from the site for the past three reporting periods, and has failed to conduct the approved groundwater monitoring program (indicators for groundwater quality and level) . The audit should assess whether the various components of the WMP have been implemented (including monitoring programs) to ensure impacts to surface and groundwater are minimised.</p> <ul style="list-style-type: none"> <li>Tetratheca juncea Translocation Management Plan in accordance with Schedule 3 Condition 27</li> <li>Biodiversity Offset Area Management Plan in accordance with Schedule 3 Condition 33</li> </ul> <p>The department considers that impacts to biodiversity and threatened species are a key environmental issue for this project, and so the audit should assess whether the management measures outlined in the above two plans have been implemented.</p>	<p><b>Section 5 &amp; Appendix B, Table B1</b></p>
2.	<p>2. Site access and disturbance area in accordance with Schedule 2 Condition 2</p> <ul style="list-style-type: none"> <li>Is site access, land clearing and quarrying operations in accordance with Terms of Approval, in particular the approved site access and disturbance boundary identified in the MOD2 Environmental Assessment?</li> </ul>	<p><b>Appendix B, Table B1</b></p>

Ref	Key Requirement	Where Addressed
3.	<p>3. Reporting – Notification of incidents and non-compliances in accordance with Schedule 5 Condition 7 and 7A.</p> <ul style="list-style-type: none"> <li>Has Hunter Quarries notified the Department of incidents and non-compliances?</li> </ul>	<b>Section 5 &amp; Appendix B, Table B1</b>
<b>MidCoast Council</b>		
4.	Generally, however, I am interested in the success or otherwise of the establishment of the permanent instrument to protect the offset lands and the success of the management of the offset lands to enhance biodiversity on this site. If some attention could be given to the success of the offsets, I would appreciate that being reported.	<b>Appendix B, Table B1</b>
<b>KEQ CCC Chair</b>		
5.	The main areas of interest for the community members on the CCC have been around noise. The work that KEQ has done seems pretty good, in their efforts to reduce and contain noise from the site.	<b>Appendix B, Table B1 &amp; Table B3</b>

## 4 ENVIRONMENTAL PERFORMANCE

*This section discusses the key compliance and environmental performance issues identified during the audit site inspection. Photographs from the site inspection which are referred to in the following sections of this report are included in **Appendix C**.*

### 4.1 APPROVALS AND COMPLIANCE

A review of KEQ compliance with the conditions of PA 09\_0175 and EPL 20611 was the primary focus of this IEA. The audit document review and site inspection found that the site is operating efficiently and is generally compliant with KEQ regulatory approvals. Strategies, plans, programs and control measures required under KEQ approvals and licences were generally found to be implemented to manage the key environmental management issues for the site.

The non-compliances identified in this report are generally minor in nature, however there are some additional controls that should be considered to ensure that the environmental management plans approved under PA 09\_0175 are consistently implemented (see **Section 5**). The opportunities for improvement for environmental management on site identified in **Section 6** are generally related to the non-compliances identified.

These non-compliances generally relate to the need for further documentation and of the management activities undertaken by KEQ for some environmental aspects on site and the implementation of actions from management documents approved by regulatory agencies under PA 09\_0175.

### 4.2 QUARRY OPERATIONS

The inspection of the site on 27 August 2020 found that the site was maintained to a high standard. The site access, infrastructure areas, quarry extraction areas, product stockpiles and other site facilities were well maintained. Environmental controls to minimise dust emissions from haul roads and elevated operational areas were being implemented on the day of the site inspection. Dust emissions from trucks entering and leaving site with quarry product were also minimal, with limited wheel-generated dust or emissions from truck trays.

It was also noted that KEQ are maintaining the additional noise mitigation measures for site infrastructure that were identified for the site following the review undertaken with the EPA in 2018 and 2019.

Water management infrastructure for site dams, drains and discharge locations was also observed to be being maintained to an efficient operational standard, with local erosion and sediment controls being implemented as required. Hardstands with bunding and catch drains were also viewed and found to be in place at all locations on site with the potential for spills of waste or oil to occur.

Further, the KEQ staff interviewed during the audit also had a sound understanding of operational management procedures to minimise air quality, noise and water impacts during site operations.

### **4.3 BIODIVERSITY OFFSET AREAS**

The two lots approved for KEQ biodiversity offsets were reviewed during the site inspection to confirm that management controls required under approved PA 09\_0175 management plans were being implemented appropriately. This included the review of:

- Fencing and signage to delineate the offset area boundaries;
- The area for management of translocated *Tetratheca juncea* individuals;
- Establishment of habitat nest boxes; and
- Habitat enhancement by placement of logs salvaged from KEQ disturbance areas.

### **4.4 ENVIRONMENTAL INCIDENTS AND COMPLAINTS**

The review of site documentation and discussions with KEQ staff found that environmental incidents and non-conformances during the audit period (primarily related to water quality and noise impacts) had generally been identified and reported to the relevant agencies during the audit period.

Additionally, the small number of complaints received during the audit period (a maximum of three in the 2017 calendar year) indicates that KEQ are generally managing site activities to ensure that impacts to local community receivers are minimised.

## 5 NON-COMPLIANCES AGAINST KARUAH EAST QUARRY APPROVALS & LICENCING

This section provides a discussion on the identified non-compliances and status against KEQ approvals and licences reviewed at the time of the IEA.

**Appendix B** provides a tabulated list of conditions assessed during the IEA, with comments noted on the compliance status against each.

A summary of the non-compliances against PA 09\_0175 (as modified) and EPL 20611 is summarised below in **Table 4**. Recommendations arising from the identified non-compliances are provided in **Section 6**.

**Table 4**  
**Non-Compliances Identified**

Ref	Non-Compliance
<b>PA 09_0175 (as modified)</b>	
Schedule 2, Condition 2(a)	Non-compliances against the conditions of PA 09_0175 were identified as discussed below.
Schedule 2, Condition 8	Evidence was not available at the time of audit to confirm that construction and occupation certificates were obtained for infrastructure constructed during the audit period.
Schedule 2, Condition 11	(a) Records of one-off contribution to Council for Headquarters Building were not available at the time of audit.  (b) Records of annual contributions to Council for road maintenance in the 2019/20 Financial Year were not available at the time of audit.
Schedule 2, Condition 14	(a) Evidence of reporting for the 2017/18 period was not available at the time of audit. However, it is noted that this data was reported in the audit period Annual Reviews and the Regulator did not raise any issues in relation to this requirement.
Schedule 3, Condition 3	Noise levels exceeded the noise criteria on three occasions during the period: - 14/02/18 at Loc G: an estimated quarry noise level of 43 LAeq,15min exceeded the 38 LAeq,15min criterion; - 17/05/18 at Loc G: an estimated quarry noise level of 46 LAeq,15min exceeded the 38 LAeq,15min criterion; and - 14/08/18 at Loc G: an estimated quarry noise level of 47 LAeq,15min exceeded the 38 LAeq,15min criterion.
	Noise consultants' reports appended to the Annual Reviews include noise measurements at the quarry weighbridge representing receptors A and B only for the period September 2018 to June 2020, however not for other noise surveys during the audit period.

Ref	Non-Compliance
Schedule 3, Condition 6	(c) Site operations did not comply with the noise criterion at Location G in February, May and August 2018 and site operations were stopped at the end of August 2018 to address noise issues. Since that time, there is no evidence of regular assessment, however quarterly monitoring has not identified the need to modify or stop operations to ensure compliance with noise criteria.
Schedule 3, Condition 7	There is no evidence that reported exceedances of the noise criteria in Q1 to Q3 2018 triggered an evaluation of the noise management system or any changes to noise management measures.
Schedule 3, Condition 11	Evidence that written agreements with landholders within 500 m of project blasting was not available at the time of audit.
Schedule 3, Condition 16	In June and December of 2017, HVAS monitor filters were not changed at the correct time leading to an overrun of the sample. Filters were changed as soon as errors were identified.
Schedule 3, Condition 19	Uncontrolled and controlled discharges from sediment dams in exceedance of discharge limits occurred during the audit period in 2017, 2018 and 2019.
Schedule 3, Condition 21	The surface water monitoring does not include a program for the monitoring of stream ecosystem health.
	A non-compliance with the WMP was recorded in 2017 due to frequency of groundwater level monitoring (as reported in Section 7.4.2 of the 2017 Annual Review). Quarterly monitoring commenced in accordance with the required frequency in October 2017; prior to this date monitoring had been undertaken on a six-monthly basis.  Section 7.4.2 of the 2017 Annual Review notes that an Official Caution was received from the (then) DPE on 16/10/17 regarding this non-compliance.
Schedule 3, Condition 23	(a) Production records are reported in the audit period Annual Reviews, however the transportation of product from site per calendar month and the number of laden truck movements is not reported.  (b) Viewed KEQ website on 17/8/20 and quarterly truck movement records were not available.
Schedule 3, Condition 27	(e) Tetratheca Juncea Management Plan (TJMP) Table 8 indicates this condition is addressed within Section 8, however the section does not contain any performance criteria. The previous IEA indicated administrative non-compliance due to the absence of performance criteria. The previous audit recommended an update to the plan, however no updates appear to have been made.  (f) No comments on general plant health, individual identification, photo point monitoring are included in the TJMP monitoring reports.
Schedule 3, Condition 28	The Biodiversity Offset Strategy Finalisation letter (as referenced in Section 2.2 and Appendix 2 in the BOAMP) and evidence of consultation with OEH (now BCD) and Council was not available for review at the time of audit.
Schedule 3, Condition 29	Arrangements for the Biodiversity Offset Strategy long-term securities were not agreed and approved by DPIE within 12 months of the strategy being finalised.

Ref	Non-Compliance
Schedule 3, Condition 32	The revisions detailed in Table 2 of the Landscape and Rehabilitation Management Plan (LRMP) do not describe updating the measures to implemented over the three year period. The condition requires update every three years following initial preparation of the plan, in this case being November 2018.
	Chapters 6-9 of the LRMP detail management measures, however the plan does not specify which activities will occur over the next three years of the plan.
	Records were not available at the time of audit to confirm that the following measures for the LRMP were implemented during the audit period: <ul style="list-style-type: none"> <li>- Induction process for biodiversity impacts;</li> <li>- Evidence of submission of Vegetation Clearing Completion Reports to OEH;</li> <li>- Reporting of designs and completion for fauna habitat crossings;</li> <li>- Evidence of seed collection;</li> <li>- Evidence of weed and pest management; and</li> <li>- Evidence of temporary rehabilitation management.</li> </ul>
Schedule 3, Condition 35	No evidence was available at the time of audit to confirm that the Conservation and Rehabilitation Bond was reviewed within three months of the previous IEA.
Schedule 4, Condition 1	(a) Correspondence was not provided to affected landholders regarding exceedances of Project Approval impact criteria during the audit period. (b) "Mine Dust and You" fact sheets were not provided to landholders where exceedances of air quality criteria were identified during the audit period.
Schedule 5, Condition 2	Evidence was not available at the time of audit to confirm that reports were provided to DPIE which reviewed control measures and remedial actions required following identified exceedances.
Schedule 5, Condition 5	(a – d) No evidence was available at the time of audit to confirm that KEQ had reviewed strategies, plans and programs required under the approval following audit period Annual Reviews, incidents, audit reports and modifications.
Schedule 5, Condition 7	Evidence was not available at the time of audit to confirm that KEQ had notified DPIE and other relevant regulatory agencies of all environmental incidents.
Schedule 5, Condition 7A	Evidence was not available at the time of audit to confirm that KEQ had notified DPIE and other relevant regulatory agencies of all environmental non-compliances that occurred during the audit period (see Schedule 3, Conditions 3, 4, 6, 7, 19, 21 above).
Schedule 5, Condition 11	The response to the previous IEA recommendations was not available on the KEQ website at the time of audit.
<b>PA 09_0175 (as modified) SOCs</b>	
SoC 3.1, 3.3	Evidence was not available to confirm that topsoil was stripped to the recommended depths under this SoC.



Ref	Non-Compliance
SoC 3.3 (Dams)	Exceedances of water discharge criteria under PA 09_0175 and EPL 20611 were recorded during the audit period.
	Uncontrolled discharge events from site occurred during the audit period from Dams 1 – 3.
SoC 3.3. (SW Mgt System)	See EPL 20611 conditions L2.1, L2.2. Evidence was not available to confirm that all exceedances were reported to EPA within the required timeframes.
SoC 4.1 (Vegetation Clearing Management)	Chain wire exclusion fencing was seen to be in place along the southern boundary and sections of the site adjacent to quarry haulage and infrastructure areas, however it does not encompass the entire quarry footprint.
SoC 5	Alternative noise mitigation controls to the barrier identified under this SoC were installed for the stockpile and stacker locations during the audit period, in consultation with EPA.
SoC 11.1	Records were not available to confirm topsoil stripped during the audit period was in optimum condition for stripping.
SoC 11.2	A copy of the KEQ rehabilitation bond was not available for review at the time of audit.
<b>EPL 20611</b>	
Condition L1.1	Some discharges during the audit period exceeded the concentration limits prescribed by Condition L2.4, thereby contravening Section 120 of the POEO Act (see Condition L2.1 below).
Condition L2.1, L2.2	Uncontrolled and controlled discharges from sediment dams in exceedance of EPL discharge limits occurred during the audit period in 2017, 2018 and 2019. KEQ self-reported the June 2019 discharge exceedances to EPA on 26/06/19 and EPA provided an associated 'Show Cause Notice' on 27/06/19. KEQ provided a response to the Show Cause/notice on 02/08/19. EPA issued a Penalty Infringement Notice for the 24 June 2019 discharge and Formal Warning regarding the other discharge events of 24 - 27 June 2019 via letter dated 15/08/19.
Condition L4.1	Quarry noise levels exceeded the noise criteria on three occasions during the audit period.
	Monthly monitoring reports and the Annual Reviews do not report quarry noise levels at the weighbridge and calculated levels at receptors A and B for any quarters.
Condition O7.1	Acoustic bunding for site infrastructure identified in the EA (ADW Johnson, 2013) was not constructed prior to the commencement of quarrying operations. See Schedule 3, Condition 7 of PA 09_0175.
Condition M8.1	(b) Noise monitoring results are reported for Residences F and G, however not for the other residences. Consultant reports for the period September 2018 to May 2019 included a noise monitoring location representative of these receptors, however that time period did not include quarry operation.

Ref	Non-Compliance
R2	Evidence was not available at the time of audit to confirm that incidents which occurred during the audit period were reported to EPA as required under this condition.
R4.3	The noise consultants reports and KEQ monthly monitoring reports include assessment of compliance with the noise limits, however they do not include: (a) description of the plant in operation and activities during each noise monitoring assessment; and (c) an outline of any management actions taken to address any exceedances."

## 6 AUDIT RECOMMENDATIONS

**Table 5** includes a consolidated list of recommendations from the non-compliances and opportunities for review and improvement identified during this audit.

**Table 5**  
**IEA Recommendations**

Ref	Recommendation Description
<b>PA 09_0175 (as modified)</b>	
Schedule 2, Condition 8	It is recommended that KEQPL confirms that construction and occupation certificates for site infrastructure are in place.
Schedule 2, Condition 11	It is recommended that KEQPL confirms that the developer contributions to Council required during the audit period have been made.
Schedule 3, Condition 3	Pending any further directions from EPA and/or DPIE, it is recommended that noise consultant's monitoring reports are updated to include the following additional details:  1. Instrument details and a copy of current instrument calibration certificates as required by relevant Australian Standards.  2. Measurement results for a location representative of Residences A to E and calculated quarry noise levels to these residences, including calculation details and justification of the calculation method.  3. Detailed assessment and reporting of modifying factors as required by relevant policies and conditions, at least including tonal and low frequency characteristics.  4. Traffic noise measurements at the potentially most affected receptors as required by Schedule 3, Condition 4.
Schedule 3, Condition 4	It is recommended that unattended monitoring charts are included in the monthly monitoring reports as required by Section 8.4 of the NMP, or revise the NMP to not require these charts.
Schedule 3, Condition 6	Consider carrying out a review of noise monitoring results upon receipt of each noise compliance report, to reduce response time in the event of non-compliance with criteria or other noise issues.

Ref	Recommendation Description
Schedule 3, Condition 7	It is recommended that the Noise Management Plan is revised to reflect the noise mitigation measures that were adopted by KEQ following completion of the Thearle Acoustics review that are in addition to or change the noise management commitments in the KEQ EA.
Schedule 3, Condition 11	It is recommended that KEQ consult with relevant private landholders and seek to enter into written agreements to allow blasting within 500 m of their land.
Schedule 3, Condition 21	It is recommended that written confirmation of approval is sought from DPIE during the next update of the WMP.
	It is recommended that KEQ implement a program to monitor the health of local watercourses under the Water Management Plan.
Schedule 3, Condition 23, Schedule 5, Condition 11	It is recommended that the information required under this condition is regularly reviewed and published on the KEQ website on a quarterly basis.
Schedule 3, Condition 27	Cumberland Ecology recommends that the TJTMP be updated to include performance criteria to measure the effectiveness of the program.
	Cumberland Ecology recommends that 2020 monitoring include all required monitoring methods, and if undertaken outside of October 2020 an explanation of the change in survey date.
Schedule 3, Condition 30	It is recommended that KEQ seek written confirmation from DPIE of an extension to the timeframe required to continue consultation and implement long-term security for the project Biodiversity Offset Strategy.
Schedule 3, Condition 32	Cumberland Ecology recommends that the LRMP be updated to include a three year management schedule for the period November 2018 – November 2021.
Schedule 3, Condition 32, SoC 4.1 (Fauna Management)	It is recommended that KEQ record and report all information required under implementation the LRMP.
Schedule 3, Condition 33	Cumberland Ecology recommends that the BOAMP be updated to include a three year management schedule for the period November 2018 – November 2021.
Schedule 3, Condition 37	It is recommended that KEQ consult with DPIE over the progressive rehabilitation strategy for the visually prominent ridgeline identified in this condition and update the Landscape and Rehabilitation Management Plan, if required.
Schedule 4, Condition 1	It is recommended that KEQ update their notification procedures to ensure the relevant landholders are notified as soon as possible after receipt of monitoring results confirming that an exceedance has occurred.
Schedule 5, Condition 1	It is recommended that KEQ undertake a review of the approved EMS to ensure that the document remains consistent with environmental monitoring requirements and approved site management plans. Consultation with DPIE should be undertaken if major updates to the 2015 version of the EMS are required.

Ref	Recommendation Description
Schedule 5, Condition 2	It is recommended that KEQ update their communications and incident response procedures to ensure that any future exceedances of the Project Approval criteria and any implementation management controls / remediation measures are reported to DPIE at the earliest opportunity once they are identified.
Schedule 5, Condition 5	It is recommended that KEQ document any reviews undertaken as required under this condition.
Schedule 5, Condition 10	It is recommended that the KEQ response this IEA and implementation of actions are summarised in the next KEQ Annual Review.
<b>PA 09_0175 (as modified) SOC's</b>	
SoC 3.1	It is recommended that topsoil stripping depths and associated stockpile locations are recorded during future clearing works to assist with site rehabilitation.
	It is also recommended that KEQ develop an internal topsoil stripping and stockpiling procedure to ensure that the information under this SoC is retained on site to assist in site rehabilitation.
SoC 4.1	Recommend that KEQ review the process for salvage of large logs during clearing and whether any further emplacement of additional material would be beneficial in Lots 12 and 13.
<b>EPL 20611</b>	
Condition A1.2	It is recommended that KEQPL consult with EPA over the approved use of soil and overburden material from KEQ to assist with the final rehabilitation of the adjacent Karuah Quarry site and confirm whether an associated variation to EPL 20611 is required.
Condition L4.5	Bridges Acoustics recommendation: Require consultants to specifically report assessment methods and results for tonal and low frequency modifying factors, as required by this condition, for all attended noise compliance surveys.
Condition L5.7	It is recommended that future Annual Reviews provide comment regarding the management of blast fume.
Condition M5.1	It is recommended that the Complaints Register available on the KEQ website is updated on a quarterly basis.

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for


**HANSEN BAILEY**



Dorian Walsh

*Senior Environmental Scientist*

***APPENDIX A***  
***DPIE Audit Certification Form***

Independent Environmental Audit Submission Form	
<b>Project</b>	
Consent No.:	PA 09_0175 (as modified)
Description of Project:	Karuah East Quarry Project
Project Address:	Blue Rock Close, KARUAH NSW 2324
Proponent	Karuah East Quarry Pty Ltd
Proponent Address:	Blue Rock Close, KARUAH NSW 2324
<b>Independent Audit</b>	
Title of Audit:	Karuah East Quarry Independent Environmental Audit
<b>Certificate</b>	<p>I certify that I have prepared the contents of the attached independent audit and to the best of my knowledge:</p> <ul style="list-style-type: none"> <li>• It is in accordance with relevant approval condition(s)</li> <li>• I have acted professionally, accurately and in an unbiased manner in conducting the audit</li> <li>• I am not related to any owner or operator of the project as a spouse, partner, parent, child, sibling, employer, employee, business partner, in sharing a common employer, or in a contractual arrangement outside the audit</li> <li>• I do not have any pecuniary interest in the project, including where there is a reasonable likelihood or expectation of appreciable financial gain or loss to me or to a person to whom I am related</li> <li>• Neither I nor my employer have provided consultancy services for the project that were subject to this audit</li> <li>• I have not accepted, nor intend to accept any inducement, commission, gift or any other benefit (apart from fair payment) from any owner or operator of the project, their employees or any interested party. I have not knowingly allowed, nor intend to allow my colleagues to do so.</li> </ul>
Signature:	
Name:	Dorian Walsh
Address:	6/127-129 John Street, Singleton NSW 2330
Email Address:	<a href="mailto:dwalsh@hansenbailey.com.au">dwalsh@hansenbailey.com.au</a>
Auditor Certification (Body, No. Grade):	Auditor for Environmental Management, EMS and Compliance Audits. Exemplar Global No. 201881
Date:	30 October 2020

***APPENDIX B***  
***Project Approval Compliance Tables***



**Table B1**  
**Project Approval 09\_0175 Consolidated Conditions (as modified)**

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
2	Obligation to the environment	1	In addition to meeting the specific performance criteria established under this approval, the Proponent <b>must</b> implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation, or rehabilitation of the project.	C	No incidents resulting in material harm to the environment occurred during the audit period.
2	Terms of Approval	2	The Proponent shall carry out the project generally in accordance with the: (a) EA; (b) statement of commitments; and (c) <b>EA (MOD 1)</b> ; and <b>d) EA (MOD 2)</b>  <i>Notes:</i> • <i>The general layout of the project is shown in Appendix 1.</i> • <i>The statement of commitments is reproduced in Appendix 6.</i>	C	The use of soil and overburden material from Karuah East Quarry (KEQ) to assist with the final rehabilitation of the adjacent Karuah Quarry site is described in Section 9.3 of the Landscape and Rehabilitation Management Plan (LRMP) approved by DPIE on 01/06/20 (see Schedule 3, Condition 32).  This activity for the integration of the KEQ and Karuah Quarry landforms was not described in the EA, or the EA in support of MOD1 or MOD2.
2	Terms of Approval	2a	<b>The Proponent must carry out the project in accordance with the conditions of this approval.</b>	NC	<b>Non-compliances against the conditions of PA 09_0175 were identified as discussed below.</b>
2	Terms of Approval	3	The conditions of this approval and directions of the <b>Planning Secretary</b> prevail to the extent of any inconsistency, ambiguity or conflict between them and a document referenced in condition 2 of this Schedule. If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency.  <i>Note: For the purposes of this condition, there will be an inconsistency between documents if it is not possible to comply with both documents, or in the case of a condition of approval or direction of the <b>Planning Secretary</b>, and a document, if it is not possible to comply with both the condition or direction, and the document.</i>	NT	JF (pers comm) confirmed none identified by KEQ during the audit period.
2	Terms of Approval	4	4. Consistent with the requirements of this approval, the <b>Planning Secretary</b> may make written directions to the Proponent in relation to: (a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this approval, including	C	DPIE provided comments on KEQ strategies, plans and programs that were revised during the audit period as discussed under the relevant conditions below.

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence								
			those that are required to be, and have been, approved by the Planning Secretary; and (b) the implementation of any actions or measures contained in any such document referred to in (a) above.										
2	Limits on Approval - Quarrying Operations	5	The Proponent may carry out quarrying operations on the site until 31 December 2034.  <i>Note: Under this approval, the Proponent is required to rehabilitate the site and carry out additional undertakings to the satisfaction of the Planning Secretary. Consequently, this approval will continue to apply in all other respects other than the right to conduct quarrying operations until the rehabilitation of the site and those undertakings have been carried out to a satisfactory standard.</i>	C	Audit period operations are within the approved period.								
2	Limits on Approval - Production Limit	6	The Proponent must not extract, process and transport more than 1.5 million tonnes of quarry products from the site in any calendar year.	C	Annual production was reviewed and confirmed to be within approved limits. The following evidence was sighted: - Section 4.3 2017 AR - 27,177 tonnes (t) produced - Section 4.3 2018 AR - 117,692 t produced - Section 4.3 2019 AR - 305,031 t produced - KEQPL sales data spreadsheet for 2020, which confirmed 518,266 t had been produced to the end of Quarter 3 2020.								
2	Limits on Approval - Hours of Operation	7	The Proponent must comply with the operating hours in Table 1.  Table 1: Operating hours <table><tr><th>Activity</th><th>Operating Hours</th></tr><tr><td>Quarrying Operations</td><td>7.00 am to 6.00 pm, Monday to Friday; and 7.00 am to 1.00 pm, Saturdays. No quarrying operations on Sundays or Public Holidays.</td></tr><tr><td>Construction activities</td><td>7.00 am to 6.00 pm, Monday to Friday; and 8.00 am to 1.00 pm, Saturdays, unless noise from these activities does not exceed 35dB(A)LAeq(15 min) at any privately-owned residence.</td></tr><tr><td>Maintenance activities</td><td>24 hours a day, 7 days per week, providing maintenance activities are inaudible at any privately-owned residence</td></tr></table>	Activity	Operating Hours	Quarrying Operations	7.00 am to 6.00 pm, Monday to Friday; and 7.00 am to 1.00 pm, Saturdays. No quarrying operations on Sundays or Public Holidays.	Construction activities	7.00 am to 6.00 pm, Monday to Friday; and 8.00 am to 1.00 pm, Saturdays, unless noise from these activities does not exceed 35dB(A)LAeq(15 min) at any privately-owned residence.	Maintenance activities	24 hours a day, 7 days per week, providing maintenance activities are inaudible at any privately-owned residence	C	Section 4.4 of audit period Annual Reviews (2017, 2018, 2019) note that site operations occurred only during these times. JF (pers comm) confirmed that operations during 2020 were undertaken in accordance with approved operating hours.  No noise complaints were received during the audit period regarding operations outside of approved hours.
Activity	Operating Hours												
Quarrying Operations	7.00 am to 6.00 pm, Monday to Friday; and 7.00 am to 1.00 pm, Saturdays. No quarrying operations on Sundays or Public Holidays.												
Construction activities	7.00 am to 6.00 pm, Monday to Friday; and 8.00 am to 1.00 pm, Saturdays, unless noise from these activities does not exceed 35dB(A)LAeq(15 min) at any privately-owned residence.												
Maintenance activities	24 hours a day, 7 days per week, providing maintenance activities are inaudible at any privately-owned residence												
			police or other relevant authority for safety or emergency reasons										

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
			<i>regarding works which may need to be undertaken to avoid loss of life, property loss and/or to prevent environmental harm.</i>		
2	Limits on Approval - Structural Adequacy	8	<p>The Proponent <b>must</b> ensure that any new buildings and structures, and any alterations, or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.</p> <p><i>Notes:</i></p> <ul style="list-style-type: none"> <li>• Under Part 6 of the EP&amp;A Act, the Proponent is required to obtain construction and occupation certificates for proposed building works.</li> <li>• Part 8 of the EP&amp;A Regulation sets out the requirements for the certification of the project.</li> </ul>	NC	<p>Section 4.3 of the relevant Annual Reviews note that the following infrastructure was constructed during the IEA period:</p> <p><b>2017</b></p> <ul style="list-style-type: none"> <li>- Blue Rock Close road completed, with a Construction Completion Certificate issued by the NSW Roads and Maritime Services (RMS) on 15 November 2017;</li> <li>- The internal access was completed to provide the main entry to the quarry site from Blue Rock Close;</li> <li>- The installation of the disturbance boundary fencing commenced on 14 August 2017. The fencing is installed as a chain-wire fauna exclusion fence;</li> <li>- The weighbridge, wheel wash and weighbridge office and amenities were completed;</li> <li>- The primary crushing plant was completed in September 2017;</li> <li>- Dam 2 was reconstructed on 24 August 2017;</li> <li>- Construction on the entry gate was completed in November 2017.</li> </ul> <p><b>2018</b></p> <ul style="list-style-type: none"> <li>- The excavation and capping of stockpile and crushing areas; and</li> <li>- Stage 2 of the crushing plant commenced in July 2018.</li> </ul> <p><b>2019</b></p> <ul style="list-style-type: none"> <li>- Stage 2 of the crushing plant completed in 2019. This included installation of additional acoustic screening.</li> </ul> <p><b>Evidence was not available at the time of audit to confirm that construction and occupation certificates were obtained for infrastructure constructed during the audit period.</b></p>
2	Limits on Approval - Demolition	9	The Proponent <b>must</b> ensure that all demolition work on site is carried out in accordance with AS 2601-2001: The Demolition of Structures, or its latest version.	NT	JF (pers comm) confirmed there was no demolition works during the audit period.
2	Limits on Approval - Protection of	10	The Proponent <b>must</b> :(a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the project; and(b) relocate, or pay the full costs associated with	NT	JF (pers comm) confirmed there was damage to or relocation of public infrastructure during the audit period.

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
	Public Infrastructure		relocating, any public infrastructure that needs to be relocated as a result of the project.		
2	Limits on Approval - Developer Contributions	11	<p>The Proponent <b>must</b> pay Council, in accordance with Council's Great Lakes Wide Development Contributions Plan (November 2007) – Amended:</p> <p>(a) a one-off Headquarters Building contribution of \$1.00 per \$1,000.00 of capital value of the project; and</p> <p>(b) annual road maintenance contributions of \$.037 per tonne per km, for every tonne of quarry products transported from the site on local roads in accordance with Council's Great Lakes Wide Development Contributions Plan (November 2007) – Amended. Each payment must be:</p> <p>(i) paid to Council at the end of each calendar year;</p> <p>(ii) based on weighbridge records of the quantity of quarry products transported from the site; and</p> <p>(iii) increased annually over the life of the project in accordance with the CPI.</p> <p><i>Note: If the parties are not able to agree on any aspect of the road maintenance contributions, either party may refer the matter to the <b>Planning</b> Secretary for resolution.</i></p>	NC	<p><b>(a) Records of one-off contribution to Council for Headquarters Building were not available at the time of audit.</b></p> <p>(b) Reviewed 'Karuah East Quarry Mid-Coast Council Royalty Section 94 Contributions' for the 2017/18 and 2018/19 Financial Years confirming annual payments to Council. <b>Records of annual contributions to Council for road maintenance in the 2019/20 Financial Year were not available at the time of audit.</b></p> <p><b>It is recommended that KEQ confirms that the developer contributions to Council required during the audit period have been made.</b></p>
2	Limits on Approval - Operation of Plant and Equipment	12	<p>The Proponent <b>must</b> ensure that all plant and equipment used at the site is:</p> <p>(a) maintained in a proper and efficient condition; and</p> <p>(b) operated in a proper and efficient manner.</p>	C	<p>(a) Viewed example of KEQ Machinery Maintenance Register, including for 345D Excavator maintenance work completed during April and May 2020.</p> <p>(b) Viewed KEQ Training Register dated 27 May 2020, which confirms competencies and familiarisations completed by KEQ operators for site plant and equipment. Also viewed examples of certificates confirming employee training to conduct equipment operations on site that are included in the Register.</p>
2	Limits on Approval - Staged Submission of any Strategy, Plan or Program	13	<p>With the approval of the <b>Planning</b> Secretary, the Proponent may submit any strategy, plan or program required by this approval on a progressive basis.</p> <p><i>Notes:</i></p> <ul style="list-style-type: none"> <li>• While any strategy, plan or program may be submitted on a progressive basis, the Proponent will need to ensure that the existing operations on site are covered by suitable strategies,</li> </ul>	NT	<p>JF (pers comm) confirmed that progressive submission of approval documentation was not sought from DPIE during the audit period.</p>

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
			plans or programs at all times; and • If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program must clearly describe the specific stage to which the strategy, plan or program applies, the relationship of this stage to any future stages, and the trigger for updating the strategy, plan or program.		
2	Limits on Approval - Production Data	14	The Proponent <b>must</b> : (a) provide annual quarry production data to DRG using the standard form for that purpose; and (b) report this data in the Annual Review (see condition 4 of Schedule 5).	NC	a) Viewed 'Return for Extractive Materials: Year Ended 30 June 2019' completed by KEQPL. <b>Evidence of reporting for the 2017/18 period was not available at the time of audit. However, it is noted that this data was reported in the audit period Annual Reviews and the Regulator did not raise any issues in relation to this requirement.</b>  b) Monthly Production Summaries are presented in Section 4 of the 2017, 2018 and 2019 Annual Reviews.
2	Limits on Approval - Compliance	15	The Proponent must ensure that all employees, contractors and sub-contractors are made aware of, and instructed to comply with, the conditions of this approval relevant to activities they carry out in respect of the development.	C	Viewed examples of environmental awareness and compliance training provided to KEQ employees and contractors during the audit period, including: - Environmental Dust Toolbox Talk dated 07/02/20; - Noise and vibration management Toolbox Talk dated 13/03/20; - Fuel and Oil Spill Control Toolbox Talk dated 02/07/20 ; and - Internal communications from JF to KEQ staff on 21/04/20 and 20/08/20 regarding forecast weather conditions and the need for additional awareness / management of dust and water on site.
2	Limits on Approval - applicability of Guidelines	16	References in the conditions of this approval to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, standards or policies in the form they are in as at the date of this approval.  However, consistent with the conditions of this approval and without altering any limits or criteria in this approval, the Planning Secretary may, when issuing directions under this approval in respect of ongoing monitoring and management obligations, require compliance with an updated or revised version of such a guideline, protocol, standard or policy, or a replacement of them.	NT	JF (pers comm) confirmed no directions from DPIE during the audit period.
2	Limits on Approval -	17	Where conditions of this approval require consultation with an identified party, the Proponent must: (a) consult with the relevant party prior to submitting the subject	C	This condition applies to consultation required for plans, strategies and programs required under this approval. Comments on consultation are provided under the relevant conditions below.

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence												
	Evidence of Consultation		document for approval; and (b) provide details of the consultation undertaken including; (i) the outcome of that consultation, matters resolved and unresolved; and (ii) details of any disagreement remaining between the party consulted and the Proponent and how the Proponent has addressed the matters not resolved.														
3	Identification of Approved Limits of Extraction	1	The Proponent shall, prior to carrying out quarrying operations on the site: (a) engage a registered surveyor to mark out the boundaries of the approved limits of extraction within the Extraction Area; and (b) submit a survey plan of the extraction boundaries, to the satisfaction of the Planning Secretary.	C	Deemed compliant by previous IEA.												
3	Identification of Approved Limits of Extraction	2	The Proponent must ensure that the extraction boundaries are clearly marked at all times while quarrying operations are being carried out, in a manner that allows the limits of extraction to be clearly identified.	C	Viewed examples of survey pegs delineating extraction boundaries in the field (see Plate 1).												
3	Noise - Operational Noise Criteria	3	<p>The Proponent must ensure that the operational noise generated by the project does not exceed the criteria in Table 2. Table 2.</p> <p>Operational noise criteria (dB(A) LAeq(15 min))</p> <table><tr><th>Location</th><th>Criteria (day)</th></tr><tr><td>Residence on Lot 11 DP 1024564</td><td>43</td></tr><tr><td>A</td><td>40</td></tr><tr><td>B</td><td>37</td></tr><tr><td>G</td><td>38</td></tr><tr><td>All other residences</td><td>35</td></tr></table>	Location	Criteria (day)	Residence on Lot 11 DP 1024564	43	A	40	B	37	G	38	All other residences	35	NC	<p>Monthly environmental monitoring reports for the period May 2017 to April 2020 were reviewed.</p> <p>Noise levels exceeded the noise criteria on three occasions during the period:- 14/02/18 at Loc G: an estimated quarry noise level of 43 LAeq,15min exceeded the 38 LAeq,15min criterion; - 17/05/18 at Loc G: an estimated quarry noise level of 46 LAeq,15min exceeded the 38 LAeq,15min criterion; and- 14/08/18 at Loc G: an estimated quarry noise level of 47 LAeq,15min exceeded the 38 LAeq,15min criterion.</p> <p>Section 8.3.1 of the NMP (October 2015) requires quarterly attended noise monitoring at locations representing receptors F and G, and at a location close to the quarry to represent receptors A to E. Noise consultants' reports appended to the Annual Reviews include noise measurements at the quarry weighbridge representing receptors A and B only for the period September 2018 to June 2020, however not for other noise surveys during the audit period.</p>
Location	Criteria (day)																
Residence on Lot 11 DP 1024564	43																
A	40																
B	37																
G	38																
All other residences	35																

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence						
					<p>As noted above, monthly monitoring reports and the Annual Reviews do not report quarry noise levels at the weighbridge and calculated levels at receptors A and B. Viewed EPA 'Show Cause Letter' to KEQ related to this matter dated 21/07/20 and KEQ's 'Show Cause Response Alleged Offences - EPL 20611' dated 21/08/20. In their response, KEQ consider that regulatory action by the EPA is not warranted. JF (pers comm) confirmed that the company remain in consultation with EPA over this matter at the time of audit.</p> <p><b>Pending any further directions from EPA and/or DPIE, it is recommended that noise consultant's monitoring reports are updated to include the following additional details:</b></p> <p><b>1. Instrument details and a copy of current instrument calibration certificates as required by relevant Australian Standards.</b></p> <p><b>2. Measurement results for a location representative of Residences A to E and calculated quarry noise levels to these residences, including calculation details and justification of the calculation method.</b></p> <p><b>3. Detailed assessment and reporting of modifying factors as required by relevant policies and conditions, at least including tonal and low frequency characteristics.</b></p> <p><b>4. Traffic noise measurements at the potentially most affected receptors as required by Schedule 3, Condition 4.</b></p>						
3	Noise - Road Traffic Noise Criteria	4	<p>The Proponent <b>must</b> take all reasonable and feasible measures to ensure that the traffic noise generated by the project does not cause additional exceedances of the criteria in Table 3 at any residence on privately-owned land.</p> <p>Table 3: Road traffic noise criteria (dB(A) LAeq(period))</p> <table><tr><th>Road</th><th>Criteria (day)</th></tr><tr><td>Pacific Highway</td><td>60</td></tr><tr><td>Local roads</td><td>55</td></tr></table>	Road	Criteria (day)	Pacific Highway	60	Local roads	55	NC	<p>Monthly environmental monitoring reports for the period May 2017 to April 2020 were reviewed.</p> <p><b>Unattended continuous noise monitoring results at Location G for 7 days per quarter indicated compliance with this condition, however no noise surveys were completed at other receptors closer to the highway to determine compliance with this condition at the potentially most affected receptors.</b></p> <p><b>It is recommended that unattended monitoring charts are included in the monthly monitoring reports as required by Section 8.4 of the NMP, or revise the NMP to not require these charts.</b></p>
Road	Criteria (day)										
Pacific Highway	60										
Local roads	55										

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence								
3	Noise - Road Cumulative Noise Criteria	5	<p>The Proponent <b>must</b> implement all reasonable and feasible measures to ensure that the noise generated by the project combined with the noise generated by adjacent quarrying operations does not cause any exceedances of the criteria in Table 4.</p> <p>Table 4: Cumulative noise criteria (dB(A) LAeq(period))</p> <table><tr><th>Location</th><th>Criteria (day)</th></tr><tr><td>F</td><td>50</td></tr><tr><td>G</td><td>50</td></tr><tr><td>All other privately-owned residences, except the residence on Lot 11</td><td>55</td></tr></table> <p>Notes:</p> <ul style="list-style-type: none"><li>• Receiver locations are shown in Appendix 2.</li><li>• The structure used as a residence on Lot 11 is excluded from Table 4 because the other major contributor to cumulative noise totals is quarrying operations conducted on this Lot, under agreement with the Lot owner.</li><li>• Cumulative noise is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.</li><li>• Appendix 4 sets out the meteorological conditions under which these criteria apply, and the requirements for evaluating compliance with these criteria.</li></ul>	Location	Criteria (day)	F	50	G	50	All other privately-owned residences, except the residence on Lot 11	55	C	Monthly environmental monitoring reports for the period May 2017 to April 2020 were reviewed. Noise from other industries is not noted in the noise surveys and noise from the project complies with the cumulative criteria in this condition.
Location	Criteria (day)												
F	50												
G	50												
All other privately-owned residences, except the residence on Lot 11	55												
3	Noise - Operating Conditions	6	<p>The Proponent <b>must</b>:</p> <p>(a) implement best management practice, to minimise the construction, operational and traffic noise of the project;</p> <p>(b) minimise the noise impacts of the project during meteorological conditions when the noise limits in this approval do not apply; and</p> <p>(c) regularly assess noise monitoring data and relocate, modify, and/or stop operations on site to ensure compliance with the relevant conditions of this approval;</p> <p>(d) apply and enforce a speed limit of 40 km/hour for all project-related vehicles on site;</p> <p>(e) ensure that project-related trucks slowing to use the</p>	NC	<p>(a) Sections 6.1 and 6.2 of the NMP describe noise management measures. Since Q4 2018, noise monitoring results indicate these measures are sufficient to control operational noise. The effectiveness of traffic noise management measures is not clearly demonstrated, however no additional traffic noise management measures have been identified or are considered likely to be required.</p> <p>(b) According to monthly noise monitoring reports, noise criteria exceedances for 3 quarters in 2018 occurred under valid meteorological conditions. No noise levels over the criteria have</p>								



Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
			intersection of Branch Lane and Andesite Road do not use engine or compression braking systems, to the satisfaction of the <b>Planning</b> Secretary.		<p>been noted during meteorological conditions when the noise limits do not apply.</p> <p><b>(c) Site operations did not comply with the noise criterion at Location G in February, May and August 2018 and site operations were stopped at the end of August 2018 to address noise issues. Since that time, there is no evidence of regular assessment, however quarterly monitoring has not identified the need to modify or stop operations to ensure compliance with noise criteria.</b> <b>Recommendation: Carry out a review of noise monitoring results upon receipt of each noise compliance report, to reduce response time in the event of non-compliance with criteria or other noise issues.</b></p> <p>(d, e) Viewed 'Transport Management Plan &amp; Driver's Code of Conduct, Karuah East Quarry' (Streetwise Road Safety &amp; Traffic Services, December 2015), which includes requirements to comply with on-site speed limits, braking and site access. Confirmed that required speed limit signage and truck braking systems were being complied with during the audit site visit (see <b>Plate 2</b>).</p>
3	Noise - Noise Management Plan	7	<p>The Proponent <b>must</b> prepare and implement a Noise Management Plan for the project to the satisfaction of the <b>Planning</b> Secretary. This plan must:</p> <p>(a) be prepared by a suitably qualified expert whose appointment has been approved by the <b>Planning</b> Secretary;</p> <p>(b) be prepared in consultation with EPA, and submitted to the <b>Planning</b> Secretary for approval prior to the commencement of construction activities;</p> <p>(c) describe the measures that would be implemented to ensure compliance with the noise criteria and operating conditions in this approval;</p> <p>(d) describe the proposed noise management system in detail; and</p> <p>(e) include a monitoring program that:• uses attended and unattended monitoring to evaluate the compliance of the project against the noise criteria in this approval;• evaluates and reports on:- the effectiveness of the on-site noise management system; and- compliance against the noise operating conditions; and•</p>	<b>NC</b>	<p>Reviewed NMP dated 16/10/15 and approved by DPIE letter of 14/12/15.</p> <p>(a) Deemed compliant by previous IEA.</p> <p>(b) Section 1.1 of the NMP states it was submitted to DP&amp;E for review in October 2015, prior to commencement of construction.</p> <p>(c) NMP Section 5 describes criteria and conditions, and Section 6 describes management measures intended to meet the criteria and conditions.</p> <p>(d) NMP Section 8 describes the noise monitoring program. Section 9 describes reporting requirements. Section 10 presents protocols for managing complaints and non-compliances.</p> <p>(e) NMP Section 8 describes the noise monitoring program, which includes attended and unattended noise monitoring. Section 9</p>

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence											
			defines what constitutes a noise incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any noise incidents.The Proponent must implement the plan as approved by the Planning Secretary.		<p>describes reporting requirements.Section 10 presents protocols for managing complaints and non-compliances.Viewed the 'Karuah East Quarry Noise Mitigation Review' (Thearle Acoustics) dated 26/02/19. which was undertaken in response to an EPA request in 2018 to confirm noise controls required to comply with the conditions of EPL 20611.</p> <p><b>It is recommended that the Noise Management Plan is revised to reflect the noise mitigation measures for site plant that were adopted by KEQPL following completion of the Thearle Acoustics review that are in addition to, or change, the noise management commitments in the KEQ EA.</b></p> <p><b>There is no evidence that reported exceedances of the noise criteria in Q1 to Q3 2018 triggered an evaluation of the noise management system or any changes to noise management measures.Compliance with the noise operating conditions was incompletely reported during the audit period, as noted against Schedule 3, Conditions 3 and 4 above.</b></p>											
3	Blasting - Blasting Criteria	8	<p>The Proponent must ensure that blasting on the site does not cause exceedances of the criteria in Table 5.</p> <p>Table 5: Blasting criteria</p> <table><tr><th>Location</th><th>Airblast overpressure (dB (Lin Peak))</th><th>Ground Vibrations (mm/s)</th><th>Allowable exceedance</th></tr><tr><td rowspan="2">Any residence on privately-owned land, or any public infrastructure</td><td>120</td><td>10</td><td>0%</td></tr><tr><td>115</td><td>5</td><td>5% of the total number of blast over a period of 12 months</td></tr></table>	Location	Airblast overpressure (dB (Lin Peak))	Ground Vibrations (mm/s)	Allowable exceedance	Any residence on privately-owned land, or any public infrastructure	120	10	0%	115	5	5% of the total number of blast over a period of 12 months	C	Monthly environmental monitoring reports during the audit period were reviewed. 30 blasts were reported in the three-year audit period, with no exceedances of the relevant impact criteria.
Location	Airblast overpressure (dB (Lin Peak))	Ground Vibrations (mm/s)	Allowable exceedance													
Any residence on privately-owned land, or any public infrastructure	120	10	0%													
	115	5	5% of the total number of blast over a period of 12 months													

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence						
			However, these criteria do not apply if the Proponent has a written agreement with the relevant landowner or infrastructure provider/owner, and the Proponent has advised the Department in writing of the terms of this agreement.								
3	Blasting - Blasting Hours	9	<p>The Proponent <b>must</b> ensure that blasting on site is only carried out during the hours in Table 6.</p> <p><i>Table 6: Blasting hours</i></p> <table><tr><th>Day</th><th>Blasting hours</th></tr><tr><td>Monday – Friday</td><td>9.00 am to 4.00 pm</td></tr><tr><td>Saturdays, Sundays and Public Holidays</td><td>No blasting</td></tr></table>	Day	Blasting hours	Monday – Friday	9.00 am to 4.00 pm	Saturdays, Sundays and Public Holidays	No blasting	C	Records in KEQ monthly monitoring reports confirm that all blasts were within approved hours.
Day	Blasting hours										
Monday – Friday	9.00 am to 4.00 pm										
Saturdays, Sundays and Public Holidays	No blasting										
3	Blasting - Blasting Frequency	10	<p>The Proponent <b>must</b> not carry out more than 2 blasts a week on the site, unless an additional blast is required following a blast misfire.</p> <p><i>Note: A blast may involve a number of explosions within a short period, typically less than two minutes.</i></p>	C	A review of blast monitoring results in the monthly monitoring reports and Annual Reviews indicates compliance with this condition.						
3	Blasting - Operating Conditions	11	<p>The Proponent <b>must</b>:</p> <ul style="list-style-type: none"><li>(a) implement best blast management practice to:<ul style="list-style-type: none"><li>• protect the safety of people and livestock in the surrounding area;</li><li>• protect public or private infrastructure/property in the surrounding area from any damage; and</li><li>• minimise the dust and fume emissions of any blast;</li></ul></li><li>(b) schedule blasts to avoid the blasting schedule of any nearby quarrying operation;</li><li>(c) operate a suitable system to enable the public to get up-to-date information on the proposed blasting schedule on the site, and</li><li>(d) not undertake blasting within 500 metres of:<ul style="list-style-type: none"><li>(i) any public road without the approval of the relevant road authority; or</li><li>(ii) any land outside the site not owned by the Proponent, unless:<ul style="list-style-type: none"><li>• the Proponent has a written agreement with the relevant landowner to allow blasting to be carried out closer to the land, and the Proponent has advised the Department in writing of the terms of this agreement, or</li></ul></li></ul></li></ul>	NC	<p>Reviewed the KEQ Blast Management Plan (BMP) dated October 2015 and approved by DPIE letter of 14/12/15.</p> <p>(a) Section 6.3 of the Blast Management Plan describes management measures to protect people, property and livestock. Section 8 describes measures to minimise blast fume.</p> <p>(b) Section 6.6 of the BMP includes a commitment to avoid blast events coinciding with events at nearby quarries.</p> <p>(c) Section 6.7 of the BMP describes a blast notification register to enable interested people to be notified of blast events.</p> <p>(d) (i) Section 6.4 of the BMP notes blasts are not required within 500 m of a public road. (ii) Section 6.3 of the BMP describes measures to protect people and livestock, however <b>there is no requirement for a 500 m exclusion zone and no specific measures to be implemented while blasting within 500 m of land not owned by the</b></p>						

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			<ul style="list-style-type: none"> <li>the Proponent has: <ul style="list-style-type: none"> <li>demonstrated to the satisfaction of the <b>Planning</b> Secretary that the blasting can be carried out closer to the land without compromising the safety of the people or livestock on the land, or damaging the buildings and/or structures on the land; and</li> <li>updated the Blast Management Plan to include the specific measures that would be implemented while blasting is being carried out within 500 metres of the land, to the satisfaction of the <b>Planning</b> Secretary.</li> </ul> </li> </ul>		<p><b>proponent. While there were no blast incidents during the audit period and KEQPL notify local residents of planned site blasting, evidence that written agreements with landholders within 500 m of project blasting was not available at the time of audit.</b></p> <p><b>It is recommended that KEQ consult with relevant private landowners and seek to enter into written agreements to allow blasting within 500 m of their land.</b></p>
3	Blasting - Blast Management Plan	12	<p>The Proponent <b>must</b> prepare and implement a Blast Management Plan for the project to the satisfaction of the <b>Planning</b> Secretary. This plan must:(a) be prepared by a suitably qualified expert whose appointment has been approved by the <b>Planning</b> Secretary;(b) be prepared in consultation with Council and EPA, and submitted to the <b>Planning</b> Secretary for approval prior to the commencement of construction activities;(c) describe the measures that would be implemented to ensure:• best management practice is being employed; and• compliance with the relevant conditions of this approval;(d) include a road closure protocol if blasting occurs within 500 metres of a public road;(e) include a specific blast fume management protocol, to demonstrate how emissions will be minimised including risk management strategies if blast fumes are generated; and(f) include a monitoring program for evaluating the performance of the project including:• compliance with the applicable criteria; and• minimising fume emissions from the site.<b>The Proponent must implement the plan as approved by the Planning Secretary.</b></p>	C	<p>Reviewed the KEQ BMP approved by DPIE on 14/12/15.</p> <p>(a) Deemed compliant by previous IEA.</p> <p>(b) Section 1.1 of the BMP states it was submitted to Great Lakes Council, the EPA and DP&amp;E by October 2015. Construction commenced after that date.</p> <p>(c) Section 6.2 of the BMP describes measures to manage blast effects to achieve compliance with the conditions of approval. Section 6.3 of the Blast Management Plan describes management measures to protect people, property and livestock.</p> <p>(d) Section 6.4 of the BMP states no blasts are required within 500 m of a public road.(e) BMP Section 8 describes measures to minimise blast fume.(f) BMP Section 7 describes the blast monitoring program, with monitoring results reported in monthly monitoring reports and Annual Reviews.</p>
3	Air Quality - Air Quality Criteria	13	<p>The Proponent <b>must</b> ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the project do not exceed the criteria in Tables 7 to 9 at any residence on privately-owned land.</p>	C	<p>Viewed 2017, 2018 and 2019 Annual Reviews and KEQ 'AQM Register' and monthly environmental reports for monitoring results during 2020. Viewed JF correspondence dated 15/05/20 notifying DPIE that depositional dust gauge DDG4 was damaged during the April 2020 sampling period. DPIE responded on 19/05/20 acknowledging the notification and requesting that the absence of DDG4 data is noted in the 2020 Annual Review.</p> <p>All TSP and depositional dust monitoring results were within annual compliance criteria.</p>

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			<div><div>Table 7: Long-term impact assessment criteria for particulate matter</div><table><tr><th>Pollutant</th><th>Averaging period</th><th><sup>d</sup> Criterion</th></tr><tr><td>Total suspended particulates (TSP)</td><td>Annual</td><td><sup>a</sup> 90 µg/m<sup>3</sup></td></tr><tr><td>Particulate matter &lt; 10 µm (PM<sub>10</sub>)</td><td>Annual</td><td><sup>a</sup> 30 µg/m<sup>3</sup></td></tr></table><div>Table 8: Short-term impact assessment criteria for particulate matter</div><table><tr><th>Pollutant</th><th>Averaging period</th><th><sup>d</sup> Criterion</th></tr><tr><td>Particulate matter &lt; 10 µm (PM<sub>10</sub>)</td><td>24 hour</td><td><sup>a</sup> 50 µg/m<sup>3</sup></td></tr></table><div>Table 9: Long-term Impact Assessment Criteria for Deposited Dust</div><table><tr><th>Pollutant</th><th>Averaging period</th><th>Maximum increase in deposited dust level</th><th>Maximum total deposited dust level</th></tr><tr><td><sup>c</sup> Deposited dust</td><td>Annual</td><td><sup>b</sup> 2 g/m<sup>2</sup>/month</td><td><sup>a</sup> 4 g/m<sup>2</sup>/month</td></tr></table><div><ul style="list-style-type: none"><li>• a) Total impact (ie incremental increase in concentrations due to the project plus background concentrations due to all other sources);</li><li>• b) Incremental impact (ie incremental increase in concentrations due to the project on its own);</li><li>• c) Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.</li><li>• d) Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the <b>Planning</b> Secretary in consultation with EPA.</li></ul></div></div>	Pollutant	Averaging period	<sup>d</sup> Criterion	Total suspended particulates (TSP)	Annual	<sup>a</sup> 90 µg/m <sup>3</sup>	Particulate matter < 10 µm (PM <sub>10</sub> )	Annual	<sup>a</sup> 30 µg/m <sup>3</sup>	Pollutant	Averaging period	<sup>d</sup> Criterion	Particulate matter < 10 µm (PM <sub>10</sub> )	24 hour	<sup>a</sup> 50 µg/m <sup>3</sup>	Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level	<sup>c</sup> Deposited dust	Annual	<sup>b</sup> 2 g/m <sup>2</sup> /month	<sup>a</sup> 4 g/m <sup>2</sup> /month		<p>PM10 was below the relevant annual average criteria during 2017 and 2018 and below the annual average criteria in 2019 (Section 6.4.3 2017, 2018 and 2019 AR).</p> <p>The short term 24-hour PM10 impact assessment criteria of 50 µg/m3 were exceeded on three occasions in 2019:</p> <ul style="list-style-type: none"><li>- 22 November 2019 (98 µg/m³ recorded);</li><li>- 28 November 2019 (61 µg/m³ recorded); and</li><li>- 10 December 2019 (100 µg/m³ recorded).</li></ul> <p>However, these elevated results were influenced by regional bushfire events and were not considered to be a result of KEQ operations (Section 6.4.3 the 2019 Annual Review). Was there any correspondence with Planning or EPA at the time when results were received confirming these exceedances weren't related to you? I note this was reported to CCC and in the Annual Review with no issues raised.</p> <p>Viewed examples of internal communication from JF to KEQ staff on 21/04/20 and 20/08/20 regarding forecast weather conditions and the need for additional awareness / management of dust emissions. Water carts were operating on site on the day of the audit inspection to minimise dust emissions (see <b>Plate 3</b>). Controls for extraction areas and haul roads were seen to be implemented well to minimise dust emissions.</p>
Pollutant	Averaging period	<sup>d</sup> Criterion																										
Total suspended particulates (TSP)	Annual	<sup>a</sup> 90 µg/m <sup>3</sup>																										
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Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level																									
<sup>c</sup> Deposited dust	Annual	<sup>b</sup> 2 g/m <sup>2</sup> /month	<sup>a</sup> 4 g/m <sup>2</sup> /month																									
3	Air Quality - Greenhouse Gas Emissions	14	The Proponent <b>must</b> implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site.	C	<p>Section 7.2 of the Air Quality and Greenhouse Gas Management Plan (AQGGMP), notes that the following measures are implemented to reduce the release of greenhouse gas emission from the site:</p> <p><u>Diesel / petroleum consumption:</u></p> <ul style="list-style-type: none"><li>- Emissions from transport vehicles and on site machinery will comply with the relevant Australian Standards;</li><li>- All vehicles and machinery will be regularly maintained to ensure</li></ul>																							

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
					<p>proper and efficient working order and therefore minimise emissions;</p> <ul style="list-style-type: none"> <li>- Optimum vehicle / equipment tyre pressures will be maintained;</li> <li>- The finished site topography will ensure that no excessive engine use is required; and</li> <li>- Optimisation of incline / decline of roads within the construction area on the project site will be considered to reduce transport distances for vehicles entering / exiting the project site.</li> </ul> <p><u>Electricity consumption:</u></p> <ul style="list-style-type: none"> <li>- Use of efficient construction equipment technology;</li> <li>- Use of efficient crushing and processing plant technology; and</li> <li>- Continued monitoring of site electricity usage and review of techniques to reduce usage (if possible). As per Table 6 of the EMS, monitoring of site electricity and fuel usage is undertaken by the Quarry Manager on an annual basis.</li> </ul>
3	Air Quality - Operating Conditions	15	<p>The Proponent <b>must</b>:</p> <ul style="list-style-type: none"> <li>(a) implement best management practice to minimise dust emissions by the project;</li> <li>(b) regularly assess air quality monitoring data and relocate, modify, and/or stop operations on site as may be required to ensure compliance with the air quality criteria in this approval;</li> <li>(c) minimise the air quality impacts of the project during adverse meteorological conditions and extraordinary events (see note d under Tables 7-9); and</li> <li>(d) minimise surface disturbance of the site, other than as permitted under this approval.</li> </ul>	C	<p>a) Section 7 of the AQGGMP.</p> <p>b) Section 7 and 8 of the AQGGMP.</p> <p>c) Section 7 of the AQGGMP.</p> <p>d) Section 7 of the AQGGMP.</p> <p>Also see comments on implementation of air quality controls under Schedule 3, Conditions 13 and 16.</p> <p>The audit site inspection confirmed that disturbance was generally minimised to areas required for site infrastructure and operations, with dust emissions well managed on the day of the inspection (see <b>Plate 4, Plate 5</b>).</p>
3	Air Quality - Air Quality	16	<p>The Proponent <b>must</b> prepare and implement an Air Quality Management Plan for the project to the satisfaction of the <b>Planning</b> Secretary. This plan must:</p>	NC	<p>Reviewed the KEQ AQGGMP dated November 2015 and approved by DPIE letter of 14/12/15.</p> <p>a) Deemed compliant by previous IEA.</p>

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
	Management Plan		(a) be prepared by a suitably qualified expert whose appointment has been approved by the <b>Planning</b> Secretary; (b) be prepared in consultation with Council and EPA, and submitted for approval to the <b>Planning</b> Secretary prior to the commencement of construction activities; (c) describe the measures that would be implemented to ensure: • compliance with the relevant air quality conditions of this approval; • best management practice is employed; and • the air quality impacts of the project are minimised during adverse meteorological conditions and extraordinary events; (d) describe the proposed air quality management system; and (e) include a monitoring program that: • is capable of evaluating the performance of the project; • includes a protocol for determining any exceedances of the relevant conditions of approval; • effectively supports the air quality management system; and • evaluates and reports on the adequacy of the air quality management system. <b>The Proponent must implement the plan as approved by the Planning Secretary.</b>		<p>b) Viewed email from EPA dated 14/10/15 confirming consultation. Viewed letter from DP&amp;E dated 14/12/15 noting approval of the AQGGMP prepared by SLR Consulting (dated 27 November 2015).</p> <p>c) Section 7 of the AQGGMP.</p> <p>d) Sections 8 - 11 of the AQGGMP.</p> <p>e) Section 8 of the AQGGMP. <b>Section 11.2 of the 2017 Annual Review notes non - compliances relating to overrun of samples (incorrect HVAS sampling frequency). In both June and December of 2017, HVAS filters were not changed at the correct time leading to an overrun of the sample. Filters were changed as soon as errors were identified.</b></p> <p>The implementation of air quality management and mitigation measures from the AQGGMP was reviewed during the audit inspection. This review confirmed:</p> <ul style="list-style-type: none"> <li>- Watering of and regulation of vehicle speeds on site haul roads (see <b>Plate 2</b> and <b>Plate 3</b>);</li> <li>- Management of product stockpiles and truck loading to minimise potential dust emissions (see <b>Plate 4</b>);</li> <li>- Enclosure of the crusher and screening infrastructures (see <b>Plate 18</b>);</li> <li>- Covering of haul truck loads; and</li> <li>- Use of the wheel wash bay by trucks leaving site (see <b>Plate 19</b>).</li> </ul>
3	Meteorological Monitoring	17	For the life of the project, the Proponent <b>must</b> ensure that there is a suitable meteorological station operating in the vicinity of the site that complies with the requirements in the Approved Methods for Sampling of Air Pollutants in New South Wales guideline.	C	<p>The current site meteorological station was installed in August 2016 which is used by both the Karuah Quarry and Karuah East Quarry (Section 6.1 of the 2019 Annual Review). The location of the station is shown in Appendix 3 of the 2019 Annual Review and was viewed during the audit site inspection (see <b>Plate 6</b>).</p> <p>Parameters measured include wind speed, wind direction, temperature, precipitation, pressure and relative humidity (Section 8.2 AQGGMP). The previous IEA deemed that the siting of monitoring data provided by the meteorological station was</p>

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					compliant with the 'Approved Methods'.  Viewed field certificate reports for the site meteorological station completed by Envirodata that confirm maintenance and calibration during the audit period, including: - 13/07/17; - 25/07/18; and - 15/08/19.
3	Soil & Water	-	<i>Note: The Proponent is required to obtain the necessary water licences for the project under the Water Act 1912 and/or the Water Management Act 2000.</i>	C	Section 2.4 of the Water Management Plan (WMP) states: "There are no extraction licenses associated with the Karuah East Project" and no licences are identified in the 2017, 2018 or 2019 Annual Reviews. JF (pers comm) confirmed that no licences had been required during 2020.
3	Soil & Water - Water Supply	18	The Proponent <b>must</b> ensure it has sufficient water during all stages of the project, and if necessary, adjust the scale of quarrying operations on site to match its available supply.	C	Section 6.1 of the WMP notes that water captured in sediment dams or the in-pit sumps can be reused for operational purposes (in material processing or dust suppression, see <b>Plate 7</b> ). JF (pers comm) noted that potable water can be brought to site if required to address any shortfall in operational water supplies.  During the audit inspection, it was noted that Dams 1 - 3 had sufficient water stored to support site operations and discharge locations were well managed and signposted (see <b>Plate 8</b> to <b>Plate 12</b> ).
3	Soil & Water - Surface Water Discharges	19	The Proponent <b>must</b> comply with the discharge limits in any EPL, or with Section 120 of the POEO Act	NC	<b>Uncontrolled and controlled discharges from sediment dams in exceedance of EPL discharge limits occurred during the audit period as outlined below.</b>  <b>2017</b> The following non-compliant discharge events occurred in 2017: - Uncontrolled discharge from Dam 3 (LDP003) from 7 March to 11 March (note inconsistent dates are used in the Annual Review). This discharge exceeded the EPL concentration limits for TSS, pH and oil/grease (Section 7.6 of the 2017 Annual Review); - Uncontrolled discharges from Dam 1 (LDP001) and Dam 3 (LDP003) from 9 June to 22 June. This discharge exceeded the EPL limits for TSS, pH and oil/grease (Section 7.6 of the 2017 Annual Review); and



Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
					<p>- Uncontrolled discharge from Dam 2 (LDP002) from 10 November to 11 November. This discharge exceeded the EPL concentration limit for pH (Section 7.6 of 2017 Annual Review).</p> <p><b>2018</b> The following non-compliant discharge events occurred in 2018:</p> <ul style="list-style-type: none"> <li>- Uncontrolled discharges from LDP001 on 22 March, 14 May and 5 June that exceeded the EPL concentration limit for pH (Section 7.6 of 2018 Annual Review);</li> <li>- Uncontrolled discharges from LDP001 between 8 to 11 October that exceeded the EPL concentration limit for TSS (Section 7.3.3 of 2018 Annual Review);</li> <li>- Uncontrolled discharge from LDP002 on 22 March that exceeded the EPL concentration limit for pH (Section 7.3.3 of 2018 Annual Review); and</li> <li>- Controlled discharges from LDP002 on 8 May and 16 May that exceeded the EPL concentration limit for pH (Section 7.3.3 of 2018 Annual Review).</li> </ul> <p><b>2019</b> The following non-compliant discharge events occurred in 2019:</p> <ul style="list-style-type: none"> <li>- Controlled discharge from LDP002 on 21 May that exceeded the EPL concentration limit for TSS (Section 7.3.3 of 2019 Annual Review);</li> <li>- Uncontrolled discharges from LDP001 and LDP003 between 24 to 27 June that exceeded the EPL concentration limit for TSS (Section 7.3.3 of 2019 Annual Review); and</li> <li>- Uncontrolled discharge from LDP002 on 24 June that exceeded the EPL concentration limit for TSS (Section 7.3.3 of 2019 Annual Review).</li> </ul> <p>KEQ self-reported the June 2019 discharge exceedances to EPA on 26/06/20 and EPA provided an associated 'Show Cause Notice' on 27/06/19. KEQ provided a response to the Show Cause/notice on 02/08/19. EPA issued a Penalty Infringement Notice for the 24 June 2019 discharge and Formal Warning regarding the other discharge events of 24 - 27 June 2019 via letter dated 15/08/19.</p>

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
3	Soil & Water - Effluent Management	20	The Proponent <b>must</b> : (a) not irrigate, discharge or dispose of sewage or bathroom effluent from the site; and (b) operate and maintain a suitable effluent storage facility, to the satisfaction of Council and EPA.	C	(a) JC (per comm) confirmed no irrigation or other disposal of sewage on site; and  (b) Viewed examples of MidCoast Council 'Approval to operate an on-site sewage management system OSMS' dated 15/08/16 (licence no. 7826157 and 823), 18/08/16 (licence no. 7840133), 31/07/18 (licence no. 823).
3	Soil & Water - Water Management Plan	21	The Proponent <b>must</b> prepare and implement a Water Management Plan for the project to the satisfaction of the <b>Planning</b> Secretary. This plan must: (a) be prepared in consultation with the EPA and NOW by suitably qualified and experienced person/s whose appointment has been approved by the <b>Planning</b> Secretary; (b) be submitted to the <b>Planning</b> Secretary for approval prior to the commencement of construction activities; (c) include: (i) a Site Water Balance that includes details of: • sources and security of water supply, including contingency planning; • water use on site; and • measures that would be implemented to minimise use of clean water and maximise recycling of dirty water on the site; (ii) a Surface Water Management Plan, that includes: • baseline data on surface water flows and quality in the watercourses that could be affected by the project; • a detailed description of the surface water management system on the site, including the design objectives and performance criteria for the:– clean water diversions;– erosion and sediment controls;– water storages (including Maximum Harvestable Rights requirements); and– control of water pollution from areas of the site that have been rehabilitated; • surface water impact assessment criteria, to be developed following analysis of baseline data, including trigger levels for investigating any potentially adverse surface water quality impacts ;• a program to monitor:– any surface water discharges;– the effectiveness of the water management system;– surface water flows and quality in local watercourses; and– ecosystem health of local watercourses; and	NC	Reviewed the KEQ WMP dated December 2015 and approved by DPIE letter of 14/12/15.  (a) The draft WMP was provided to DPI-Water and EPA for review on 15/09/2015. DPI-Water responded on 23/09/15 and EPA responded on 14/10/15. Neither agency requested any amendments to the draft WMP (Appendices A1 and A2 of the WMP). The WMP was prepared by SLR Consulting, whose appointment was approved by DP&E on 22/7/15 (Table 1 of WMP).  (b) The draft WMP was provided to DP&E on 16/10/2015. In response, DP&E recommended revisions to the WMP but noted that the requirement for the Secretary's approval had been satisfactorily met (Appendix A3 of the WMP).  <b>It is recommended that written confirmation of approval is sought from DPIE during the next update of the WMP.</b>  (c) (i) The site water balance is described in Section 7 of the WMP. (ii) Baseline data on surface water quantity and quality is provided in Section 4 of the WMP. Surface water management is discussed in Sections 6 and 9 of the WMP. Surface water monitoring program is described in Section 8.1 of the WMP. Impact assessment criteria are based on EPL discharge limits and the default trigger values under the ANZECC guidelinesGroundwater monitoring program is described in Section 8.2 of the WMP. A Trigger Action Response Plan (TARP) is included as Appendix B of the WMP.

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
			<ul style="list-style-type: none"> <li>• an assessment of appropriate options to improve storage and retention times in accordance with <i>Managing Urban Stormwater: Soils and Construction</i> (Landcom);</li> <li>(iii) a Groundwater Monitoring Program that includes: <ul style="list-style-type: none"> <li>• baseline data of groundwater levels surrounding the site;</li> <li>• groundwater impact assessment criteria, to be developed following analysis of baseline data, including trigger levels for investigating any potentially adverse groundwater impacts; and</li> <li>• a program to monitor and/or validate the impacts of the project on groundwater resources; and</li> </ul> </li> <li>(iv) a Surface and Ground Water Response Plan that describes the measures and/or procedures that would be implemented to: <ul style="list-style-type: none"> <li>• respond to any exceedances of the surface water impact assessment criteria and groundwater impact assessment criteria; and</li> <li>• mitigate and/or offset any adverse impacts on surface water and groundwater resources located within and adjacent to the site.</li> </ul> </li> </ul> <p>The Proponent must implement the plan as approved by the Planning Secretary.</p>		<p><b>The surface water monitoring does not include a program for the monitoring of stream ecosystem health. It is recommended that KEQ implement a program to monitor the health of local watercourses under the Water Management Plan.</b></p> <p><b>A non-compliance with the WMP was also recorded in 2017 due to frequency of groundwater level monitoring (as reported in Section 7.4.2 of the 2017 Annual Review). Quarterly monitoring commenced in accordance with the required frequency in October 2017; prior to this date monitoring had been undertaken on a six-monthly basis.</b> Section 7.4.2 of the 2017 Annual Review notes that an Official Caution was received from the (then) DPE on 16/10/17 regarding this non-compliance.</p> <p>(c) (iii) The Groundwater Monitoring Program is described in Sections 4, 6 &amp; 8 of the WMP.</p> <p>Implementation of WMP management controls was reviewed during the site inspection, which confirmed that water captured on site was being managed generally in accordance with the WMP. This included:</p> <ul style="list-style-type: none"> <li>- Direction of water of drains around the site and capture of rainfall runoff from disturbed areas within site water management system (reporting to Dams 1 - 3) generally consistent with Landcom requirements (see <b>Plate 8</b>, <b>Plate 11</b> and <b>Plate 12</b>);</li> <li>- Implementation and management of surface water discharge locations (see <b>Plate 13</b>);</li> <li>- Treatment of water prior to discharge from site to confirm that quality meets EPL standards (see <b>Plate 9</b>). JF (pers comm) noted this treatment is primarily for TSS.</li> </ul> <p>(iv) The Surface and Ground Water Response Plan is described in Section 9 and Appendix A of the WMP.</p>
3	Transport - Roadworks	22	<p>The Proponent <b>must</b> at its own cost, complete the following roadworks shown conceptually in Figure 2 of Appendix 1, prior to transporting quarry products from the site:</p> <p>(a) extending Blue Rock Close, with tar seal and appropriate</p>	<b>NC</b>	<p>Section 4.3 of the 2017 Annual Review confirms that site operations at KEQ commenced on 16/11/17.</p> <p>(a) and (b) Blue Rock Close road has been completed, with a</p>

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
			pavement, road markings and advance warning signage, to the satisfaction of Council and RMS; (b) realigning and upgrading the Blue Rock Close/Andersite Road intersection with appropriate road markings, pavement thickening and advance warning signage, to the satisfaction of Council; (c) upgrading the Branch Lane/Andersite Road intersection with appropriate road markings and advance warning signage, to the satisfaction of Council; (d) constructing the site access road on Lots 12 and 13 DP 1024564 with appropriate pavement and advance warning signage, to the satisfaction of Council; and (e) installing a wheel-wash facility on the site.		Construction Completion Certificate issued by the RMS on 15 November 2017 (Section 4.3 of the 2017 Annual Review).  (c, d) Viewed the 'Proposed Road Upgrade and Extension, Karuah East Quarry Pty Ltd Great Lakes Council, RMS Plan Registration No. DS2015/002929' prepared by GCA Engineering and executed 28/11/17. Plans include design plans for Blue Rock Close / Andersite Road intersection upgrades and were accepted for construction by NSW Roads & Maritime Services on 20/12/16.  (e) Site access road intersections and wheel wash facility were reviewed during the audit inspection and found to be operating effectively (see <b>Plate 19</b> ). This infrastructure has been constructed generally in accordance with the approved layout plans for the site.
3	Transport - Monitoring of Product Transport	23	The Proponent <b>must</b> : (a) keep accurate records of: • the amount of quarry products transported from the site (per calendar month and year); and • the number of laden truck movements from the site (per hour, day, week, calendar month and year); and (b) publish these records on its website quarterly.	NC	<b>(a) Production records are reported in the audit period Annual Reviews, however the transportation of product from site per calendar month and the number of laden truck movements is not reported.</b>  <b>(b) Viewed KEQ website on 17/8/20 (<a href="http://hunterquarries.com.au/karuah-east-documents">http://hunterquarries.com.au/karuah-east-documents</a>) and these records were not available.</b>  <b>It is recommended that the information required under this condition is published on the KEQ website on a quarterly basis.</b>
3	Transport - Parking	24	The Proponent <b>must</b> provide sufficient parking on-site for all project-related traffic, in accordance with Council's parking codes, to the satisfaction of the <b>Planning</b> Secretary.	C	Onsite parking is discussed in Section 4 of the 2015 Transport Management Plan & Drivers Code of Conduct (TMP). 28 carparking spaces will be provided, based on a ratio of space per employee plus a 1 carparking space for visitors.
3	Transport - Operating Conditions	25	The Proponent <b>must</b> ensure that all project-related heavy vehicles: (a) enter and exit the site in a forward direction; and (b) exit the site with loads covered.	C	Observations during site inspection found that heavy vehicles accessing the site were entering and leaving the site in accordance with this condition. The Transport Management Plan & Driver's Code of Conduct (TMP) and site familiarisation for truck operators accessing site confirms these requirements.
3	Transport - Transport	26	The Proponent must prepare and implement a Transport Management Plan for the project to the satisfaction of the <b>Planning</b>	C	Reviewed the KEQ Traffic Management Plan dated September 2015 and approved by DPIE letter of 14/12/15 and the 2015 TMP.

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
	Management Plan		Secretary. This plan must: (a) be prepared by a suitably qualified traffic consultant whose appointment has been approved by the <b>Planning</b> Secretary; (b) be prepared in consultation with RMS and Council, and submitted to the <b>Planning</b> Secretary for approval prior to the commencement of construction activities; (c) include a Driver Code of Conduct; (d) describe the measures that would be implemented to ensure: • compliance with the relevant conditions of this approval; • that drivers of project-related heavy vehicles are aware of potential safety issues along the haulage routes; and • that drivers of project-related heavy vehicles comply with the Driver Code of Conduct; and (e) include a program to monitor the effectiveness of these measures. <b>The Proponent must implement the plan as approved by the Planning Secretary.</b>		(a) Appendix B of the TMP provides a letter from DPIE stating that "nominated persons are suitably qualified";  (b) Appendix C of the TMP provides evidence that RMS and Council were consulted during preparation of the TMP. DPIE approved the TMP by letter dated 14/12/15.  (c) Section 5 of the TMP;  (d) Section 5 and Section 6 of the TMP; and  (e) Section 6 of the TMP.
3	Landscape - Tetratheca Juncea Translocation	27	The Proponent <b>must</b> develop and implement a translocation program for Tetratheca juncea to the satisfaction of the <b>Planning</b> Secretary. This program must:(a) be prepared in consultation with OEH, by a suitably qualified and experienced ecologist whose appointment has been approved by the <b>Planning</b> Secretary;(b) be submitted to the <b>Planning</b> Secretary for approval prior to the commencement of construction activities that involve clearing of or potential harm to Tetratheca juncea;(c) include measures for the translocation of all Tetratheca juncea stems in the area of disturbance to nearby areas with similar physical and biological habitat features;(d) include a monitoring program to study the Tetratheca juncea stems before and after translocation;(e) include short and long-term goals and performance criteria to measure the effectiveness of the program; and(f) provide for the transfer of information obtained as a result of implementing the program to OEH and the <b>Department</b> . <b>The Proponent must implement the program as approved by the Planning Secretary.</b>	<b>NC</b>	Reviewed the KEQ Tetratheca juncea Management (TJTMP) dated August 2015 and approved by DPIE letter dated 14/12/15.  (a) Deemed compliant by previous IEA.  (b) Deemed compliant by previous IEA.  (c) Deemed compliant by previous IEA.  (d) Deemed compliant by previous IEA.  <b>(e) TJMP Table 8 indicates this condition is addressed within Section 8, however the section does not contain any performance criteria. The previous IEA indicated administrative non-compliance due to the absence of performance criteria. The previous audit recommended an update to the plan, however no updates appear to have been made. Cumberland Ecology recommends that the TJTMP be updated to include performance criteria to measure the effectiveness of the program.</b>

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence						
					<p>(f) Confirmed as compliant by previous IEA.</p> <p><u>Implementation</u>Table 9-1 of the TJTMP indicates that during the audit period, actions were to include monitoring in October 2017, 2018 and 2019 including flower counts, general plant health observations, identification of all plants within each section and photo points.</p> <p>Annual monitoring reports by Firebird consultants (2017, 2018, 2019) indicate that monitoring was conducted in October 2017, September 2018 and September 2019. The 2017 monitoring report suggests flowering may have occurred earlier than October, however the 2018 and 2019 do not indicate an explanation of change to the timing of monitoring surveys. The 2017, 2018 and 2019 monitoring reports do not address all monitoring requirements as set out in the TJTMP, with monitoring limited to flower counts.</p> <p><b>No comments on general plant health, individual identification, photo point monitoring are included in the monitoring reports.Cumberland Ecology recommends that 2020 monitoring include all required monitoring methods, and if undertaken outside of October 2020 an explanation of the change in survey date.</b></p>						
3	Landscape - Biodiversity Offset Strategy	28	<p>The Proponent <b>must</b>, prior to the commencement of vegetation clearing activities, finalise and implement the Biodiversity Offset Strategy, as described in <b>documents listed in condition 2 of Schedule 2</b>, summarised in Table 10 and shown conceptually in Figure 1 of Appendix 4, in consultation with OEH and Council, and to the satisfaction of the <b>Planning</b> Secretary.</p> <p>Table 10: Biodiversity Offset Strategy</p> <table><tr><th>Area</th><th>Offset Type</th><th>Minimum Size (ha)</th></tr><tr><td>Offset Area</td><td>Existing vegetation to be managed and enhanced</td><td>129.32 ha</td></tr></table> <p><i>Note: The Biodiversity Offset Strategy <b>must</b> direct that the land</i></p>	Area	Offset Type	Minimum Size (ha)	Offset Area	Existing vegetation to be managed and enhanced	129.32 ha	NC	<p>Table 8 of the approved BOAMP indicates that a total of 131.44 ha of native vegetation is to be managed within the BOAs. <b>The Biodiversity Offset Strategy Finalisation letter (as referenced in Section 2.2 and Appendix 2 in the BOAMP) and evidence of consultation with OEH (now BCD) and Council was not available for review at the time of audit.</b></p> <p>For notes: Table 8 of the BOAMP indicates that whilst present within the Biodiversity Offset Areas, existing access tracks, powerline easements, dwellings and associated asset protection zones, and dams do not contribute to the areas of native vegetation required for the Biodiversity Offsets Strategy.</p>
Area	Offset Type	Minimum Size (ha)									
Offset Area	Existing vegetation to be managed and enhanced	129.32 ha									

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence														
			<p>proposed as the Biodiversity Offset shall be free of any dwelling-houses and associated sheds, bushfire asset protection zones and other related utilities or structures so as to preserve the integrity and function of that offset area. The Biodiversity Offset Strategy <i>must</i> also provide details of the revegetation of any parts of the offset area that are cleared of native vegetation or are in an otherwise substantially modified state, other than required management trails and boundary fencing buffer distances.</p> <p>The Proponent must implement the strategy as approved by the Planning Secretary.</p>		Revegetation is addressed within Section 3.7 of the BOAMP.														
3	Landscape - Long Term Security of Offsets	29	<p>The Proponent <i>must</i>, within 12 months of the finalisation of the Biodiversity Offset Strategy, make suitable arrangements to provide appropriate long-term security for the offset area, in consultation with OEH and Council, and to the satisfaction of the Planning Secretary.</p> <p>Notes: In order of preference, mechanisms to provide appropriate long term security to the land within the Biodiversity Offset Strategy include transfer to the National Park Estate, Biobanking Agreement, Voluntary Conservation Agreement, or restrictive covenant on land titles.</p>	NC	<p>The 2019 Annual Review indicates that a conservation agreement was drafted in November 2016. <b>However due to modifications to the project and the need for modification to the strategy, arrangements for long-term securities have not been agreed and approved by DPIE.</b></p> <p>Viewed correspondence dated 25/09/20 between KEQ and DPIE in relation to ongoing consultation to secure the KEQ Conservation Biodiversity Offset Area in the long term.</p> <p><b>It is recommended that KEQ seek written confirmation from DPIE of an extension to the timeframe required to continue consultation and implement long-term security for the project Biodiversity Offset Strategy.</b></p>														
3	Landscape - Rehabilitation Objectives	30	<p>The Proponent <i>must</i> rehabilitate the site to the satisfaction of the Planning Secretary. This rehabilitation must:(a) be generally consistent with the rehabilitation strategy as described in the EA and shown conceptually in Figure 1 in Appendix 5; and(b) comply with the objectives in Table 11.</p> <table><tr><th>Feature</th><th>Objective</th></tr><tr><td>Site (as a whole)</td><td>Safe, stable &amp; non-polluting</td></tr><tr><td>Surface Infrastructure</td><td>To be decommissioned and removed, unless the Secretary agrees otherwise</td></tr><tr><td>Quarry Wall Benches</td><td>Landscaped and revegetated utilising native tree and understorey species, ensuring that the tree canopy is restored and integrated with the surrounding tree canopy</td></tr><tr><td>Quarry Pit Floor</td><td>Landscaped and revegetated with wetland vegetation.</td></tr><tr><td>Other land affected by the project</td><td>Restore ecosystem function, including maintaining or establishing self-sustaining eco-systems comprised of:<ul style="list-style-type: none"><li>native endemic species; and</li><li>a landform consistent with the surrounding environment.</li></ul></td></tr><tr><td>Community</td><td>Ensure public safety. Minimise the adverse socio-economic effects associated with quarry closure.</td></tr></table>	Feature	Objective	Site (as a whole)	Safe, stable & non-polluting	Surface Infrastructure	To be decommissioned and removed, unless the Secretary agrees otherwise	Quarry Wall Benches	Landscaped and revegetated utilising native tree and understorey species, ensuring that the tree canopy is restored and integrated with the surrounding tree canopy	Quarry Pit Floor	Landscaped and revegetated with wetland vegetation.	Other land affected by the project	Restore ecosystem function, including maintaining or establishing self-sustaining eco-systems comprised of: <ul style="list-style-type: none"><li>native endemic species; and</li><li>a landform consistent with the surrounding environment.</li></ul>	Community	Ensure public safety. Minimise the adverse socio-economic effects associated with quarry closure.	C	<p>As per Section 7 of the Environmental Management Strategy (EMS), "rehabilitation is only applicable once there is final rehabilitation at the site i.e rehabilitation is not temporary for stabilisation".</p> <p>Section 5 of the LRMP sets out the rehabilitation management objectives which are in accordance with this condition. Section 8 of the 2017, 2018 and 2019 Annual Reviews states "there have been no opportunities to establish rehabilitation at the quarry site in its current form. Future rehabilitation activities will be undertaken in accordance with the approved LRMP".</p>
Feature	Objective																		
Site (as a whole)	Safe, stable & non-polluting																		
Surface Infrastructure	To be decommissioned and removed, unless the Secretary agrees otherwise																		
Quarry Wall Benches	Landscaped and revegetated utilising native tree and understorey species, ensuring that the tree canopy is restored and integrated with the surrounding tree canopy																		
Quarry Pit Floor	Landscaped and revegetated with wetland vegetation.																		
Other land affected by the project	Restore ecosystem function, including maintaining or establishing self-sustaining eco-systems comprised of: <ul style="list-style-type: none"><li>native endemic species; and</li><li>a landform consistent with the surrounding environment.</li></ul>																		
Community	Ensure public safety. Minimise the adverse socio-economic effects associated with quarry closure.																		

Ref: 201030 karuah east quarry ie report

HANSEN BAILE



Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
3	Landscape - Progressive Rehabilitation	31	31. The Proponent <b>must</b> : (a) rehabilitate the site progressively, that is, as soon as reasonably practicable following disturbance; (b) take all reasonable and feasible measures to minimise the total area of the site exposed at any time; and (c) implement interim rehabilitation strategies where areas prone to dust generation cannot yet be permanently rehabilitated.	NT	No rehabilitation was undertaken during the audit period (see Schedule 3, Condition 30 above).
3	Landscape - Landscape and Rehabilitation Management Plan	32	<p><b>Within 6 months of the date of approval of Modification 1, the Proponent must prepare and implement a Landscape and Rehabilitation Management Plan for the project to the satisfaction of the Planning Secretary. This Plan would relate to the area of the quarry and all perimeter lands. This plan must:</b></p> <p>a. be prepared by a suitably qualified expert whose appointment has been approved by the Planning Secretary;  b. be prepared in consultation with OEH and Council, and submitted to the Planning Secretary for approval prior to the commencement of construction activities;  c. describe how the implementation of the Tetratheca juncea Translocation Program would be integrated with the overall rehabilitation of the site;  d. describe the short, medium and long-term measures that would be implemented to:</p> <ul style="list-style-type: none"> <li>• manage remnant vegetation and habitat on the site; and</li> <li>• ensure compliance with the rehabilitation objectives and progressive rehabilitation obligations of this approval.</li> </ul> <p>e. include detailed performance and completion criteria for evaluating the performance of the rehabilitation of the site, including triggers for any remedial action;  f. include a detailed description of the measures that would be implemented over the next 3 years (to be updated for each 3 year period following initial preparation of the plan), including the procedures to be implemented for:</p> <ul style="list-style-type: none"> <li>• ensuring compliance with the rehabilitation objectives and</li> </ul>	NC	<p>Reviewed the KEQ LRMP dated March 2020 and approved by DPIE on 01/06/20.</p> <p>PA 09_0175 Modification 1 was approved on 27 April 2018, resulting a date of 27/10/18 for preparation and implementation of the Landscape and Rehabilitation Management Plan (LRMP). Table 2 of the LRMP indicates that the original plan (which was approved by DPIE letter dated 14/12/15) was updated between October 2018 and January 2019, including updates relating to Modification 1. Viewed email from Tim Grugeon of Hunter Quarries to DPIE submitting a revised LRMP for Modification 1 for review on 26/10/18.</p> <p>(f) The Landscape and Rehabilitation Management Plan (LRMP) was initially finalised in November 2015. The LRMP was subsequently updated by SLR in January, May and July 2019, and January and March 2020.</p> <p><b>The revisions detailed in Table 2 of the LRMP do not describe updating the measures to implemented over the three year period. The condition requires update every three years following initial preparation of the plan, in this case being November 2018.</b></p> <p><b>Chapters 6-9 of the LRMP detail management measures, however the plan does not specify which activities will occur over the next three years of the plan.</b></p>



Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
			<p>progressive rehabilitation obligations of this approval;</p> <ul style="list-style-type: none"> <li>• enhancing the quality of remnant vegetation and fauna habitat;</li> <li>• restoring native endemic vegetation and fauna habitat within the rehabilitation area, including details of the target revegetation communities of the rehabilitated landform;</li> <li>• coordinating the relocation of native fauna to protected habitats associated with pre-clearing fauna surveys;</li> <li>• maximising the salvage of environmental resources within the approved disturbance area - including tree hollows, vegetative and soil resources - for beneficial reuse in the enhancement of the rehabilitation area;</li> <li>• collecting and propagating seed;</li> <li>• ensuring minimal environmental consequences for threatened species, populations and habitats;</li> <li>• minimising the impacts on native fauna on site, including the details and implementation of appropriate pre-clearance surveys;</li> </ul>		<p><b>Cumberland Ecology recommends that the LRMP be updated to include a three year management schedule for the period November 2018 – November 2021.</b></p> <p><u>Implementation</u></p> <p>Reporting of implementation of offset management actions is described within the 2017, 2018 and 2019 AEMRs, which include the ecological monitoring reports.</p> <p>Section 9.2 of the LRMP indicates that temporary rehabilitation will occur; however no evidence of temporary rehabilitation sighted.</p> <p>Viewed example of Kleinfelder 'Karuah East Quarry Habitat Tree Removal Supervision' report dated 13/11/19. The report describes the supervision and monitoring of the felling of six habitat trees within a 0.35 ha area of the KEQ disturbance boundary by Kleinfelder ecologists.</p> <p><b>Records were not available at the time of audit to confirm that the following measures for the LRMP were implemented during the audit period:</b></p> <ul style="list-style-type: none"> <li>- Induction process for biodiversity impacts;</li> <li>- Evidence of submission of Vegetation Clearing Completion Reports to OEH;</li> <li>- Reporting of designs and completion for fauna habitat crossings;</li> <li>- Evidence of seed collection;</li> <li>- Evidence of weed and pest management; and</li> <li>- Evidence of temporary rehabilitation management.</li> </ul> <p><b>It is recommended that KEQ record and report all information required under the LRMP.</b></p>

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
3	Landscape - Biodiversity Offset Area Management Plan	33	<p>The Proponent <b>must</b> prepare and implement a Biodiversity Offset Area Management Plan for the project to the satisfaction of the <b>Planning</b> Secretary. This Plan would relate to the area of the Biodiversity Offset Area required in these Conditions. This plan must:</p> <ul style="list-style-type: none"> <li>a. be prepared by a suitably qualified expert whose appointment has been approved by the <b>Planning</b> Secretary;</li> <li>b. be prepared in consultation with OEH and Council, and submitted to the <b>Planning</b> Secretary within 12-months of the approval of the Biodiversity Offset Strategy required in these conditions;</li> <li>c. describe how the implementation of the Tetratheca juncea Translocation Program would be integrated with the Biodiversity Offset Area management;</li> <li>d. describe the short, medium and long-term measures that would be implemented to manage remnant vegetation and habitat on the Biodiversity Offset Area;</li> <li>e. include detailed performance and completion criteria for evaluating the performance of the conservation, restoration and management of the Biodiversity Offset Area, including triggers for any remedial action;</li> <li>f. providing for the transfer of environmental resources from the approved disturbance area - including tree hollows, vegetative and soil resources - for beneficial reuse in the enhancement of the Biodiversity Offset Area;</li> <li>g. providing for the incorporation of the final rehabilitated landform into the Biodiversity Offset Area and its management;</li> <li>h. include a detailed description of the measures that would be implemented over the next 3 years (to be updated for each 3 year period following initial preparation of the plan), including the procedures to be implemented for: <ul style="list-style-type: none"> <li>• enhancing the quality of remnant vegetation and fauna habitat;</li> <li>• restoring native endemic vegetation and fauna habitat within the parts of the Biodiversity Offset Area that are cleared or modified, including details of the target revegetation communities of the restored landform;</li> <li>• coordinating the relocation of native fauna to protected habitats associated with pre-clearing fauna surveys;</li> </ul> </li> </ul>	NC	<p>(a) - (g) Deemed compliant by previous IEA. (h) The first version of the Biodiversity Offset Area Management Plan (BOAMP) was finalised in 09/11/15 and approved by DPIE on 14/12/15. The BOAMP was subsequently updated by Kleinfelder in April 2018.</p> <p><b>The revision documented in the document control indicates the BOAMP was updated in April 2018 to address Modification 1 and actions from the previous IEA. The condition requires update every three years following initial preparation of the plan, meaning an update was required in November 2018.</b></p> <p>Chapter 3 of the BOAMP details management measures, and some timing details are provided in Chapter 4; <b>however the plan does not specify which activities will occur over the next three years of the plan. Cumberland Ecology recommends that the BOAMP be updated to include a three year management schedule for the period November 2018 – November 2021.</b></p> <p><u>Implementation</u></p> <p>Reporting of implementation detailed within the 2017, 2018 and 2019 AEMRs, which include the ecological monitoring reports.</p> <p>The 2019 ecological monitoring report indicates boundary fencing not complete, with final installation during the first quarter of 2020. JF (pers comm) confirmed that the boundary fencing for the biodiversity offset areas was completed by mid-2020 (see <b>Plate 14</b>).</p> <p>The 2019 ecological monitoring report indicates nest box monitoring required in February 2020 (see <b>Plate 15</b>). Viewed the Kleinfelder report '2020 Nestbox Monitoring – Karuah East Quarry' dated 06/07/20 that documents nest box monitoring completed in June 2020.</p> <p>The 2019 ecological monitoring report indicates vertebrate pest assessment is outstanding. JF (pers comm) confirmed that KEQ is in consultation with the LLS and Bulahdelah District Pest Animal</p>

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
			<ul style="list-style-type: none"> <li>• collecting and propagating seed;</li> <li>• maximising the protection and restoration of threatened species, populations and habitats in the Biodiversity Offset Area;</li> <li>• maximising fauna movement between the Biodiversity Offset Area and adjacent habitats;</li> <li>• controlling weeds and feral pests;</li> <li>• controlling erosion;</li> <li>• controlling access and providing for management trails; and</li> <li>• bushfire management and implementation of ecologically appropriate bushfire intervals.</li> </ul> <p>i. include a program to monitor the effectiveness of these measures, and progress against the performance and completion criteria;</p> <p>j. identify the potential risks to successful implementation of the Biodiversity Offset program, and include a description of the contingency measures that would be implemented to mitigate these risks;</p> <p>k. include details of who would be responsible for monitoring, reviewing, and implementing the plan;</p> <p>l. include details of the indicative costs of management actions; and</p> <p>m. include details as to the timing of actions set-out in the plan</p> <p>The Proponent must implement the plan as approved by the Planning Secretary.</p>		Control Group regarding involvement in a dog control baiting program for the local area.
3	Landscape - Conservation and Rehabilitation Bond	34	<p>The Proponent <b>must</b> lodge a Conservation and Rehabilitation Bond with <b>the Department</b> within 6 months of the approval of the Landscape and Rehabilitation Management Plan, to ensure that the Biodiversity Offset Strategy and the rehabilitation of the site is implemented in accordance with the performance and completion criteria set out in the Landscape and Rehabilitation Management Plan. The sum of the bond <b>must</b> be determined by:</p> <p>(a) calculating the cost of implementing the Biodiversity Offset Strategy over the next 3 years;</p> <p>(b) calculating the cost of rehabilitating disturbed areas of the site, taking into account the likely surface disturbance over the next 3 years of quarrying operations; and</p> <p>(c) employing a suitably qualified quantity surveyor or other expert to verify the calculated costs, to the satisfaction of the <b>Planning</b></p>	C	Deemed compliant by previous IEA.

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
			<p>Secretary.</p> <p>Notes:</p> <ul style="list-style-type: none"> <li>• If capital and other expenditure required by the Landscape and Rehabilitation Management Plan is largely complete, the <b>Planning</b> Secretary may waive the requirement for the lodgement of a bond in respect of the remaining expenditure.</li> <li>• If the Biodiversity Offset Strategy and rehabilitation of the site area are completed to the satisfaction of the <b>Planning</b> Secretary, then the <b>Planning</b> Secretary will release the bond. If the Biodiversity Offset Strategy and rehabilitation of the site are not completed to the satisfaction of the <b>Planning</b> Secretary, then the <b>Planning</b> Secretary will call in all or part of the bond, and arrange for the completion of the relevant works.</li> <li>• The component of the bond relating to the implementation of the Biodiversity Offset Strategy may be waived, if a separate arrangement is entered into between the Proponent and OEH which satisfactorily replaces that component, to the satisfaction of the <b>Planning</b> Secretary.</li> </ul>		
3	Landscape - Conservation and Rehabilitation Bond	35	<p>Within 3 months of each Independent Environmental Audit (see condition 9 of schedule 5), the Proponent <b>must</b> review, and if necessary revise, the sum of the Conservation and Rehabilitation Bond to the satisfaction of the <b>Planning</b> Secretary. This review must:</p> <p>(a) consider the performance of the implementation of the Biodiversity Offset Strategy and rehabilitation of the site to date;</p> <p>(b) consider the effects of inflation; and</p> <p>(c) calculate the cost of implementing the Biodiversity Offset Strategy and rehabilitating the disturbed areas of the site (taking into account the likely surface disturbance over the next 3 years of quarrying operations); and</p>	NC	<p><b>No evidence sighted to confirm that the Conservation and Rehabilitation Bond was reviewed within three months of the previous IEA.</b></p> <p>JF provided correspondence dated 09/09/20 indicating that the Conservation and Rehabilitation Bond was under review at the time of drafting this audit report.</p>
3	Heritage - Heritage Management Plan	36	<p>The Proponent <b>must</b> prepare and implement a Heritage Management Plan for the project to the satisfaction of the <b>Planning</b> Secretary. This plan must:(a) be prepared by a suitably qualified expert whose appointment has been approved by the <b>Planning</b> Secretary;(b) be prepared in consultation with the local Aboriginal community and OEH, and submitted to the <b>Planning</b> Secretary for approval prior to the commencement of</p>	C	<p>Reviewed the KEQ Heritage Management Plan dated December 2015 and approved by DPIE on 14/12/15.(a) Deemed compliant by previous IEA;(b) Deemed compliant by previous IEA;(c)- Section 6;- Section 5, 6 and 9; and- Section 8.</p>

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
			construction activities;(c) describe the measures that would be implemented to:• monitor initial surface disturbance on site for Aboriginal cultural heritage sites or objects;• manage the discovery of Aboriginal cultural heritage sites, objects or human remains on site; and• ensure ongoing consultation with Aboriginal stakeholders in the conservation and management of Aboriginal cultural heritage values on site. <b>The Proponent must implement the plan as approved by the Planning Secretary.</b>		<u>Implementation</u> JF (pers comm) confirmed that no unexpected Aboriginal objects/items were identified during the audit period.
3	Visual	37	The Proponent <b>must</b> : (a) ensure that clearing vegetation from any visually prominent ridgeline is undertaken in a progressive manner, to provide for a maximum of 6 months of future quarrying operations; and (b) mitigate the visual impact of the project through the progressive and early rehabilitation of the upper quarry benches in accordance with the objectives in Table 11, to the satisfaction of the <b>Planning</b> Secretary.	C	Viewed areas of the visually prominent ridgeline during the audit site inspection (see <b>Plate 5</b> ). Cleared areas appear to have been minimised to those required to access approved operational areas.  <b>It is recommended that KEQ consult with DPIE over the progressive rehabilitation strategy for the visually prominent ridgeline identified in this condition and update the Landscape and Rehabilitation Management Plan, if required.</b>
3	Visual - Advertising Signage	38	The Proponent <b>must</b> not erect or display any advertising structure or sign on the site without the written approval of the <b>Planning</b> Secretary.  <i>Note: This condition does not apply to business identification, traffic management, and/or safety or environmental signs.</i>	C	No advertising structures or signage outside those approved under this condition were observed during the audit site inspection.
3	Emergency and Hazards Management - Dangerous Goods and Hazardous Materials	39	The Proponent <b>must</b> ensure that the storage, handling, and transport of dangerous goods and hazardous materials is conducted in accordance with the relevant Australian Standards, particularly AS1940 and AS1596, and the Dangerous Goods Code.	C	Reviewed KEQ incident register and Section 11 of audit period Annual Reviews. No significant incidents relating to handling or storage of dangerous or hazardous materials were reported during the audit period.  JF (pers comm) confirmed that hydrocarbons were the only potentially hazardous material that is regularly stored on site. The audit inspection observed evidence of good management of hydrocarbon storage and refuelling areas and confirmed that the fuel cells used on site are constructed to Australian Standards (see <b>Plate 16</b> ).
3	Emergency and Hazards Management - Safety	40	The Proponent <b>must</b> secure the site to ensure public safety at all times, to the satisfaction of the <b>Planning</b> Secretary.	C	Viewed site access gates, signage and fencing along the southern boundaries of the site during the audit site inspection (see <b>Plate 17</b> ). Also viewed examples of KEQ induction and training records delivered to staff and contractors during the audit period.

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
					JF (pers comm) confirmed that the site access gates were locked outside of operational hours to restrict public access.
3	Emergency and Hazards Management - Bushfire Management	41	The Proponent <b>must</b> : (a) ensure that the project is suitably equipped to respond to any fires on site; and (b) assist the Rural Fire Service and emergency services as much as possible if there is a fire in the surrounding area.	C	(a) Confirmed that watercarts, dams and fire fighting equipment are available on site on site during the audit site inspection.  (b) JF (pers comm) confirmed that site access can be provided for the RFS and emergency services if required to respond to fires in the land surrounding the site.
3	Waste	42	The Proponent <b>must</b> : (a) minimise the waste generated by the project; and (b) ensure that the waste generated by the project is appropriately stored, handled, and disposed of, to the satisfaction of the <b>Planning</b> Secretary.	C	Viewed the SLR Consulting (2019) 'Karuah East Quarry Project Waste Management Plan'. Project Approval requirements and implementation of waste management on site are described in the document.  (a) General waste management, environmental performance and improvements for waste generation were reported in Section 6.7 of the audit period Annual Reviews. This confirms that KEQ uses a licenced contractor for waste removal. JF (pers comm) confirmed that typical waste generation from KEQ operations consists of non-hazardous and general wastes, and smaller volumes of metals and oily wastes.  (b) Labelled and segregated waste bins were seen to be in place during the audit site inspection and there was a good standard of housekeeping across the site infrastructure areas.
4	Notification of Landowners	1	As soon as practicable after obtaining monitoring results showing an: (a) exceedance of any relevant criteria in Schedule 3, the Proponent shall notify affected landowners in writing of the exceedance, and provide regular monitoring results to each affected landowner until the project is again complying with the relevant criteria; and (b) an exceedance of the relevant air quality criteria in Schedule 3, the proponent shall send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the affected landowners and/or existing tenants of the land.	NC	(a) While exceedances are discussed at KEQ CCC meetings, <b>correspondence was not provided to affected landholders regarding exceedances of Project Approval impact criteria during the audit period.</b>  (b) <b>"Mine Dust and You" fact sheets were not provided to landholders where exceedances of air quality criteria were identified during the audit period.</b>  <b>It is recommended that KEQ update their notification procedures to ensure the relevant landholders are notified as soon as possible after receipt of monitoring results confirming that an exceedance has occurred.</b>

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
4	Independent Review	2	If an owner of privately-owned land considers the project to be exceeding the relevant criteria in schedule 3, then the landowner may ask the <b>Planning</b> Secretary in writing for an independent review of the impacts of the project on its land. If the <b>Planning</b> Secretary is satisfied that an independent review is warranted, then within 2 months of the <b>Planning</b> Secretary's decision the Proponent <b>must</b> : (a) commission a suitably qualified, experienced and independent expert, whose appointment has been approved by the <b>Planning</b> Secretary, to: • consult with the landowner to determine its concerns; • conduct monitoring to determine whether the project is complying with the relevant criteria in Schedule 3; and • if the project is not complying with these criteria, then identify the measures that could be implemented to ensure compliance with the relevant criteria; and (b) give the <b>Planning</b> Secretary and landowner a copy of the independent review.	NT	JF (pers comm) confirmed that no requests for independent reviews had been made by landholders during the audit period.
4	Independent Review	3	If the independent review determines that the project is complying with the relevant criteria in Schedule 3, then the Proponent may discontinue the independent review with the approval of the <b>Planning</b> Secretary.  If the independent review determines that the project is not complying with the relevant criteria in Schedule 3, then the Proponent <b>must</b> : (a) implement all reasonable and feasible mitigation measures, in consultation with the landowner and appointed independent expert, and conduct further monitoring until the project complies with the relevant criteria; or (b) secure a written agreement with the landowner to allow exceedances of the relevant criteria, to the satisfaction of the <b>Planning</b> Secretary.	NT	See Schedule 4, Condition 2 above.
5	Environmental Management Strategy	1	The Proponent <b>must</b> prepare and implement an Environmental Management Strategy for the project to the satisfaction of the <b>Planning</b> Secretary. This strategy must: (a) be submitted to the <b>Planning</b> Secretary for approval prior to the commencement of construction activities; (b) provide the strategic framework for environmental management of the project; (c) identify the statutory approvals that apply to the project;	C	Viewed the KEQ EMS dated 01/12/15 and approved by letter from DPIE dated 14/12/15. a) Deemed compliant by previous IEA;  b) Section 1.2 of the EMS;  c) Section 2;

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
			<p>(d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project;</p> <p>(e) describe the procedures that would be implemented to:</p> <ul style="list-style-type: none"> <li>• keep the local community and relevant agencies informed about the operation and environmental performance of the project;</li> <li>• receive, handle, respond to, and record complaints;</li> <li>• resolve any disputes that may arise during the course of the project;</li> <li>• respond to any non-compliance; and</li> <li>• respond to emergencies; and</li> </ul> <p>(f) include:</p> <ul style="list-style-type: none"> <li>• copies of any strategies, plans and programs approved under the conditions of this approval; and</li> <li>• a clear plan depicting all the monitoring required to be carried out under the conditions of this approval.</li> </ul> <p>The Proponent must implement the strategy as approved by the Planning Secretary.</p>		<p>d) Section 5.1;</p> <p>e)</p> <ul style="list-style-type: none"> <li>• Section 6.2;</li> <li>• Section 5.3.5;</li> <li>• Section 5.3.5 and Section 6.2;</li> <li>• Section 5.5;</li> <li>• Section 5.5;</li> </ul> <p>f)</p> <ul style="list-style-type: none"> <li>• Section 2 refers to separate environmental management plans; and</li> <li>• Section 6 and Appendix H.</li> </ul> <p><u>Implementation</u></p> <p>Implementation of the EMS was assessed from a review of the following:</p> <ul style="list-style-type: none"> <li>- Examples of completed site inductions and environmental training packages, consistent with EMS requirements;</li> <li>- Review of stakeholder engagement completed by KEQ during the audit period, including responses to environmental complaints, incidents and operation of the site CCC;</li> <li>- Review of environmental monitoring, management and reporting required under the EMS and this development consent; and</li> <li>- Review of environmental incidents and the KEQ Pollution Incident Response Management Plan (dated 31/10/16).</li> </ul> <p><b>It is recommended that KEQ undertake a review of the approved EMS to ensure that the document remains consistent with environmental monitoring requirements and approved site management plans. Consultation with DPIE should be undertaken if major updates to the 2015 version of the EMS are required.</b></p>
5	Adaptive Management	2	The Proponent <b>must</b> assess and manage project-related risks to ensure that there are no exceedances of the criteria and/or performance measures in Schedule 3. Any exceedance of these criteria and/or performance measures constitutes a breach of this	NC	See Schedule 3, Conditions 3, 4, 6, 7, 19, 21 above for exceedances of impact criteria identified during the audit period.



Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
			<p>consent and may be subject to penalty or offence provisions under the EP&amp;A Act or EP&amp;A Regulation.</p> <p>Where any exceedance of these criteria and/or performance measures has occurred, the Proponent <b>must</b>, at the earliest opportunity:</p> <p>(a) take all reasonable and feasible measures to ensure that the exceedance ceases and does not recur;</p> <p>(b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and</p> <p>(c) implement remediation measures as directed by the <b>Planning</b> Secretary;</p> <p>to the satisfaction of the <b>Planning</b> Secretary.</p>		<p><b>Evidence was not available at the time of audit to confirm that reports were provided to DPIE which reviewed control measures and remedial actions required following identified exceedances.</b></p> <p><b>It is recommended that KEQ update their communications and incident response procedures to ensure that any future exceedances of the Project Approval criteria and any implementation management controls / remediation measures are reported to DPIE at the earliest opportunity once they are identified.</b></p>
5	Management Plan Requirements	3	<p>The Proponent <b>must</b> ensure that the Management Plans required under this approval are prepared in accordance with any relevant guidelines, and include:(a) detailed baseline data;(b) a description of:• the relevant statutory requirements (including any relevant approval, licence or lease conditions);• any relevant limits or performance measures/criteria; and• the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;(d) a program to monitor and report on the:• impacts and environmental performance of the project; and• effectiveness of any management measures (see (c) above);(e) a contingency plan to manage any unpredicted impacts and their consequences;(f) a program to investigate and implement ways to improve the environmental performance of the project over time;(g) a protocol for managing and reporting any:• incidents;• complaints;• non-compliances with statutory requirements; and• exceedances of the impact assessment criteria and/or performance criteria; and(h) a protocol for periodic review of the plan.<i>Note: The <b>Planning</b> Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.</i></p>	C	<p>KEQ environmental management plans reviewed during the audit include the required information and have been generally been prepared in consultation with the required regulatory agencies and to the approval of DPIE.</p>

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
5	Annual Review	4	<p>By the end of March each year, the Proponent <b>must</b> review the environmental performance of the project to the satisfaction of the <b>Planning</b> Secretary. This review must:</p> <p>(a) describe the development (including rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year; include a comprehensive review of the monitoring results and complaints records of the project over the previous calendar year, which includes a comparison of these results against:</p> <ul style="list-style-type: none"> <li>the relevant statutory requirements, limits or performance measures/criteria;</li> <li>the monitoring results of previous years; and</li> <li>the relevant predictions in the EA;</li> </ul> <p>(c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;</p> <p>(d) identify any trends in the monitoring data over the life of the project;</p> <p>(e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and</p> <p>(f) describe the measures that would be implemented over the current calendar year to improve the environmental performance of the project.</p>	NC	<p>Viewed the KEQ 2017, 2018 and 2019 Annual Reviews. An extension was granted by DPIE on 30/03/20 approving lodgement of the 2019 Annual Review on 09/04/20.</p> <p>a) Section 6;</p> <p>b) Section 1 and 11;</p> <p>c) Section 3.2;</p> <p>d) Section 6; and</p> <p>e) Section 12.</p>
5	Revision of Strategies, Plans and Programs	5	<p>Within 3 months of:</p> <p>(a) the submission of an annual review under Condition 4 above;</p> <p>(b) the submission of an incident report under Condition 7 below;</p> <p>(c) the submission of an audit report under Condition 9 below; or</p> <p>(d) any modification to the conditions of this approval, (unless the conditions require otherwise),</p> <p>the Proponent <b>must</b> review the strategies, plans, and programs required under this approval, to the satisfaction of the <b>Planning</b> Secretary. Where this review leads to revisions in any such document, then within 4 weeks of the review the revised document must be submitted for the approval of the <b>Planning</b> Secretary.</p> <p><i>Note: The purpose of this condition is to ensure that strategies,</i></p>	NC	<p>5 (a - d) <b>No evidence was available at the time of audit to confirm that KEQ had reviewed strategies, plans and programs required under the approval following audit period Annual Reviews, incidents, audit reports and modifications.</b></p> <p><b>It is recommended that KEQ document any reviews undertaken as required under this condition.</b></p>

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
			<i>plans and programs are regularly updated to incorporate any measures recommended to improve environmental performance of the project.</i>		
5	Community Consultative Committee	6	<p>The Proponent <b>must</b> establish and operate a Community Consultative Committee (CCC) for the project. The CCC must:</p> <p>(a) <b>be established and operated in general accordance with the Community Consultative Committees Guidelines for State Significant Projects (Department of Planning and Environment, 2016); and</b></p> <p>(b) <b>be established prior to the commencement of construction activities, to the satisfaction of the Planning Secretary.</b></p> <p><i>Notes:</i></p> <ul style="list-style-type: none"> <li><i>The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Proponent complies with this approval.</i></li> <li><i>In accordance with the guideline, the Committee should comprise an independent chair and appropriate representation from the Proponent, Council, recognised environmental groups and the local community.</i></li> </ul>	C	<p>a) The 2017 IEA "Sighted copies of correspondence from DPE with regards to the CCC and its operation in general accordance with the Guideline for Establishing and Operating Community Consultative Committees for Mining Projects (dated 11 March 2016, 23 March 2016, 14 June 2016 and 20 July 2016).</p> <p>b) As per Section 4.2 of the 2016 AR "The initial clearing of approved disturbance area commenced on 27 April 2016." CCC meetings were held prior to this date, on 10/5/16 (Section 9 of the 2016 AR).</p> <p>The CCC were consulted during the preparation of this IEA and only noted noise impacts as an issue to be considered (see the main IEA report).</p>
5	Reporting - Incident Reporting	7	<b>The Proponent must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing to <a href="mailto:compliance@planning.nsw.gov.au">compliance@planning.nsw.gov.au</a> and identify the Project (including the project application number and name) and set out the location and nature of the incident.</b>	NC	<b>Evidence was not available at the time of audit to confirm that KEQ had notified DPIE and other relevant regulatory agencies of all environmental incidents.</b>
5	Reporting - Non-compliance Notification	7A	<p>Within seven days of becoming aware of a non-compliance, The Proponent must notify the Department of the non-compliance. The notification must be in writing to <a href="mailto:compliance@planning.nsw.gov.au">compliance@planning.nsw.gov.au</a> and identify the Project (including the project application number and name), set out the condition of this approval that the Project is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.</p> <p><i>Note: A non-compliance which has been notified as an incident does not need to also be notified as a noncompliance.</i></p>	NC	<b>Evidence was not available at the time of audit to confirm that KEQ had notified DPIE and other relevant regulatory agencies of all environmental non-compliances that occurred during the audit period (see Schedule 3, Conditions 3, 4, 6, 7, 19, 21 above).</b>

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
5	Reporting - Regular Reporting	8	The Proponent <b>must</b> regularly report on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval.	C	Monthly monitoring reports were available on the KEQ website to April 2020 (see Schedule 5, Condition 11).
5	Independent Environmental Audit	9	<p>Within 12 months of the commencement of development on the site, and every 3 years thereafter, unless the <b>Planning</b> Secretary directs otherwise, the Proponent <b>must</b> commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:</p> <p>(a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the <b>Planning</b> Secretary;</p> <p>(b) include consultation with the relevant agencies;</p> <p>(c) assess the environmental performance of the project and whether it is complying with the relevant requirements in this approval and any relevant EPL and/or Water Licence (including any assessment, plan or program required under these approvals);</p> <p>(d) review the adequacy of any approved strategy, plan or program required under the these approvals; and</p> <p>(e) recommend measures or actions to improve the environmental performance of the project, and/or any assessment, plan or program required under these approvals.</p> <p><i>Note: This audit team must be led by a suitably qualified auditor and include experts in any fields specified by the <b>Planning</b> Secretary.</i></p>	C	<p>a) D Walsh holds Exemplar Certification (see <b>Appendix A</b> of this IEA). The IEA Team appointment was endorsed by letter from DPIE dated 28/7/20 (see <b>Appendix D</b> of this IEA);</p> <p>b) Consultation is outlined in <b>Table 3</b> and <b>Appendix D</b> of this IEA;</p> <p>c) Environmental performance during the audit period has been assessed against this approval, the EPL (<b>Table B-3</b> of <b>Appendix B</b>);</p> <p>d) this IEA; and</p> <p>e) See <b>Section 6</b> of this IEA.</p>
5	Independent Environmental Audit	10	<p><b>Within three months of commencing an Independent Environmental Audit, or within another timeframe agreed by the Planning Secretary, the Proponent must submit a copy of the audit report to the Planning Secretary, and any other NSW agency that requests it, together with its response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations. The recommendations must be implemented to the satisfaction of the Planning Secretary.</b></p> <p><i>Note: The audit team must be led by a suitably qualified auditor and include experts in any fields specified by the Planning Secretary.</i></p>	C	<p>Viewed the KEQPL 'Response to Audit Recommendations – Independent Environmental Audit (EMM, July 2017)' (RAR) submitted to DPIE on 18/08/17 with the previous IEA report. DPIE responded with a letter dated 04/09/17 confirming their review and acceptance of the actions proposed in the RAR.</p> <p><b>It is recommended that the KEQPL response this IEA and implementation of actions are summarised in the next KEQ Annual Review.</b></p>
5	Access to Information	11	The Proponent <b>must</b> :	NC	The KEQ website was reviewed on 17/8/20 and the following documents were available:

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
			<p>(a) make the following information publicly available on its website:</p> <ul style="list-style-type: none"> <li>• the EA;</li> <li>• any statutory approvals for the project;</li> <li>• approved strategies, plans and/ programs;</li> <li>• a summary of the monitoring results of the project, which have been reported in accordance with the various plans and programs approved under the conditions of this approval;</li> <li>• a complaints register, updated quarterly;</li> <li>• minutes of CCC meetings;</li> <li>• annual reviews;</li> <li>• any independent environmental audit, and the Proponent's response to the recommendations in any audit; and</li> <li>• any other matter required by the Planning Secretary; and</li> </ul> <p>(b) keep this information up-to-date, to the satisfaction of the Planning Secretary.</p>		<p>a)</p> <ul style="list-style-type: none"> <li>- The EA Report (ADW Johnson Pty Limited, 2013);</li> <li>- Project Approvals;</li> <li>- Management Plans;</li> <li>- Monthly Environmental Reports updated <b>until April 2020</b>;</li> <li>- Complaints register updated <b>until March 2018</b>;</li> <li>- CCC minutes updated until 4 March 2019;</li> <li>- The previous four Annual Reviews (i.e. 2016 - 2019); and</li> <li>- 2017 IEA report was available, <b>however the KEQ response to the previous IEA recommendations was not available at the time of audit.</b></li> </ul> <p><b>It is recommended that the information on the KEQ website is updated to include the information required under this condition and reviewed on at least a quarterly basis to ensure it remains up-to-date.</b></p> <p>b) JF (pers comm) confirmed that DPIE had not raised any issues in relation to the information available on the KEQ website during the audit period.</p>
Appendix 3	Noise Compliance Assessment - Applicable Meteorological Conditions	1	The noise criteria in Tables 2 and 4 are to apply under all meteorological conditions except the following: (a) during periods of rain or hail; or (b) wind speeds greater than 3 m/s measured at 10 m above ground level.	N/A	Note only.
Appendix 3	Noise Compliance Assessment - Determination of Meteorological Conditions	2	Except for wind speed at microphone height, the data to be used for determining meteorological conditions <b>must</b> be that recorded by the meteorological station in the vicinity of the site.	N/A	Note only.
Appendix 3	Noise Compliance Assessment - Compliance Monitoring	3	Attended monitoring is to be used to evaluate compliance with the relevant conditions of this approval.	N/A	Note only.

Schedule	Condition	Condition Number	Condition Description	Status	2020 IEA Evidence
Appendix 3	Noise Compliance Assessment - Compliance Monitoring	4	Unless otherwise agreed with the <b>Planning</b> Secretary, this monitoring is to be carried out in accordance with the relevant requirements for reviewing performance set out in the NSW Industrial Noise Policy (as amended from time to time), in particular the requirements relating to: (a) monitoring locations for the collection of representative noise data; (b) meteorological conditions during which collection of noise data is not appropriate; (c) equipment used to collect noise data, and conformity with Australian Standards relevant to such equipment; and (d) modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration.	N/A	Note only.

**Table B2**  
**Project Approval 09\_0175 Statement of Commitments**

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
1.0 PLANS, DOCUMENTS AND APPROVALS			The proposed development will be completed in accordance with the submitted plans and descriptions of the proposed development provided in the Environmental Assessment Report (31 January 2013) and the Preferred Project Report (30 July 2013). Any changes to the proposed development will require further approval of the relevant authorities. The proposed development will be carried out in accordance with all approvals granted by relevant authorities.	C	Reviewed copies of the 'Environmental Assessment Report - Proposed Karuah East Hard Rock Quarry' (31/01/13) and Preferred Project Report (30/07/13).  See Schedule 2, Condition 2 of PA 09_0175.
2.0 SUMMARY OF MANAGEMENT PLANS			The following management plans will be prepared prior to commencement of construction works:		The use of soil and overburden material from Karuah East Quarry (KEQ) to assist with the final rehabilitation of the adjacent Karuah Quarry site is described in Section 9.3 of the Landscape and Rehabilitation Management Plan (LRMP) approved by DPIE on 01/06/20 (see Schedule 3, Condition 32).  This activity for the integration of the KEQ and Karuah Quarry landforms was not described in the EA, or the EA in support of MOD1 or MOD2.
2.0 SUMMARY OF MANAGEMENT PLANS			Construction Environmental Management Plan (CEMP);	C	Deemed compliant by previous IEA
2.0 SUMMARY OF MANAGEMENT PLANS			Environmental Management Plan (EMP). The EMP will ensure that the commitments made in the EA Report and Preferred Project Report and the requirements under subsequent approval and license conditions are fully implemented. The EMP will confirm who is responsible and when the commitments associated with the mitigation and monitoring strategies should be implemented/undertaken;	C	The EMP is included under the approved EMS and associated environmental management plans (see PA 09_0175)
2.0 SUMMARY OF MANAGEMENT PLANS			Annual Environmental Management Report (AEMR);	C	Deemed compliant by previous IEA.
2.0 SUMMARY OF MANAGEMENT PLANS			Pre clearing survey;	C	Deemed compliant by previous IEA.

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
2.0 SUMMARY OF MANAGEMENT PLANS			Vegetation Management / Monitoring Plan;	C	Deemed compliant by previous IEA.
2.0 SUMMARY OF MANAGEMENT PLANS			Conservation Management Plan;	C	Deemed compliant by previous IEA.
2.0 SUMMARY OF MANAGEMENT PLANS			Soil Management Plan;	C	Deemed compliant by previous IEA.
2.0 SUMMARY OF MANAGEMENT PLANS			Groundwater Monitoring Plan;	C	Deemed compliant by previous IEA.
2.0 SUMMARY OF MANAGEMENT PLANS			Surface Water Management Plan (including erosion and sediment control and monitoring);	C	Deemed compliant by previous IEA.
2.0 SUMMARY OF MANAGEMENT PLANS			Noise Monitoring Plan;	C	Deemed compliant by previous IEA.
2.0 SUMMARY OF MANAGEMENT PLANS			Blasting Management Plan;	C	Deemed compliant by previous IEA.
2.0 SUMMARY OF MANAGEMENT PLANS			Air Quality Monitoring Plan;	C	Deemed compliant by previous IEA.
2.0 SUMMARY OF MANAGEMENT PLANS			Construction Traffic Management Plan;	C	Deemed compliant by previous IEA.
2.0 SUMMARY OF MANAGEMENT PLANS			Environmental Management Strategy;	C	Deemed compliant by previous IEA.
2.0 SUMMARY OF MANAGEMENT PLANS			Quarry Closure and Rehabilitation Plan; and	C	Deemed compliant by previous IEA.
2.0 SUMMARY OF MANAGEMENT PLANS			Waste Management Plan.	C	Viewed the 'Karuah East Quarry Project Waste Management Plan' prepared by SLR Consulting, dated 21/01/19.



Commitment Aspect	Commitment Sub- aspect (i)	Commitment Sub- aspect (ii)	Commitment Description	Status	Comments																																																						
3.0 SOIL AND WATER	3.1 Soil Management		<p>The following will be undertaken:</p> <p>i) Topsoil will be stripped in accordance with the recommended stripping depth for each soil type, together with area of land and calculated volume which are provided in the table below;</p> <table><tr><th colspan="6">Table 1 - Recommended Stripping Depths</th></tr><tr><th>Soil Type</th><th>Project Soil Name</th><th>Soil Layer</th><th>Recommended Stripping Depth (m)</th><th>Area (ha)</th><th>Volume (m³)</th></tr><tr><td rowspan="2">1</td><td rowspan="2">Brown Chromosols</td><td>Topsoil</td><td>0.30</td><td>8.63</td><td>25,890</td></tr><tr><td>Subsoil</td><td>0.90</td><td>8.63</td><td>77,670</td></tr><tr><td rowspan="2">2</td><td rowspan="2">Red Dermosols</td><td>Topsoil</td><td>0.10</td><td>4.55</td><td>4,550</td></tr><tr><td>Subsoil</td><td>1.10</td><td>4.55</td><td>50,050</td></tr><tr><td rowspan="2">3</td><td rowspan="2">Leptic Tenosols</td><td>Topsoil</td><td>0.0</td><td>16.4</td><td>0</td></tr><tr><td>Subsoil</td><td>0.0</td><td>16.4</td><td>0</td></tr><tr><td colspan="5">Total Volume</td><td>158,140</td></tr><tr><td colspan="5">Total Volume (10% handling loss allowance)</td><td>142,344</td></tr></table>	Table 1 - Recommended Stripping Depths						Soil Type	Project Soil Name	Soil Layer	Recommended Stripping Depth (m)	Area (ha)	Volume (m³)	1	Brown Chromosols	Topsoil	0.30	8.63	25,890	Subsoil	0.90	8.63	77,670	2	Red Dermosols	Topsoil	0.10	4.55	4,550	Subsoil	1.10	4.55	50,050	3	Leptic Tenosols	Topsoil	0.0	16.4	0	Subsoil	0.0	16.4	0	Total Volume					158,140	Total Volume (10% handling loss allowance)					142,344	NC	<p>JF (pers comm) confirmed that topsoil has been progressively stripped during the audit period and provided photographs from site clearing activities to indicate stripping depths to date.</p> <p>However, evidence was not available to confirm that topsoil was stripped to the recommended depths. It is recommended that topsoil stripping depths and associated stockpile locations are recorded during future clearing works to assist with site rehabilitation.</p>
Table 1 - Recommended Stripping Depths																																																											
Soil Type	Project Soil Name	Soil Layer	Recommended Stripping Depth (m)	Area (ha)	Volume (m³)																																																						
1	Brown Chromosols	Topsoil	0.30	8.63	25,890																																																						
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Total Volume (10% handling loss allowance)					142,344																																																						
3.0 SOIL AND WATER	3.1 Soil Management		ii) Topsoil disturbance resulting from the excavation of the open cut pit will not be stripped. Areas to be disturbed within the infrastructure boundary will be stripped and stockpiled for re-use in rehabilitation for the area from where it was stripped;	NC	The sources of topsoil stripped during the audit period could not be verified. <b>See recommendations made against SoC 3.1.</b>																																																						
3.0 SOIL AND WATER	3.1 Soil Management		iii) Only the sandy clay loam topsoil of Soil Type 1 will be used as the final surface topdressing in rehabilitation;	NT	No rehabilitation was undertaken during the audit period.																																																						
3.0 SOIL AND WATER	3.1 Soil Management		iv) Rehabilitation involving topsoil respreading will occur on the entire infrastructure area. The open cut footprint will be rehabilitated through direct tree planting and more specific rehabilitation measures; and	NT	No rehabilitation was undertaken during the audit period.																																																						
3.0 SOIL AND WATER	3.1 Soil Management		v) Topsoil will be respread on final landforms at a minimum of 15cm, and an intermediate layer will be established at a minimum of 30cm.	NT	No rehabilitation was undertaken during the audit period.																																																						

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
3.0 SOIL AND WATER	3.1 Soil Management		Where topsoil stripping and transportation is required, the following topsoil handling techniques will be implemented to prevent excessive soil deterioration, note this also applies to subsoil stripping: i) Strip material to the depths stated in the table above, subject to further investigation as required; ii) Topsoil will be maintained in a slightly moist condition during stripping. Material will not be stripped in either an excessively dry or wet condition; iii) Place stripped material directly onto reshaped overburden and spread immediately to avoid the requirement for stockpiling; iv) Clay material will be applied first to create an intermediate layer. The loam topsoil will then be spread to overlie this layer; v) The surface of soil stockpiles will be left in as coarsely structured a condition as possible in order to promote infiltration and minimise erosion until vegetation is established, and to prevent anaerobic zones forming; vi) Maintain a maximum stockpile height of 3m; vii) If long-term stockpiling is planned (i.e. greater than 12 months), stockpiles will be seeded and fertilised as soon as possible; and viii) Prior to re-spreading stockpiled topsoil onto reshaped overburden an assessment of weed infestation on stockpiles will be undertaken to determine if individual stockpiles require herbicide application and/or "scalping" of weed species prior to topsoil spreading. ix) An inventory of available soil will be maintained to ensure adequate topsoil materials are available for planned rehabilitation activities. x) The respread topsoil surface will be scarified prior to, or during seeding, to reduce run-off and increase infiltration.	NC	Viewed examples of topsoil stockpiles on site, which confirmed that these were shaped and seeded generally in accordance with this SoC.  <b>See recommendations made against SoC 3.1. It is also recommended that KEQ develop an internal topsoil stripping and stockpiling procedure to ensure that the information under this SoC is retained on site to assist in site rehabilitation.</b>
3.0 SOIL AND WATER	3.2 Groundwater Management		Prior to commencement of works, further investigation of groundwater conditions will be conducted in consultation with the NSW Office of Water;	C	Deemed compliant by previous IEA.
3.0 SOIL AND WATER	3.2 Groundwater Management		Benches and the pit floor will be graded to promote drainage toward the entrance to the pit;	C	The audit site inspection observed that drainage from disturbed areas was being directed to pit and/or into site drains and dams (Dam 1 to Dam 3 identified in the WMP and EPL 20611).

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
3.0 SOIL AND WATER	3.2 Groundwater Management		Minor seepage and ponding water from excessive rainfall will be managed by conventional drainage measures within the quarry such as periodic pumping out to the surrounding drainage controls. Water will be retained on site for quarry operations and for environmental mitigation;	C	See SoC 3.2 above.
3.0 SOIL AND WATER	3.2 Groundwater Management		Only emergency vehicles repairs will be carried out onsite and any major vehicle repairs/maintenance will occur offsite;	C	JF (pers comm) confirmed that only critical repairs are carried out on site. No vehicle maintenance areas were observed on site during the audit inspection.
3.0 SOIL AND WATER	3.2 Groundwater Management		Refuelling will be undertaken in a designated non-permeable (compacted clay or concrete) area;	C	Refuelling areas on site were confirmed to be bunded and located on hardstand areas during the site inspection (see <b>Plate 3</b> and <b>Plate 16</b> ).
3.0 SOIL AND WATER	3.2 Groundwater Management		Runoff water from the Project site will be collected and monitored for environmental mitigation to prevent chemicals and hydrocarbon pollutants such as petroleum, diesel, and oil seeping into the groundwater system;	C	Water captured within the site water management system is directed to Dams 1 - 3 and monitored generally in accordance with the approved WMP.
3.0 SOIL AND WATER	3.2 Groundwater Management		Fuel storage facilities will be installed in accordance with relevant statutory requirements. Handling and storage of fuel and oil within the project site will be in accordance with Australian Standards, AS 1940-2004 (Storage and Handling of Flammable and Combustible Liquids) and NSW Work Cover 2005 Code of Practice for Storage and Handling of Dangerous Goods to reduce the risk of any spills or environmental release. Above ground storage in a bunded facility will be used;	C	Fuel storage facilities on site were inspected and confirmed to be constructed to meet Australian Standards (see <b>Plate 16</b> ).
3.0 SOIL AND WATER	3.2 Groundwater Management		Material Safety Data Sheets (MSDS) will be kept in the site safety system for all chemicals used on site. The MSDS will contain information on the environmental impacts of the use of certain chemicals and include detail on emergency response, clean up and disposal. Handling and storage of all chemicals within the project site will be in accordance with Dangerous Goods Act 1975 (NSW), and Australian standards, including AS 1940-2004 (Storage and Handling of Flammable and Combustible Liquids); and	C	JF (pers comm) confirmed that Safety Data Sheets records are retained and available on site. Examples of SDS located around the site were reviewed during the audit site inspection.

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
3.0 SOIL AND WATER	3.2 Groundwater Management		Quarry rehabilitation will use spoil, and clean fill fit for purpose and in accord with relevant statutory requirements.	NT	No rehabilitation was undertaken during the audit period.
3.0 SOIL AND WATER	3.2 Groundwater Management	Contingency, Monitoring and Reporting for Groundwater Management	<b>Contingency Plans</b> Emergency Response Procedures will be developed and implemented for the proposed Karuah East quarry. Contingency plans will be developed to address actions that are required where unforeseen events occur. Contingency plans will consider the following: (i) Groundwater levels: If groundwater level monitoring indicates abrupt changes, additional investigations will be carried out to implement necessary measures; and (ii) Groundwater quality: In the event that the groundwater quality monitoring indicates a deteriorating change of groundwater quality in relation to the proposed quarrying operations, the appropriate authority will be contacted to discuss the implementation of necessary measures.	C	Emergency response procedures and contingencies for groundwater monitoring are outlined in the approved KEQ WMP.
3.0 SOIL AND WATER	3.2 Groundwater Management	Contingency, Monitoring and Reporting for Groundwater Management	<b>Monitoring Plan</b>  Monitoring of groundwater levels and groundwater quality will be conducted prior to the start of quarry operations. The existing monitoring bores at BH205, BH207, BH208 and BH303 will be used for monitoring groundwater of the quarry area.  New monitoring bores will be installed if any existing monitoring bores are destroyed during the quarry operations, or are subject to general failure. Surface runoff water will also be monitored.	C	JF (pers comm) confirmed that existing locations BH205, BH207, BH208 and BH303 are still in place. No relocation of monitoring sites was required during the audit period.
3.0 SOIL AND WATER	3.2 Groundwater Management	Groundwater Levels	Groundwater levels will be monitored on a quarterly basis to identify any adverse impacts arising from the operation of the quarry in the future, and to identify long-term groundwater level trends.	C	Environmental monitoring records during the audit period include quarterly groundwater monitoring information.
3.0 SOIL AND WATER	3.2 Groundwater Management	Groundwater Quality	Groundwater samples will be collected for laboratory analysis on a 6-monthly basis. The groundwater quality results will be laboratory analysed for the parameters below and compared to background water quality results. The groundwater sampling will be carried out by an experienced groundwater professional or environmental scientist in accordance with Australian sampling standards.  The basic analyte and parameter suite applies to all samples. The	C	Environmental monitoring records during the audit period include quarterly groundwater monitoring information.

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
			additional extended analytic suite should apply annually together with the basic suite.		
3.0 SOIL AND WATER	3.2 Groundwater Management	Groundwater Quality	<u>Basic Analytes and Parameters – 6 monthly (every sample):</u> ph, Electrical Conductivity (EC), Total Dissolved Solids (TDS); Alkalinity; Total nitrogen, total phosphorus; Major ions, calcium, magnesium, sodium, potassium, chloride, sulphate, carbonate, bicarbonate; Total Petroleum Hydrocarbon (TPH); and BTEX (benzene, toluene, ethyl benzene, exylene).	C	Monitoring of water samples has been undertaken generally in accordance with approved WMP.
3.0 SOIL AND WATER	3.2 Groundwater Management	Groundwater Quality	<u>Additional Analysis – 12 monthly (every second sample only):</u> Nutrient suite: total nitrogen, nitrate, total Kjeldahl nitrogen, total phosphorus, phosphate; Metals (arsenic, cadmium, chromium, copper, lead, zinc, nickel, manganese, mercury, total iron, filterable iron); Polycyclic Aromatic Hydrocarbon (PAH); and Organophosphorus pesticides, phenoxy acid herbicides.	C	Monitoring of water samples has been undertaken generally in accordance with approved WMP.
3.0 SOIL AND WATER	3.2 Groundwater Management	Groundwater Quality	The recording date, time and parameters of monitoring data will be collected and tabulated. All original laboratory reports will be maintained on file. Monitoring records will be kept until the closure stage of the quarry for inspection on request by government agencies.		Monitoring of water samples has been undertaken generally in accordance with approved WMP.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Quarry Extraction Area	Runoff generated within the active quarry extraction area will be directed into an in-pit sump where it will be contained and pumped out as required so as not to impede quarrying activity;	NT	JF (pers comm) confirmed that an in-pit sump was not developed in the audit period. Runoff is directed to site drainage structures.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Quarry Extraction Area	A bund and sediment fence will be maintained along the southern boundary of the quarry, to minimise the risk of sediment being washed downstream of the quarry;	C	The bund and sediment fence was sighted during the audit inspection.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water	Quarry Extraction Area	Construction of the quarry floor will be managed in such a way so as to direct all runoff to the in-pit sump. The location of this sump will change as quarrying progresses, however it will generally be located in the south east corner of the quarry;	NT	JF (pers comm) confirmed that an in-pit sump was not developed in the audit period. Runoff is directed to site drainage structures.

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
	Management System				
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Quarry Extraction Area	Water collected in the in-pit sump will be pumped out as required into a rock lined table drain adjacent to the main haul road. The water will flow down this drain to the main dirty water dam, Dam 1, via a rock lined drop structure; and	NT	JF (pers comm) confirmed that an in-pit sump was not developed in the audit period. Runoff is directed to site drainage structures.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Quarry Extraction Area	Progressive rehabilitation of all formed surfaces, such as quarry benches and long term soil stockpiles, will occur wherever possible to reduce the amount of total suspended solids (TSS) in runoff from disturbed areas.	NT	No rehabilitation was undertaken during the audit period.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Dam 1 Catchment (crushing plant and product stockpiles)	An existing farm dam will be upgraded and used as a sediment dam (Dam 1);	C	Deemed compliant by previous IEA.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Dam 1 Catchment (crushing plant and product stockpiles)	The crushing plant area will be graded such that runoff from this area will flow into Dam 1;	C	Drainage from the crushing areas was reviewed during the audit site inspection.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Dam 1 Catchment (crushing plant and product stockpiles)	Water for haul road and some stockpile dust suppression, as well as for the crushing plant will be sourced from Dam 1; and	C	Sighted watercart fill point located at Dam 1 during the audit site inspection.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Dam 1 Catchment (crushing plant and product stockpiles)	A diversion bund will be constructed along the eastern boundary of this catchment area, to direct runoff from the area into Dam 1.	C	Sighted diversion bund along eastern boundary during the audit site inspection.

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
	Management System	and product stockpiles)			
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Dam 2 Catchment (product stockpiles and office infrastructure area)	A second sediment dam, Dam 2, will be constructed adjacent to the main haul road to capture runoff from this area. Water collected in Dam 2 will be re-used for dust suppression on the product stockpiles.	C	Sighted Dam 2 during the audit site inspection. Water captured in Dam 2 is available for dust suppression if required.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Dam 3 Catchment (product stockpiles)	A third sediment dam, Dam 3, will be constructed in the north east corner of the southern stockpile area. Water collected in dam 3 will be re-used for dust suppression on the adjacent product stockpiles.	C	Sighted Dam 3 during the audit site inspection. Water captured in Dam 3 is available for dust suppression if required.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	During Construction	Sediment laden runoff from disturbed areas during construction will be managed by implementing the following erosion and sedimentation control principles:- Conducting best practice land clearing procedures for all proposed disturbance areas;- Minimising the disturbance footprint;- Coordinating construction sequences to minimise exposure of disturbed soils to the elements;- Separate/diversion of upslope 'clean' water catchment runoff prior to land disturbance;- Ensuring sediment-laden runoff is treated via designated sediment control devices;- Appropriate storage of topsoil stockpiles in areas away from roadways and other drainage lines;- Revegetation of disturbed areas as soon as possible following the completion of construction activities; and- Implementing an effective maintenance period.	C	Deemed compliant by previous audit
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Surface Water Management – Final Landform	Dams 1, 2 & 3 will remain in place for post-mining landuse. Consultation will be undertaken with relevant government agencies in relation to licensing conditions at that time; and	NT	KEQ is in operational phase.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water	Surface Water Management – Final Landform	If deemed necessary by the relevant government agency, the dams will be removed.	NT	KEQ is in operational phase.

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments																				
	Management System																								
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Dam Design	<p>Each dam will be constructed to the following capacity in accordance with</p> <table><caption>Table 2 – Summary of Proposed Dams</caption><tr><th>Dam</th><th>Sediment Zone (ML)</th><th>Settling Zone (ML)</th><th>Additional water storage capacity (ML)</th><th>Total Capacity (ML)</th></tr><tr><td>Dam 1</td><td>3.4</td><td>5.4</td><td>3.6</td><td>12.4</td></tr><tr><td>Dam 2</td><td>0.4</td><td>0.9</td><td>0</td><td>1.3</td></tr><tr><td>Dam 3</td><td>0.6</td><td>1.7</td><td>0</td><td>2.3</td></tr></table>	Dam	Sediment Zone (ML)	Settling Zone (ML)	Additional water storage capacity (ML)	Total Capacity (ML)	Dam 1	3.4	5.4	3.6	12.4	Dam 2	0.4	0.9	0	1.3	Dam 3	0.6	1.7	0	2.3	C	JF (pers comm) confirmed that Dam 1 - Dam 3 were constructed to meet capacity requirements in the EA. KEQ are reviewing the sizing of these dams at the time of audit.
Dam	Sediment Zone (ML)	Settling Zone (ML)	Additional water storage capacity (ML)	Total Capacity (ML)																					
Dam 1	3.4	5.4	3.6	12.4																					
Dam 2	0.4	0.9	0	1.3																					
Dam 3	0.6	1.7	0	2.3																					
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Management and Maintenance of Dams	In the event that water is required to be discharged offsite, the water will be tested prior to discharge to ensure appropriate discharge criteria are met, such as Total Suspended Solids (TSS) below a concentration of 50mg/L. Where this is not the case, water will be treated, for example through the use of chemical flocculation, to achieve a suitable water quality; and	NC	<p><b>See PA 09_0175, EPL 20611 conditions for description of exceedances of discharge water criteria during the audit period.</b></p> <p>JF (pers comm) confirmed that all water is tested prior to discharge from site. Treatment systems to manage the quality of water were seen to be in place for site Dams 1 - 3 during the audit site inspection.</p>																				
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Management and Maintenance of Dams	An inspection of the sediment dams will be undertaken as part of the routine site environmental inspection program or following significant rainfall. Various information, such as the general condition of the dam, evidence of overflow, condition of downstream catchments, water colour, evidence of eroding surfaces and approximate retained capacity, will be recorded.	C	Viewed examples of environmental inspections completed during the audit period. Inspections include comments on Dam 1 - Dam 3 status.																				



Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Mitigation Measures for Drainage Lines	A sediment fence will be installed along the downstream side of the entire southern face of the quarry as a sediment control measure to minimise the transport of any sediment into the remaining section of the first order drainage line to the south of the extraction area. This drainage line will be reinstated as close as possible to its original path following completion of extraction activities at the quarry as part of the final rehabilitation of the site;	C	Sediment fencing is not located around the southern face of the quarry, however drainage bunding is in place.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Mitigation Measures for Drainage Lines	A Site Water Management Plan (SWMP) for Karuah East will be prepared and include details on the drainage line rehabilitation works. Works within the restored drainage lines will be generally undertaken in accordance with Section 5.3.3 of the Blue Book (Volume 1) and the 'Guidelines for Controlled Activities – In-Stream Works' (DWE, 2008) for watercourse rehabilitation and riparian zone rehabilitation. Key design elements of channel establishment works will include:- Implement temporary erosion controls to provide for the short-term stabilisation of the channel;- Design and construct the stream channel so that it will be stable for the long term and minimizes the potential for the migration of any erosion upstream or downstream;- The drainage line will be re-instated as a compound channel with a main channel conveying the small to medium flows, and a floodplain used to convey the high overbank flows;- The main channel forming part of the re-instated central drainage line will be generally trapezoidal in shape with 3:1 (H:V) bank batters;- Natural meanders will be used instead of straight lines to reflect natural stream characteristics;- Where there are high erosive forces (such as high flow velocity or steep grades) the channel bed will be rock lined where required and constructed in accordance with the 'Blue Book', including the placement of appropriately sized rocks above a filter layer of suitable geotextile; and- Soil will be packed in between rocks to allow sedges and grasses to be established within the channel to provide for long-term channel stability.- Following earthworks and channel establishment, a riparian corridor will be established with a minimum width of 10m, measured horizontally and at right angles to the flow from the top of both banks on the streams. Key design elements of the riparian corridor establishment will include:- Implement temporary erosion controls to provide for the short-term stabilisation of the riparian corridor;- Restore a vegetated riparian corridor along the stream channel (10 m from top of bank);-	C	See Schedule 3, Condition 21 of PA 09_0175.

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
			Establish a diverse range of locally occurring vegetation species;- Establish a full range of vegetation types, including trees, shrubs and grass covers;- No exotics species are to be introduced; and- Maintain the rehabilitated riparian corridor for two years after initial rehabilitation.		
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Licensed Discharge Point / Licensing Requirements	A Licensed Discharge Point (LDP) will be installed as required at the outlets of Dam 1, Dam 2 and Dam 3. An application to the NSW OEH for the establishment of the LDP's will be made; and	C	Sighted LDPs during the audit site inspection, as approved under EPL 20611.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Licensed Discharge Point / Licensing Requirements	The controlled release of water will preferentially be made from Dam 1 and Dam 3. The water management system will be set up to allow for water to be pumped from Dam 2 to Dam 1 as required for release.	NC	<b>Uncontrolled discharge events from site occurred during the audit period.</b> See Schedule 3, Condition 19 of PA 09_0175.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Site Water Balance	The proposed dams will be built to at least the specified sizes (Table 2 above), and made larger where practical in consultation with NOW;	C	JF (pers comm) confirmed that Dam 1 - Dam 3 were constructed to meet capacity requirements in the EA. KEQ are reviewing the sizing of these dams at the time of audit.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Site Water Balance	That controlled discharge of treated (e.g. flocculated) water be undertaken when total site storage levels are above 4.3ML, which would provide the capacity to contain more rainfall events and reduce wet weather discharges (this assumes the dams are built to the capacities presented in Table 2 above); and	NC	<b>Uncontrolled discharges from site occurred during the audit period.</b> See Schedule 3, Condition 19 of PA 09_0175.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	3.3 Surface Water – Proposed Water Management System	All water usage will be monitored across the site to enable an update of the water balance using actual metered water usage data after 12 months of operation.	C	Viewed extracts from KEQPL internal monthly reports over the period November 2019 to April 2019 (inclusive). Reports include records of weekly water use for dust suppression of site plant and haul roads.

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
					JF (pers comm) also stated that water usage across site is monitoring at multiple locations, including water drawn from Dam 1 for dust suppression system across the processing area and water drawn to fill the watercart for dust suppression across the entire site.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Site Water Management Plan	A Site Water Management Plan (SWMP) will be prepared following project approval in accordance with regulatory requirements and conditions of consent. The SWMP will be developed in accordance with the Blue Book (Volume 1 and Volume 2E).	C	Viewed the KEQ WMP approved by DPIE on 14/12/15.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Site Water Management Plan	The SWMP will incorporate the following:	C	
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Site Water Management Plan	On-site soil and water management principles and objectives, including the following: i) Containment of dirty water runoff from the active quarry area by directing this water into in-pit sumps; ii) Directing sediment-laden runoff from disturbance areas and rehabilitated areas into designated sediment control dams; iii) Installing temporary erosion and sediment control devices as required (i.e. sediment fences sand bag weirs) to minimise the discharge of sediment laden water from newly disturbed areas; iv) Diverting clean water runoff unaffected by the operations away from disturbed areas and offsite, where possible; v) Maintaining sediment control structures to ensure that the designed capacities are maintained for optimum settling of sediments; and vi) Implementing an effective revegetation and maintenance program for the site.	C	

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Site Water Management Plan	Identification of sources of sedimentation and erosion.	C	
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Site Water Management Plan	Soil Best Management Practices (BMPs) to be implemented on-site, including:i) quarry planning considerations (such as minimising disturbance);ii) topsoil/subsoil handling and stockpiling procedures; andiii) topsoil/subsoil respreading procedures.	NC	See SoCs 3.1, 3.2 above.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Site Water Management Plan	Water BMPs to be implemented on-site, including; i) clean water diversions; ii) dirty water capture and treatment; iii) additional sediment protection measures to be employed during the life of the Project; and iv) maintenance of sediment control structures.	C	Deemed compliant by previous IEA.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Site Water Management Plan	Drainage line rehabilitation.	C	Deemed compliant by previous IEA.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Site Water Management Plan	Water monitoring procedures.	C	Deemed compliant by previous IEA.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Site Water Management Plan	Documentation and reporting procedures.	C	Deemed compliant by previous IEA.

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Surface Water Monitoring Program	A Surface Water Monitoring Program will be implemented to monitor both the surface water quality upstream and downstream of the site, and the effectiveness of the Site Water Management Plan, including:	C	Deemed compliant by previous IEA.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Surface Water Monitoring Program	The results of Surface water monitoring undertaken during quarrying operations at Karuah East will be compared against the baseline data collected as part of the Surface Water Assessment;	C	Deemed compliant by previous IEA.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Surface Water Monitoring Program	A baseline ecological health condition assessment of Yalimbah Creek will be undertaken prior to commencement of operations, and monitoring of Yalimbah Creek will continue as part of the annual ecological monitoring of offset areas;	C	Deemed compliant by previous IEA.
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Surface Water Monitoring Program	The following parameters (see Table 3 below) will be measured at each monitoring location via collection of a grab sample. The recorded values for the parameters measured will be assessed as a minimum against baseline water quality results as well as the ANZECC trigger values presented below, and plotted to identify any trends over time. The OEH will be notified in the event of increasing levels of any parameter; and	C	Viewed examples of 'Hunter Quarries - Karuah & Karuah East Monthly Surface Water Monitoring' reports prepared by Valley Civilab. Monitoring reports viewed include the assessment of parameters required under this SoC.

Commitment Aspect	Commitment Sub- aspect (i)	Commitment Sub- aspect (ii)	Commitment Description	Status	Comments																																																																								
			<div>Table 3 – Surface Water Monitoring Parameters</div> <table><thead><tr><th>Parameter</th><th>Unit</th><th>ANZECC Guidelines<sup>1</sup></th></tr></thead><tbody><tr><td>pH (Field)</td><td>–</td><td>6.5 – 8.5</td></tr><tr><td>Conductivity (Field)</td><td>µS/cm</td><td>125 – 2200</td></tr><tr><td>Conductivity (Lab)</td><td>µS/cm</td><td>125 – 2200</td></tr><tr><td>Total Dissolved Solids</td><td>mg/L</td><td>–</td></tr></tbody></table> <table><thead><tr><th>Parameter</th><th>Unit</th><th>ANZECC Guidelines<sup>1</sup></th></tr></thead><tbody><tr><td>Total Phosphorus</td><td>mg/L</td><td>0.025</td></tr><tr><td>Ammonia</td><td>mg/L</td><td>0.02</td></tr><tr><td>Nitrogen (Nitrate)</td><td>mg/L</td><td>0.350</td></tr><tr><td>Total Hardness (as CaCO<sub>3</sub>)</td><td>mg/L</td><td>–</td></tr><tr><td>Oil &amp; Grease</td><td>mg/L</td><td>–</td></tr><tr><td>Arsenic</td><td>mg/L</td><td>0.024</td></tr><tr><td>Cadmium</td><td>mg/L</td><td>0.0002</td></tr><tr><td>Calcium</td><td>mg/L</td><td>–</td></tr><tr><td>Chromium</td><td>mg/L</td><td>0.001</td></tr><tr><td>Copper</td><td>mg/L</td><td>0.0014</td></tr><tr><td>Lead</td><td>mg/L</td><td>0.0034</td></tr><tr><td>Magnesium</td><td>mg/L</td><td>–</td></tr><tr><td>Manganese</td><td>mg/L</td><td>1.9</td></tr><tr><td>Nickel</td><td>mg/L</td><td>0.011</td></tr><tr><td>Potassium</td><td>mg/L</td><td>–</td></tr><tr><td>Sodium</td><td>mg/L</td><td>–</td></tr><tr><td>Vanadium</td><td>mg/L</td><td>–</td></tr><tr><td>Zinc</td><td>mg/L</td><td>0.0312</td></tr></tbody></table> <div><sup>1</sup>Key default trigger values presented in ANZECC 2000 for slightly disturbed upland rivers in NSW. Heavy metals based on hard water (120-179 mgCaCO<sub>3</sub>/L)</div>	Parameter	Unit	ANZECC Guidelines <sup>1</sup>	pH (Field)	–	6.5 – 8.5	Conductivity (Field)	µS/cm	125 – 2200	Conductivity (Lab)	µS/cm	125 – 2200	Total Dissolved Solids	mg/L	–	Parameter	Unit	ANZECC Guidelines <sup>1</sup>	Total Phosphorus	mg/L	0.025	Ammonia	mg/L	0.02	Nitrogen (Nitrate)	mg/L	0.350	Total Hardness (as CaCO <sub>3</sub> )	mg/L	–	Oil & Grease	mg/L	–	Arsenic	mg/L	0.024	Cadmium	mg/L	0.0002	Calcium	mg/L	–	Chromium	mg/L	0.001	Copper	mg/L	0.0014	Lead	mg/L	0.0034	Magnesium	mg/L	–	Manganese	mg/L	1.9	Nickel	mg/L	0.011	Potassium	mg/L	–	Sodium	mg/L	–	Vanadium	mg/L	–	Zinc	mg/L	0.0312		
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3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Surface Water Monitoring Program	The range of analytes measured will be reviewed following the first 12 months of monitoring and a diagnostic set of analytes adopted for ongoing monitoring.																																																																										
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Surface Water Monitoring Program	Surface water monitoring locations will be as follows: Dam 1; Dam 2; Dam 3; SW 1 and SW 2 - Existing second order drainage line (within Lot 13 flowing along the eastern boundary of the Study Area); both upstream and downstream of the quarry; SW 3 - Existing drainage line downstream of Dam 2; and SW 4 - Existing drainage line downstream of the quarry extraction area	C	Monitoring locations in the approved WMP are consistent with those identified in this SoC.																																																																								

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3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Reporting of Monitoring Data	Karuah East Quarry maintains an up to date record of analysis both in hard copy (laboratory reports) and electronic (results) format. These results will be interpreted as they are received in order to ensure appropriate operational guidance on maintaining water quality within desired parameters;	C	Surface water monitoring and analysis records are available and maintained on site. JF (pers comm) confirmed that these are reviewed during the preparation of monthly environmental reports published on the KEQ website.																																				
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Reporting of Monitoring Data	The results of water quality analysis will be reported in the Annual Environmental Management Report (AEMR); and	C	Monitoring data is reported in the audit period Annual Reviews.																																				
3.0 SOIL AND WATER	3.3 Surface Water – Proposed Water Management System	Reporting of Monitoring Data	In the event that an exceedance in surface water quality criteria is identified, the exceedance will need to be reported to the relevant agencies in accordance with the requirements of the EPL.	NC	See EPL 20611 conditions L2.1, L2.2. Evidence was not available to confirm that all exceedances were reported to EPA within the required timeframes.																																				

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
	Management System				
4. BIODIVERSITY & CONSERVATION OFFSET	4.1 Flora and Fauna	Vegetation Clearing Management	<u>Site Survey and Exclusion Fencing</u> The extraction area/forest interface will be delineated to protect retained bushland areas on Lot 12 and 13. To achieve this, the quarry footprint boundary will be surveyed and pegged by a Registered Surveyor prior to the conduct of clearing operations. Plastic mesh fencing or star pickets and flagging tape will be installed along the extraction boundary for use as exclusion fencing. The fencing will function as a clearly marked 'exclusion' boundary for the machinery operations.	C	Viewed exclusion fencing and signage installed between KEQ extraction areas and the 'retained bushland areas' on Lot 12 and Lot 13 (see <b>Plate 1</b> , <b>Plate 12</b> and <b>Plate 13</b> ).
4. BIODIVERSITY & CONSERVATION OFFSET	4.1 Flora and Fauna	Vegetation Clearing Management	Permanent chain wire metal exclusion fencing will be installed around the entire perimeter of the quarry footprint (except at the designated aerial fauna crossings) prior to the commencement of quarry operations.	NC	<b>Chain wire exclusion fencing was seen to be in place along the southern boundary and sections of the site adjacent to quarry haulage and infrastructure areas, however it does not encompass the entire quarry footprint.</b>  JF (pers comm) confirmed that this fencing is being installed progressively in other areas in advance of site operations as they become available and access is gained.
4. BIODIVERSITY & CONSERVATION OFFSET	4.1 Flora and Fauna	Vegetation Clearing Management	<u>Clearing Protocol</u>  The following protocol will be undertaken as part of the clearing activity on the subject site:  i) All contractors conducting clearing, earth works or quarrying activities within the subject site will be informed of the restrictions to the clearing of vegetation outside the 'exclusion fencing'. A construction protocol will be prepared requiring all earthworks, machinery and personnel be strictly controlled and be restricted to the extraction footprint. No storage of materials, vehicle parking or other disturbance will be undertaken outside the exclusion fencing. Contractors will be supplied with the construction protocol regarding the clearing	C	Clearing protocols are described in the approved KEQ LRMP approved by DPIE on 16/06/20.



Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
			restrictions through a work site induction program;  ii) Trees will be felled away from the refined bushland on the subject site back into the extraction areas; and  iii) Domestic fauna (ie. dogs) will be prohibited from entering the subject site with Contractors.		
4. BIODIVERSITY & CONSERVATION OFFSET	4.1 Flora and Fauna	Fauna Management	<b>Pre Clearing Surveys</b>		
4. BIODIVERSITY & CONSERVATION OFFSET	4.1 Flora and Fauna	Fauna Management	Where possible, vegetation clearing activity will be timed so as to avoid the following breeding periods for hollow dependent fauna: i) October – February (microbats); and ii) June – August (large forest owls and microbats in torpor).	C	The timing of pre-clearing surveys consistent with this SoC is described in Section 6.2.4 of the approved LRMP.
4. BIODIVERSITY & CONSERVATION OFFSET	4.1 Flora and Fauna	Fauna Management	If restricting the clearing to these limited times is not found to be practical, then ecological pre-clearing surveys will be undertaken within two weeks prior to the commencement of the clearing. If required, components of the pre clearing surveys will include:	C	Pre-clearing survey requirements are described in Section 6.2 of the approved LRMP.
4. BIODIVERSITY & CONSERVATION OFFSET	4.1 Flora and Fauna	Fauna Management	<u>Threatened Fauna Searches</u> Within one week prior to commencement of vegetation clearing, searches for signs of Threatened species occurring within the quarry footprint will be undertaken. These searches would include but not be limited to; i) Searches for nests of threatened raptors; and ii) Searches for whitewash or other signs of roosting or nesting Powerful and Masked Owls. If a threatened raptor or owl nest site is recorded within the subject site during the surveys, clearing activity will not take place in the vicinity of the nest (within 50 metres) until the nest is vacated by the affected species (including fledglings). Recorded nest sites would be subject to a monitoring program to ensure that no clearing activity is undertaken until the nest sites are vacated.	C	Pre-clearing survey requirements are described in Section 6.2 of the approved LRMP.
4. BIODIVERSITY & CONSERVATION OFFSET	4.1 Flora and Fauna	Fauna Management	<u>Small Mammal Trapping</u> Elliott trapping will be undertaken within one week prior to commencement of vegetation clearing over a 4 night period, targeting the Brush-tailed Phascogale (Phascogale tapoatafe) and Squirrel Glider (Petaurus norfolcensis). A total of 4 trap lines (equating to 160	C	Pre-clearing survey requirements are described in Section 6.2 of the approved LRMP.

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
			arboreal Elliott trap and 400 terrestrial Elliott trap nights) will be established across the subject site (2 lines/stratification unit).		
4. BIODIVERSITY & CONSERVATION OFFSET	4.1 Flora and Fauna	Fauna Management	<u>Stag Watching and Anabat Survey</u> A combined Stag Watching and Anabat survey would be conducted within the subject site over a 4 night period in an attempt to identify potential Microchiropteran bat roost trees. Should further investigations reveal the presence of a maternity colony, no clearing would be undertaken until after the completion of the breeding period (mid October –mid February inclusive).	C	Pre-clearing survey requirements are described in Section 6.2 of the approved LRMP.
4. BIODIVERSITY & CONSERVATION OFFSET	4.1 Flora and Fauna	Fauna Management	A report detailing the methods and results of the pre-clearing surveys will be prepared and submitted to OEH immediately prior to the commencement of the clearing operations.	NC	Section 6.3.6 of the LRMP includes a requirement to provide Vegetation Clearing Reports to OEH. Viewed example of submission of clearing report to OEH dated 06/10/20, however <b>evidence of submission of reports for all progressive clearing events during the audit period was not available at the time of audit.</b>
4. BIODIVERSITY & CONSERVATION OFFSET	4.1 Flora and Fauna	Fauna Management	<u>Ecological Clearing Supervision</u> The removal of all identified hollow bearing trees will be undertaken with the presence of a qualified and suitably experienced fauna ecologist.  A tree felling protocol will be developed to minimise harm to hollow obligates during the clearing of trees for the proposal. The tree felling protocol will be developed by a suitably qualified and licenced ecologist with previous experience supervising felling trees. The tree felling protocol will comprise pre-felling identification and mapping of hollow bearing trees, inspections of trees on the day of clearing, procedures for the safe removal of fauna species from trees prior to and post felling, a relocation/release procedure and a methodology for salvaging (and relocating) tree hollows where practicable.  The relevance of the marked hollow bearing trees and requirements for ecological clearing supervision and hollow resource recovery will be communicated to the clearing Contractor as part of a site induction program.	C	Section 6.3.3 of the approved LRMP describes the site protocol for removal of habitat / hollow-bearing trees.

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
4. BIODIVERSITY & CONSERVATION OFFSET	4.1 Flora and Fauna	Fauna Management	<p><u>Nest Box Program</u> One nest box will be installed for each hollow to be lost as a result of the proposal. Softwood pine (plywood) nest boxes will be used and will be specifically designed for Threatened hollow obligates. Nest boxes will have swivel mounts and be fitted with screw lids to prevent damage from brushtail possums.</p> <p>Nest boxes will be placed in retained habitats in the study area onto host trees that do not already support hollows at a minimum height of 3 metres (aboveground) in an orientation other than west and north-west to minimise exposure to the afternoon sun.</p> <p>Nest boxes will be erected prior to the commencement of clearing operations and will be subject to 2 yearly maintenance for the life of the quarry.</p> <p>Feral bees found to colonise the nest boxes will be eradicated by a specialist pest contractor.</p> <p>Nest box installation will be supervised by a suitably experienced fauna ecologist.</p>	C	<p>Section 6.3.3 of the approved LRMP describes the protocol for installation and maintenance of nest boxes.</p> <p>Examples of nest boxes placed within KEQ biodiversity offset areas were viewed during the site inspection (see <b>Plate 15</b>).</p>
4. BIODIVERSITY & CONSERVATION OFFSET	4.1 Flora and Fauna	Fauna Management	<p><u>Aerial Fauna Crossings</u> Two (2) dedicated aerial fauna crossings will be installed: - The western aerial fauna crossing will to be located at the existing quarry haul road approximately 250 metres north east from the existing quarry site office; and - The eastern aerial fauna crossing is proposed on Lot 13 along the north-south running access road.</p> <p>The canopy bridges will comprise rope netting suspended across the entire width of the haul roads connected to two (2) poles placed on opposite side of the roads. The western canopy bridge would be approximately 40-45m in length and 50cm wide whilst the eastern canopy bridge would be approximately 55 metres in length and 50cm in width.</p> <p>The netting of both canopy bridges would comprise 14mm diameter</p>	C	<p>Installation of the fauna crossings are describes in Section 6.4 of the approved LRMP.</p> <p>The fauna crossing locations as per the LRMP and this SoC were in place (see <b>Plate 20</b>). JF (pers comm) confirmed that the monitoring program had not yet been completed at the time of audit.</p>

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
			<p>marine grade 'silver rope' in a flat lattice-work configuration (ie. analogous to a rope ladder laid horizontally).</p> <p>The height of the poles and canopy crossing above the road surface would be between 6 – 12 metres, depending on the road profile.</p> <p>Single strands of rope will extend from the timber poles into the canopy of adjacent trees to facilitate access by arboreal mammals.</p> <p>The final design of the canopy rope bridges would be chosen as part of detailed design following project approval.</p> <p>A twelve month monitoring program will be undertaken using a motion detecting camera system mounted on each pole at each of the two (2) aerial crossings.</p>		
4. BIODIVERSITY & CONSERVATION OFFSET	4.1 Flora and Fauna	Salvage and Relocation of Terrestrial Habitat Structures	Large fallen logs will be salvaged during the clearing operations and relocated into retained forested habitats on Lots 12 and 13.	C	<p>Stockpiling of logs felled from operational areas within the forested habitats in the KEQ biodiversity offset areas was observed (see <b>Plate 21</b>).</p> <p><b>Recommend that KEQ review the process for salvage of large logs during clearing and whether emplacement of additional material would be beneficial in Lots 12 and 13.</b></p>
4. BIODIVERSITY & CONSERVATION OFFSET	4.1 Flora and Fauna	Threatened Plant Populations	<p>A salvage program for <i>Tetratheca juncea</i> will be implemented. The salvage program will compromise the excavation of clumps (along with rhizomes and surrounding root balls) proposed for removal and their reintroduction into prepared 'beds' within suitable habitats nearby.</p> <p>Application for a Section 91 licence from OEH for the salvage program will be made and will be subject to a detailed Salvage Plan to be prepared by the Proponent (and endorsed by OEH and Department of Planning) prior to commencement of the works.</p>	C	<p>Previous audit deemed that the salvage program was compliant.</p> <p>Viewed areas where <i>Tetratheca juncea</i> had been relocated during the audit site inspection. While outside the optimum flowering period, several individuals were observed (see <b>Plate 21</b>).</p>

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
4. BIODIVERSITY & CONSERVATION OFFSET	4.1 Flora and Fauna	Threatened Plant Populations	Threatened plant sub-populations of <i>Tetratheca juncea</i> , <i>Grevillea parviflora</i> subsp. <i>parviflora</i> and <i>Asperula asthenes</i> situated within retained bushland habitats on Lots 12-14 will be monitored annually by a suitably qualified and experienced botanist for the life of the quarry operation.  A Monitoring Plan will be prepared prior to the commencement of clearing activity to detail survey design, data collection and reporting. Adaptive management will be employed for the life of the quarry to respond to population issues that are identified, including weed control.	C	Threatened species monitoring is described in the approved BOAMP, with monitoring results described in audit period Annual Reviews.
4. BIODIVERSITY & CONSERVATION OFFSET	4.2 Biodiversity Offset Strategy		The proposed offset site is identified as Part Lot 13 DP 1024564, Lot 14 DP 1024546 and Lot 5 DP 838128 (provided that an option to purchase Lot 5 has been secured by the proponent). In the event that Lot 5 DP 838128 is unable to be secured by the proponent, the proponent will purchase an alternate offset site, which, combined with Lots 13 and 14, will provide a total biodiversity offset area of not less than 129.32 ha. The alternate offset site will be required to be agreed to by NSW OEH and be to the satisfaction of the Director- General.	C	The 2019 Annual Review notes that KEQ has identified a Biodiversity Offset Area of 130.36 ha of land within three lots.  KEQ remain in consultation with DPIE and OEH over the long-term security of the Biodiversity Offset Areas at the time of audit (see Schedule 3, Condition 29 of PA 09_0175).
4. BIODIVERSITY & CONSERVATION OFFSET	4.2 Biodiversity Offset Strategy		The following will be undertaken by the proponent in relation to the proposed offset site identified as Part Lot 13 DP 1024564, Lot 14 DP 1024546 and Lot 5 DP 838128:	N/A	Note only.
4. BIODIVERSITY & CONSERVATION OFFSET	4.2 Biodiversity Offset Strategy		Seasonal flora and fauna survey of the offset site will be undertaken in accordance with relevant OEH guidelines. In particular, seasonal survey for <i>tetratheca juncea</i> and <i>grevillea parviflora</i> ssp <i>parviflora</i> will be undertaken and reported to the NSW OEH;	C	Viewed the Kleinfelder 'Annual Monitoring Report, Karuah East Quarry Biodiversity Offset Area and Lot 12' and Firebird ecoSultants 'Tetratheca juncea monitoring report for the Karuah East Quarry Site'. These reports document annual surveys for threatened species and are discussed in the 2017, 2018 and 2019 Annual Reviews.
4. BIODIVERSITY & CONSERVATION OFFSET	4.2 Biodiversity		Prior to establishment of the proposed quarry, the proponent will purchase Lot 5 DP 838128 (provided than an option to purchase has been secured). In the event that Lot 5 DP 838128 is unable to be	C	Deemed compliant by previous IEA.

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
	Offset Strategy		secured by the proponent, as noted above, the proponent will purchase an alternate offset site (to be agreed to by NSW OEH and be to the satisfaction of the Director-General).		
4. BIODIVERSITY & CONSERVATION OFFSET	4.2 Biodiversity Offset Strategy		Upon approval of the project, in consultation with the NSW OEH, the proponent will secure the offset lands via a Conservation Agreement under Part 4, Division 12 of the <i>National Parks and Wildlife Act 1974</i> ;	C	KEQ remain in consultation with DPIE and OEH over the long-term security of the Biodiversity Offset Areas at the time of audit (see Schedule 3, Condition 29 of PA 09_0175).
4. BIODIVERSITY & CONSERVATION OFFSET	4.2 Biodiversity Offset Strategy		A Conservation Management Plan will be developed. The plan will: i) Confirm required on ground works such as weed control, fencing, signage and pest control; ii) Confirm the timing / schedule of the abovementioned works; and iii) Specify restrictions to the existing two (2) residences of Lot 5 and Lot 14 (if purchase of Lot 5 is secured by the proponent). If an alternate offset site is provided instead of Lot 5 (as noted above) any restrictions on this land will be specified in the Conservation Management Plan.	C	Viewed the updated KEQ BOAMP (12/04/18) prepared by Kleinfelder.
4. BIODIVERSITY & CONSERVATION OFFSET	4.2 Biodiversity Offset Strategy		Monitoring of the offset land will be undertaken annually. Results of the monitoring will be used to provide input into the priority areas for the following year(s) of ground maintenance works.	C	Viewed the Kleinfelder 'Annual Monitoring Report, Karuah East Quarry Biodiversity Offset Area and Lot 12' and Firebird ecoSultants 'Tetratheca juncea monitoring report for the Karuah East Quarry Site'. These reports document annual surveys for threatened species and are discussed in the 2017, 2018 and 2019 Annual Reviews.
5.0 NOISE, BLASTING AND VIBRATION			Four (4) metre noise barriers will be included around stockpile and stacker locations to reduce noise emissions from mobile plant items in these areas;	NC	See Schedule 3, Condition 7 of PA 09_0175. Alternative noise mitigation controls were installed for the stockpile and stacker locations during the audit period, in consultation with EPA.
5.0 NOISE, BLASTING AND VIBRATION			Noise compliance monitoring will be undertaken in accordance with conditions of consent by a suitably qualified acoustic expert. The monitoring will consider the performance of the quarry in relation to the project specific noise, vibration and blast criteria established in the SLR Noise and Blasting Impact Assessment (dated 2 November 2012);	C	Viewed quarterly noise monitoring reports completed during the audit period and published on the KEQ website. Noise monitoring is undertaken generally in accordance

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
					with the consent.  See Schedule 3, Condition 7 of PA 09_0175.
5.0 NOISE, BLASTING AND VIBRATION			The proponent will not fire blasts at the existing quarry and the proposed Karuah East quarry at the same time;	C	JF (pers comm) confirmed that concurrent blasting was not undertaken during the audit period.
5.0 NOISE, BLASTING AND VIBRATION			The proponent will implement a blasting program where nearby receivers are notified in advance of a blast;	C	Section 6.3 of the KEQ BMP (15/09/15) states that notifications of blasting times can be provided to registered residences. Viewed examples of blast notification text messages sent to local residents by KEQ in January 2019.
5.0 NOISE, BLASTING AND VIBRATION			The following control measures for vibration will be undertaken: - Reducing the maximum instantaneous charge (MIC) by using delays, reduced hole diameter and/or deck loading; - Changing the burden and spacing by altering the drill pattern and/or delay layout or altering the hole inclination; - Use the minimum practicable sub drilling which gives satisfactory toe conditions; and - Investigate alternative rock breaking techniques.	C	Section 6 of the KEQ BMP (15/09/15) describes the management controls for site blasting.  No exceedances of blast impact criteria were recorded during the audit period (see Schedule 3, Condition 8 of PA 09_0175).
5.0 NOISE, BLASTING AND VIBRATION			The following control measures for air blasting will be undertaken: - Reducing the maximum instantaneous charge (MIC) by using delays, reduced hole diameter and/or deck loading; - Ensure stemming depth and type is adequate; - Eliminate exposed detonating cord and secondary blasting; - Restrict blasting events to favourable weather conditions; - Orient quarry faces away from potentially sensitive receivers; - Use a hole spacing and burden which will ensure that the explosive force is just sufficient to break the ore to the required size; and - The proponent will take particular care where the face is already broken and consider deck loading where appropriate to avoid broken ground or cavities in the face.	C	Section 6 of the KEQ BMP (15/09/15) describes the management controls for site blasting.  No exceedances of blast impact criteria were recorded during the audit period (see Schedule 3, Condition 8 of PA 09_0175).
6.0 TRANSPORT			Karuah East Quarry Pty Ltd will undertake the following road works as part of the proposed development: - Upgrade and extend Blue Rock Lane;	C	These road works were completed during the audit period and were observed during the site inspection.

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
			- Realign Andesite Drive and Blue Rock Lane intersection; and - Adjust road marking at Branch Lane and Andesite Road intersection. - The works will be undertaken in accordance with the upgrade plans prepared by GCA numbered C00-C27. Road construction and drainage works will comply with Great Lakes Council and NSW RMS standards.		
7.0 AIR QUALITY & GREENHOUSE GAS EMISSION	7.1 Air Quality		The following will be undertaken:		
7.0 AIR QUALITY & GREENHOUSE GAS EMISSION	7.1 Air Quality		Air quality monitoring will be undertaken in accordance with conditions of consent by a suitably qualified air quality expert. The monitoring will consider the performance of the quarry in relation to the criteria outlined in the SLR Air Quality Impact Assessment (dated July 2013);	C	Viewed monthly environmental monitoring reports available on the KEQ website and summarised in the audit period Annual Reviews. See Schedule 3, Condition 13 of PA 09_0175.
7.0 AIR QUALITY & GREENHOUSE GAS EMISSION	7.1 Air Quality		Haul Roads from the site to the Pacific Highway will be sealed;	C	Confirmed during the site inspection (see <b>Plate 17</b> ).
7.0 AIR QUALITY & GREENHOUSE GAS EMISSION	7.1 Air Quality		Watering of any unsealed roads – Level 1 Watering at 2L/m2/hour;	C	Water carts were operating and roads were found to be well managed to minimise dust during the site inspection (see <b>Plate 3</b> ).
7.0 AIR QUALITY & GREENHOUSE GAS EMISSION	7.1 Air Quality		The crusher will be enclosed; and	C	Confirmed during the site inspection (see <b>Plate 18</b> ).
7.0 AIR QUALITY & GREENHOUSE GAS EMISSION	7.1 Air Quality		Stockpiles will be subject to both water spraying and wind breaks will be installed.	C	Confirmed during the site inspection (see <b>Plate 4</b> ).
7.0 AIR QUALITY & GREENHOUSE GAS EMISSION	7.2 Greenhouse Gas		The following practices will be adopted to assist in the reduction of Greenhouse Gas emissions from operations at the project site:		Greenhouse gas minimisation measures described in the KEQ AQGGMP are consistent with SoCs 7.2.
7.0 AIR QUALITY & GREENHOUSE GAS EMISSION	7.2 Greenhouse Gas		<u>Relating to diesel / petroleum consumption:</u>		



Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
7.0 AIR QUALITY & GREENHOUSE GAS EMISSION	7.2 Greenhouse Gas		Emissions from construction / transport vehicles and on site machinery will comply with the relevant Australian Standards;	C	JF (pers comm) confirmed that KEQ equipment is regularly maintained.  Viewed examples from the KEQ Machinery Maintenance Register, including for 345D Excavator maintenance work completed during April and May 2020.
7.0 AIR QUALITY & GREENHOUSE GAS EMISSION	7.2 Greenhouse Gas		All vehicles and machinery will be regularly maintained to ensure proper and efficient working order and therefore minimise emissions;	C	See SoC 7.2 above.
7.0 AIR QUALITY & GREENHOUSE GAS EMISSION	7.2 Greenhouse Gas		Optimum vehicle / equipment tire pressures will be maintained;	C	See SoC 7.2 above.
7.0 AIR QUALITY & GREENHOUSE GAS EMISSION	7.2 Greenhouse Gas		Vehicle idling time will be reduced where possible;	C	See SoC 7.2 above.
7.0 AIR QUALITY & GREENHOUSE GAS EMISSION	7.2 Greenhouse Gas		The finished site topography will ensure that no excessive engine use is required; and	C	Access roads and haul roads on site viewed during the site inspection are constructed generally on alignments approved in the EA (2013).
7.0 AIR QUALITY & GREENHOUSE GAS EMISSION	7.2 Greenhouse Gas		Optimisation of incline / decline of roads within the construction area on the project site will be considered to reduce transport distances for vehicles entering / exiting the project site.	C	Roads accessing the site are constructed generally on alignments in the EA (2013).
7.0 AIR QUALITY & GREENHOUSE GAS EMISSION	7.2 Greenhouse Gas		Relating to electricity consumption: - Use of efficient construction equipment technology; - Use of efficient crushing and processing plant technology; and - Continued monitoring of site electricity usage and review of techniques to reduce usage (if possible).	C	See SoC 7.2 above.
8.0 HERITAGE	8.1 Aboriginal Archaeology		If Aboriginal site/s are identified in the study area during works, then all activity in the area will cease, the area cordoned off and contact made with the Office of Environment and Heritage Enviroline 131 555, a suitably qualified archaeologist and the relevant Aboriginal stakeholders, so that it can be adequately assessed and managed; and	C	Procedures for the management of previously unidentified Aboriginal sites or skeletal remains are described in Section 5.1 and 5.3 of the KEQ Heritage Management Plan (see Schedule 3, Condition 36 of PA 09_0175).

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
8.0 HERITAGE	8.1 Aboriginal Archaeology		In the event that skeletal remains are uncovered, work will cease immediately in the vicinity and the site fenced. The proponent will need to contact the NSW Police Coroner to determine if the material is of Aboriginal origin. If determined to be Aboriginal, contact will be made with the OEH Enviroline 131 555 and relevant Aboriginal stakeholders in order to determine an action plan for the management of the skeletal remains prior to works re-commencing on site.	C	
8.0 HERITAGE	8.2 European Heritage		If, during the course of development works, significant European cultural heritage material is uncovered, work will cease in that area immediately. The OEH will be notified and works only recommenced when an appropriate and approved management strategy has been instigated.	C	Procedures for the management of previously unidentified European cultural heritage material is described in Section 5.2 of the KEQ Heritage Management Plan (see Schedule 3, Condition 36 of PA 09_0175).
9.0 VISUAL			Trees will be planted as soon as practical on the initial benches on the western face of the quarry; and	NT	Extraction of the initial benches on the western face of the quarry was being undertaken at the time of audit.
9.0 VISUAL			The proposed infrastructure area will be painted in an appropriate colour to blend in with the natural surroundings.	C	Verified during the site inspection.
10.0 ENVIRONMENTAL MANAGEMENT STRATEGY			The Environmental Management Strategy dated August 2011 developed by GSS Environmental for the Karuah East Quarry will be adopted & implemented in full by Karuah East Pty Ltd.	C	See Schedule 5, Condition 1 of PA 09_0175.
11.0 QUARRY CLOSURE & REHABILITATION			The Quarry Closure & Rehabilitation Plan dated November 2012 prepared by GSS Environmental for the Karuah East Quarry will be adopted and implemented in full by the proponent for the Karuah East Hard Rock Quarry (Appendix H of the EA Report dated 31 January 2013).	C	Management procedures for site rehabilitation are detailed in the KEQ LRMP (see Schedule 3, Condition 32 of PA 09_0175).
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan		Until such time that extraction has ceased, rehabilitation will occur around the perimeter of the pit only along the benches and will not involve the pit floor. As the extraction progresses through the resource, 15m wide benches will be left every 15m of depth to provide a horizontal platform on which native flora species will be established. The revegetation program will re-establish native tree / shrub / ground cover and will stabilise reshaped and benched areas. Benches will be deep ripped to actively promote infiltration of water which will enhance soil moisture requirements for direct tree seeding and minimise surface runoff to underlying benches and the pit floor dirty water control	NT	No rehabilitation was undertaken during the audit period.

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
			system. On completion of quarry operations, the pit floor will be re-shaped and revegetated with wetland plant species to form a free draining wetland environment.		
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan	Topsoil Management	Topsoil stripping within the disturbed area will be undertaken when the soil is in a slightly moist condition to reducing damage to soil structure. Stripped material will be placed directly onto the disturbed areas and spread immediately if excavation sequences, equipment scheduling and weather conditions permit.	NC	Records were not available to confirm topsoil stripped during the audit period was in optimum condition for stripping.
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan	Topsoil Management	A maximum stockpile height of 3m will be maintained to preserve viability and reduce soil deterioration.	C	Topsoil stockpiles generally less than 3m in height.
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan	Topsoil Management	Stockpiles will be protected with sediment fencing and planted with a sterile cover crop (annual species) to ensure stabilisation. Surface drainage in the vicinity of the stockpiles will be configured so as to direct any runoff around the stockpile.	C	Topsoil stockpiles were generally protected with erosion and sediment controls and cover crop development was evident.
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan	Topsoil Management	Where the stockpile is not wholly contained within the "closed loop" water management system, temporary sediment control measures such as sand bags and silt fences will be used to prevent sediment from leaving the disturbed areas.		
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan	Topsoil Management	Topsoil will be re-spread in the reverse sequence to its removal, so that the organic layer, containing any seed or vegetation, is returned to the surface. Topsoil will be spread to a minimum depth of 50mm on 3:1 or steeper slopes and to a minimum depth of 150mm on flatter slopes.	NT	No rehabilitation was undertaken during the audit period.
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan	Topsoil Management	Re-spread topsoil will be levelled to achieve an even surface, avoiding a compacted or an over-smooth finish.	NT	
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan	Surface Preparation	Thorough site preparation will be undertaken to ensure rapid establishment and growth of seedlings. All areas proposed for seeding will be deep ripped to an approximate depth of 400 – 500mm.	NT	
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan	Surface Preparation	Where ripping on slopes is required, the ripping will be undertaken around the contour of the land at right angles to water flow	NT	

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan	Direct Seeding	A mixture of native trees and shrubs endemic to the area will be sown onto the majority of the reshaped and benched pit areas following topdressing and site preparation.	NT	
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan	Direct Seeding	The seed will be sourced from reputable seed supply agents. Native seed for revegetation of the quarry will be appropriately pre-treated in order to break dormancy restrictions.	NT	
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan	Direct Seeding	The native tree and shrub seed mix will be sown at a total combined rate of approximately 6.3 kg/ha. Seed will be broadcast evenly onto topdressed areas. Seeding will be conducted in late spring, summer and early autumn.	NT	
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan	Direct Seeding	Exotic pasture species (warm season perennial, cool season perennial, year long green perennial and annual) will be sown where the risk of erosion is less and on the more protected aspects of landforms.	NT	
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan	Direct Seeding	All legumes will be inoculated and lime pelleted prior to seeding. Oats and/or ryecorn/millet (depending on season) will be utilised as the cover crop species.	NT	
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan	Direct Seeding	Revegetation activities will generally be undertaken in spring and autumn; however opportunistic revegetation will be undertaken if areas become available for sowing in summer or winter. After surface soil amelioration and tillage is completed for any given area, revegetation will commence as soon as practicable. The proposed method of sowing will be via conventional spreading using agricultural broadcasting equipment, or by hand if the terrain is difficult and machinery use is not possible.	NT	
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan	Direct Seeding	Slope stabilising techniques such as hydro seeding and straw mulching will be undertaken on slopes exceeding 180 for enhancement of pasture germination.	NT	
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation	Fencing and Weed Control	Fencing (or a similar barrier) will be erected and maintained to exclude and prohibit the movement of persons and vehicles into areas that have been rehabilitated. The fencing will be routinely checked and repaired	NT	

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
	Management Plan		where necessary. Signs will be placed in prominent locations to indicate areas that are undergoing rehabilitation.		
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan	Fencing and Weed Control	Weed control will be undertaken on an "as required" basis should cyclical weed invasion events occur.	NT	
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan	Rehabilitation Maintenance	All erosion and sediment control measures will be maintained in a functioning condition until individual areas have been deemed "successfully" rehabilitated. Structural soil conservation works will be inspected after high intensity rainfall so that de-silting and prompt repairs and/or replacement of damaged works can be initiated as required.	NT	
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan	Rehabilitation Monitoring	Regular monitoring of the revegetated areas will be undertaken during the initial vegetation establishment period and beyond. The table below presents the monitoring program, including the specific aspects and elements to be monitored and frequencies for those various aspects.  <b>(Refer to Table 5 - Proposed Rehabilitation Monitoring Program within the Statement of Commitments)</b>	NT	
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan	Rehabilitation Monitoring	Monitoring will be conducted periodically by independent, suitably qualified persons at locations which will be representative of the range of conditions on the rehabilitating areas. Annual reviews will be conducted of monitoring data to assess trends and monitoring program effectiveness. The outcome of these reviews will be included in each Annual Environmental Management Report (AEMR).	NT	
11.0 QUARRY CLOSURE & REHABILITATION	11.1 Rehabilitation Management Plan	Rehabilitation Monitoring	In addition to the rehabilitated areas, at least two reference sites will be monitored to allow a comparison of the development and success of the rehabilitation against a control. Reference sites indicate the condition of surrounding un-disturbed areas.	NT	
11.0 QUARRY CLOSURE & REHABILITATION	11.2 Final Void Management	Void Water Quality	Water will only be permitted to accumulate in the void if it maintains a quality that does not compromise its intended final use or surrounding groundwater systems. The following aspects will be considered with respect to managing final void water quality: i) Concentration of elements resulting from the quarrying of material; ii) Control of surface flow into the void; and iii) Rainfall and evaporation. Post closure a water	NT	Site is in the operational phase; no final void.

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
			monitoring program will remain in place to monitor any changes to chemistry within the void.		
11.0 QUARRY CLOSURE & REHABILITATION	11.2 Final Void Management	Void Slope Stability	<p>The surrounding final slopes will be left in a condition where the risk of slope failure is minimised. This may require the benches to be battered back from the vertical to enable a stable overall slope angle. The following will be considered when assessing the geotechnical stability of highwalls:</p> <ul style="list-style-type: none"> <li>i) Long term final void water levels;</li> <li>ii) Height and inclination of slope and number and spacing of intermediate benches;</li> <li>iii) Shear strength of the highwall soils and rocks;</li> <li>iv) Density and orientation of fractures, faults, bedding planes, and any other discontinuities, and the strength along them; and</li> <li>v) The effects of the external factors, such as surface runoff.</li> </ul> <p>Prior to closure, investigations will be undertaken to confirm the criteria above.</p>	NT	
11.0 QUARRY CLOSURE & REHABILITATION	11.2 Final Void Management	Control of Surface Inflow	Drainage will be directed away from the highwall face through the construction of interceptor channels around the perimeter of the highwall and spoon drains will be utilised on the upslope side of all benches.	NT	
11.0 QUARRY CLOSURE & REHABILITATION	11.2 Final Void Management	Control of Surface Inflow	The catchment area of the final void will be minimised by the installation of diversion drains.	NT	
11.0 QUARRY CLOSURE & REHABILITATION	11.2 Final Void Management	Safety	The following will be considered at the time of closure to ensure that the void is left in a safe manner.		
11.0 QUARRY CLOSURE & REHABILITATION	11.2 Final Void Management	Safety	All high wall to be left geotechnically stable;		
11.0 QUARRY CLOSURE & REHABILITATION	11.2 Final Void Management	Safety	A barrier at a safe distance from the perimeter of the void to prevent human access will be constructed. The highwall areas will be secured by the construction of a trench and a safety berm, as well as a security fence along the entire length of the remaining high wall;		

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
11.0 QUARRY CLOSURE & REHABILITATION	11.2 Final Void Management	Safety	Suitable signs, clearly stating the risk to public safety and prohibiting public access will be erected at 50m intervals outside the safety fence;		
11.0 QUARRY CLOSURE & REHABILITATION	11.2 Final Void Management	Safety	Surface runoff from land surrounding the void will be diverted from entering the void; and		
11.0 QUARRY CLOSURE & REHABILITATION	11.2 Final Void Management	Safety	Shrub and/or tree planting along the outside edge of the bund wall will be implemented where practicable to lessen the visual impact of the wall, and will be in accordance with the agreed post mining rehabilitation criteria and land use.		
11.0 QUARRY CLOSURE & REHABILITATION	11.2 Final Void Management	Monitoring and Management	After decommissioning works have been undertaken, whether progressive or final, a monitoring program will be designed to demonstrate that the completion criteria have been met and that the site is not resulting in any off site effects.		
11.0 QUARRY CLOSURE & REHABILITATION	11.2 Final Void Management	Closure Liability	In accordance with the Department of Trade and Investment Regional Infrastructure and Services ESG1 – Rehabilitation Cost Estimate Guidelines, the closure liability for the Karuah East Quarry is <b>\$468,134</b> .	NC	<b>A copy of the KEQ rehabilitation bond was not available for review at the time of audit.</b>  JF provided correspondence dated 09/09/20 which indicated that this was under review.
12.0 WASTE MANAGEMENT	General		<i>All waste or recyclable material will be handled as follows:</i>		
12.0 WASTE MANAGEMENT	During Construction	Material Type	<b>Excavation Material &amp; Green Waste</b> - Will be stockpiled on site in accordance with the quarry rehabilitation plan.	C	No evidence of residual construction materials or other waste was observed during the audit site inspection.
12.0 WASTE MANAGEMENT	During Construction	Material Type	<b>Bricks</b> – Any remaining bricks will be removed from the site by a suitably qualified contractor and transported to a local crushing and recycling company.	C	
12.0 WASTE MANAGEMENT	During Construction	Material Type	<b>Concrete</b> - Any remaining concrete will be removed from the site by a suitably qualified contractor and transported to a crushing and recycling company.	C	
12.0 WASTE MANAGEMENT	During Construction	Material Type	<b>Timber</b> – Any excess timber will be removed from the site by a suitably qualified contractor and transported to a landscaping supply company for chipping and composting.	C	

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
12.0 WASTE MANAGEMENT	During Construction	Material Type	<b>Plasterboard</b> – Any excess plasterboard will be removed from the site by a suitably qualified contractor and taken to landscape supply company.	C	
12.0 WASTE MANAGEMENT	During Construction	Material Type	<b>Metals</b> – Any excess metal will be removed from the site by a suitably qualified contractor and transported to a metal recycling facility.	C	
12.0 WASTE MANAGEMENT	During Construction	Material Type	<b>Other</b> – Any other materials not noted above will be removed from the site by a suitably qualified contractor and transported to an appropriate facility.	C	
12.0 WASTE MANAGEMENT	During Operation	Quarry Activity	<b>Excavation Material &amp; Green Waste</b> - Will be stockpiled on site in accordance with the quarry rehabilitation plan.	C	Stockpiling of excavation material and timber salvaged during site operations was observed during the site inspection.
12.0 WASTE MANAGEMENT	During Operation	Quarry Activity	<b>Bricks</b> – Any remaining bricks will be removed from the site by a suitably qualified contractor and transported to a local crushing and recycling company.	C	General waste management, environmental performance and improvements for waste generation were reported in Section 6.7 of the audit period Annual Reviews. This confirms that KEQ uses a licenced contractor for waste removal.  Labelled and segregated waste bins were seen to be in place during the audit site inspection and there was a good standard of housekeeping across the site infrastructure areas, with no stockpiles of waste materials.
12.0 WASTE MANAGEMENT	During Operation	Quarry Activity	<b>Concrete</b> - Any remaining concrete will be removed from the site by a suitably qualified contractor and transported to a crushing and recycling company.	C	
12.0 WASTE MANAGEMENT	During Operation	Quarry Activity	<b>Timber</b> – Any excess timber will be removed from the site by a suitably qualified contractor and transported to a landscaping supply company for chipping and composting.	C	
12.0 WASTE MANAGEMENT	During Operation	Quarry Activity	<b>Metals</b> – Any excess metal will be removed from the site by a suitably qualified contractor and transported to a metal recycling facility.	C	



Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
12.0 WASTE MANAGEMENT	During Operation	Quarry Activity	<b>Other</b> – Any other materials not noted above will be removed from the site by a suitably qualified contractor and transported to an appropriate facility.	C	
12.0 WASTE MANAGEMENT	During Operation		<b><u>General Waste &amp; Recyclables from Staff within the Plant Area</u></b>		
12.0 WASTE MANAGEMENT	During Operation		<b><u>Recyclables</u></b>		
12.0 WASTE MANAGEMENT	During Operation		<b>Paper, cardboard, glass, aluminium &amp; plastic</b>		
12.0 WASTE MANAGEMENT	During Operation		Temporary recycle bins will be provided within staff areas of the plant. Management will ensure bins are regularly collected and transported to an appropriate recycling facility.	C	Labelled and segregated waste bins were seen to be in place during the audit site inspection and there was a good standard of housekeeping across the site infrastructure areas.
12.0 WASTE MANAGEMENT	Quarry Closure	General	Waste and recyclable material associated with the quarry closure and decommissioning will be undertaken in accordance with the Quarry Closure and Rehabilitation Plan. This will include:	NT	Site is in the operational phase.
12.0 WASTE MANAGEMENT	Quarry Closure	Site Services	All services including power, water, data and telephone on the site will be isolated, disconnected and terminated to make them safe. All underground services will be made safe and left buried in the ground. Overhead power lines (where they are not used by others) will be removed and the materials (i.e. poles and wire) recovered for potential re-sale or recycling as applicable.	NT	
12.0 WASTE MANAGEMENT	Quarry Closure	Infrastructure and Buildings	All sumps will be de-watered and de-silted prior to the commencement of demolition. In addition all items of equipment will be de-oiled, degassed, depressurised and isolated and any hazardous materials (HAZMATs) removed from the site;	NT	
12.0 WASTE MANAGEMENT	Quarry Closure	Infrastructure and Buildings	All infrastructure, including the office buildings, workshops, parking areas, crushing plant, wash plant and product storage areas will be demolished and removed from the site. Where possible assets may be reused or sold to other operations. Otherwise they will be removed from the site by a suitably qualified contractor and transported to an appropriate recycling facility;	NT	
12.0 WASTE MANAGEMENT	Quarry Closure	Infrastructure and Buildings	The remaining items will be demolished, removed and transported from the site as required. All recoverable scrap steel will be sold and recycled, with the remaining non-recyclable wastes being taken to a	NT	

Commitment Aspect	Commitment Sub-aspect (i)	Commitment Sub-aspect (ii)	Commitment Description	Status	Comments
			licenced landfill. Prior to disposal, all wastes will be assessed and classified in accordance with Waste Classification Guidelines (DECC, 2008); and		
12.0 WASTE MANAGEMENT	Quarry Closure	Infrastructure and Buildings	All concrete footings and pads will be broken up to at least 1.5m below the surface. The waste concrete will be crushed to produce an aggregate that can either be used on the site or sold for some other beneficial use.	NT	
12.0 WASTE MANAGEMENT	Quarry Closure	Roadways, Car Parks and Hardstand	The roadways, car parks, and hardstand areas around the processing and administration areas will be ripped up. All areas will be reshaped, deep ripped, topsoiled and seeded in accordance with the rehabilitation plan.	NT	
12.0 WASTE MANAGEMENT	Quarry Closure	Fuel Farm and Lubricant Storage Area	Leading up to closure, a preliminary sampling and analysis programme (Phase 1) will be implemented to determine whether a more detailed assessment (Phase 2 – detailed investigation of contamination involving drilling, etc) should be conducted.	NT	
13.0 HAZARDOUS MATERIALS / DANGEROUS GOODS			All fuel storage and storage of any required chemicals will be within the specified bunded area of the infrastructure plant. Material Safety Data Sheets will be recorded in the site safety system for all chemicals used on site. This will contain information on the environmental impacts for the use of certain chemicals and include detail on emergency response, clean up and disposal should a highly unlikely event of a spill occur.	C	All hydrocarbon storage cells & fill points viewed during the site inspections were sited appropriately (see <b>Plate 16</b> ).  JF (pers comm) confirmed that Safety Data Sheets records are retained and available on site. Examples of SDS located around the site were reviewed during the audit site inspection.
14.0 UTILITIES			The proposed development will comply with the requirements of the relevant utility authorities and evidence of the necessary approvals will be provided to the NSW DoPI prior to construction works.	C	Reviewed during the previous IEA.
15.0 OUTDOOR LIGHTING			All outdoor lighting associated with the proposed development will be designed to comply with the requirements of AS 4282, <i>Control of Obtrusive Effects of Outdoor Lighting</i> .	C	GD (pers comm) noted that no lighting on site warrants certification to AS 4282, with lighting connected to generators which are turned off outside operating hours.

**Table B3**  
**EPL 20611 Conditions**

Schedule	Condition	Condition Number	Condition Description	Status	2020 Evidence									
1	Administrative Conditions - What the licence authorises and regulates	A1.1	This licence authorises the carrying out of the scheduled development work listed below at the premises listed in A2: Works necessary to commence quarry operations (eg stormwater controls, development of roads).	C	Reviewed KEQ Annual Reviews prepared during the audit period.  JF (pers comm) confirmed that no activities in additional to those approved for the premises had been undertaken in 2020.									
1	Administrative Conditions - What the licence authorises and regulates	A1.2	<div><p>This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.</p><p>Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.</p><table><tr><th>Scheduled Activity</th><th>Fee Based Activity</th><th>Scale</th></tr><tr><td>Crushing, Grinding or Separating</td><td>Crushing, grinding or separating</td><td>&gt; 500000 - 2000000 T processed</td></tr><tr><td>Extractive Activities</td><td>Land-based extractive activity</td><td>&gt; 500000 - 2000000 T extracted, processed or stored</td></tr></table></div>	Scheduled Activity	Fee Based Activity	Scale	Crushing, Grinding or Separating	Crushing, grinding or separating	> 500000 - 2000000 T processed	Extractive Activities	Land-based extractive activity	> 500000 - 2000000 T extracted, processed or stored	C	<p>The use of soil and overburden material from Karuah East Quarry (KEQ) to assist with the final rehabilitation of the adjacent Karuah Quarry site is described in Section 9.3 of the Landscape and Rehabilitation Management Plan (LRMP) approved by DPIE on 01/06/20 (see Schedule 3, Condition 32).</p> <p><b>It is recommended that KEQPL consult with EPA over this and confirm whether an associated variation to EPL 20611 is required.</b></p>
Scheduled Activity	Fee Based Activity	Scale												
Crushing, Grinding or Separating	Crushing, grinding or separating	> 500000 - 2000000 T processed												
Extractive Activities	Land-based extractive activity	> 500000 - 2000000 T extracted, processed or stored												
1	Administrative Conditions - What the licence authorises and regulates	A1.3	<div><p>separating authorised under this licence must not exceed 1.5 million tonnes of quarry products per annum, being the amount equivalent to the extraction limit approved by the project approval MP 09_0175 granted under the Environmental Planning and Assessment Act 1979 for the premises specified in A2.</p></div>	C	See Condition A1.2 above.									
1	Administrative Conditions - Premises or plant to which this licence applies	A2.1	<div><p>The licence applies to the following premises:</p><table><tr><th>Premises Details</th></tr><tr><td>KARUAH EAST QUARRY</td></tr><tr><td>PACIFIC HIGHWAY</td></tr><tr><td>KARUAH</td></tr><tr><td>NSW 2324</td></tr><tr><td>LOT 26 DP 1024341, LOT 27 DP 1024341, LOT 12 DP 1024564, LOT 13 DP 1024564, LOT 16 DP 1024564, LOT 17 DP 1024564, LOT 202 DP 1042537</td></tr></table></div>	Premises Details	KARUAH EAST QUARRY	PACIFIC HIGHWAY	KARUAH	NSW 2324	LOT 26 DP 1024341, LOT 27 DP 1024341, LOT 12 DP 1024564, LOT 13 DP 1024564, LOT 16 DP 1024564, LOT 17 DP 1024564, LOT 202 DP 1042537	C	Approved premises are consistent with current operations.			
Premises Details														
KARUAH EAST QUARRY														
PACIFIC HIGHWAY														
KARUAH														
NSW 2324														
LOT 26 DP 1024341, LOT 27 DP 1024341, LOT 12 DP 1024564, LOT 13 DP 1024564, LOT 16 DP 1024564, LOT 17 DP 1024564, LOT 202 DP 1042537														

Schedule	Condition	Condition Number	Condition Description	Status	2020 Evidence																												
1	Administrative Conditions - Information supplied to the EPA	A3.1	<p>Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence. In this condition the reference to "the licence application" includes a reference to:</p> <p>a) the applications for any licences (including former pollution control approvals) which this licence replaces under the <i>Protection of the Environment Operations (Savings and Transitional) Regulation 1998</i>; and</p> <p>b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.</p> <p>Any other document and/or management plan is not to be taken as part of the documentation in condition A4.1, other than those documents and/or management plans specifically referenced in this licence.</p>	N/A	Note only.																												
2	Discharges to Air and Water and Applications to Land - Location of Monitoring/Discharge Points and Areas	P1.1	<table><tr><th>EPA identification no.</th><th>Type of Monitoring Point</th><th>Type of Discharge Point</th><th>Location Description</th></tr><tr><td>4</td><td>Air emissions monitoring</td><td></td><td>Adjacent to Residence C at 5760 Pacific Highway, Karuah, referred to as DDG1 on Figure 2 "Sensitive Receivers &amp; Air Quality Monitoring Locations" in draft Karuah East Quarry Project Air Quality Plan", July 2015. Located within EPA document DOC15/281558.</td></tr><tr><td>5</td><td>Air emissions monitoring</td><td></td><td>Adjacent to Residence B at 5770 Pacific Hwy, Karuah, referred to as DDG2 on Figure 2 titled "Sensitive Receivers &amp; Air Quality Monitoring Locations" in draft Karuah East Quarry Project Air Quality Plan", July 2015. Located within EPA document DOC15/281558.</td></tr><tr><td>6</td><td>Air emissions monitoring</td><td></td><td>Located Lot 24 DP 1024341 Pacific Karuah, referred to as DDG3 on Figure 2 titled "Sensitive Receivers and Air Quality Monitoring Locations" in draft Karuah East Quarry Project Air Quality Plan", July 2015. Located within EPA document DOC15/281558.</td></tr><tr><td>7</td><td>Air emissions monitoring</td><td></td><td>Located at 21 Halloran Road, North Arm Cove, referred to as DDG4 on Figure 2 titled "Sensitive Receivers and Air Quality Monitoring Locations" in draft Karuah East Quarry Project Air Quality Plan", July 2015. Located within EPA document DOC15/281558.</td></tr><tr><td>8</td><td>Air emissions monitoring</td><td></td><td>Located at front gate to Lot11 DP1024564 Pacific Hwy, Karuah, referred to as DDG5 on Fig 2 "Sensitive Receivers &amp; Air Quality Monitoring Locations" in draft Karuah East Quarry Project Air Quality Plan", July 2015. Located within EPA document DOC15/281558.</td></tr><tr><td>9</td><td>Air emissions monitoring</td><td></td><td>Near Residence A located at 5772 Pacific Hwy, Karuah, referred to as HVAS on Fig 2 "Sensitive</td></tr></table>	EPA identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description	4	Air emissions monitoring		Adjacent to Residence C at 5760 Pacific Highway, Karuah, referred to as DDG1 on Figure 2 "Sensitive Receivers & Air Quality Monitoring Locations" in draft Karuah East Quarry Project Air Quality Plan", July 2015. Located within EPA document DOC15/281558.	5	Air emissions monitoring		Adjacent to Residence B at 5770 Pacific Hwy, Karuah, referred to as DDG2 on Figure 2 titled "Sensitive Receivers & Air Quality Monitoring Locations" in draft Karuah East Quarry Project Air Quality Plan", July 2015. Located within EPA document DOC15/281558.	6	Air emissions monitoring		Located Lot 24 DP 1024341 Pacific Karuah, referred to as DDG3 on Figure 2 titled "Sensitive Receivers and Air Quality Monitoring Locations" in draft Karuah East Quarry Project Air Quality Plan", July 2015. Located within EPA document DOC15/281558.	7	Air emissions monitoring		Located at 21 Halloran Road, North Arm Cove, referred to as DDG4 on Figure 2 titled "Sensitive Receivers and Air Quality Monitoring Locations" in draft Karuah East Quarry Project Air Quality Plan", July 2015. Located within EPA document DOC15/281558.	8	Air emissions monitoring		Located at front gate to Lot11 DP1024564 Pacific Hwy, Karuah, referred to as DDG5 on Fig 2 "Sensitive Receivers & Air Quality Monitoring Locations" in draft Karuah East Quarry Project Air Quality Plan", July 2015. Located within EPA document DOC15/281558.	9	Air emissions monitoring		Near Residence A located at 5772 Pacific Hwy, Karuah, referred to as HVAS on Fig 2 "Sensitive	C	The monitoring locations identified under this condition are included on the EPL 201611 premises map and on figures in the KEQ Annual Review documents for the audit period.
EPA identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description																														
4	Air emissions monitoring		Adjacent to Residence C at 5760 Pacific Highway, Karuah, referred to as DDG1 on Figure 2 "Sensitive Receivers & Air Quality Monitoring Locations" in draft Karuah East Quarry Project Air Quality Plan", July 2015. Located within EPA document DOC15/281558.																														
5	Air emissions monitoring		Adjacent to Residence B at 5770 Pacific Hwy, Karuah, referred to as DDG2 on Figure 2 titled "Sensitive Receivers & Air Quality Monitoring Locations" in draft Karuah East Quarry Project Air Quality Plan", July 2015. Located within EPA document DOC15/281558.																														
6	Air emissions monitoring		Located Lot 24 DP 1024341 Pacific Karuah, referred to as DDG3 on Figure 2 titled "Sensitive Receivers and Air Quality Monitoring Locations" in draft Karuah East Quarry Project Air Quality Plan", July 2015. Located within EPA document DOC15/281558.																														
7	Air emissions monitoring		Located at 21 Halloran Road, North Arm Cove, referred to as DDG4 on Figure 2 titled "Sensitive Receivers and Air Quality Monitoring Locations" in draft Karuah East Quarry Project Air Quality Plan", July 2015. Located within EPA document DOC15/281558.																														
8	Air emissions monitoring		Located at front gate to Lot11 DP1024564 Pacific Hwy, Karuah, referred to as DDG5 on Fig 2 "Sensitive Receivers & Air Quality Monitoring Locations" in draft Karuah East Quarry Project Air Quality Plan", July 2015. Located within EPA document DOC15/281558.																														
9	Air emissions monitoring		Near Residence A located at 5772 Pacific Hwy, Karuah, referred to as HVAS on Fig 2 "Sensitive																														

Ref: 201030 karuah east quarry iea report

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Schedule	Condition	Condition Number	Condition Description	Status	2020 Evidence																
2	Discharges to Air and Water and Applications to Land - Location of Monitoring/Discharge Points and Areas	P1.2	The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.	N/A	No utilisation areas specified under this condition.																
2	Discharges to Air and Water and Applications to Land - Location of Monitoring/Discharge Points and Areas	P1.3	<div>The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.</div> <table><tr><th>EPA Identification no.</th><th>Type of Monitoring Point</th><th>Type of Discharge Point</th><th>Location Description</th></tr><tr><td>1</td><td>Discharge to waters</td><td>Discharge to waters</td><td>The discharge point from Dam 1 as shown on the plan titled "Proposed Surface Water Management Plan - Figure 3", which is filed as part of EPA document DOC15/253402.</td></tr><tr><td>2</td><td>Discharge to waters</td><td>Discharge to waters</td><td>The discharge point from Dam 2 as shown on as shown on the plan titled "Proposed Surface Water Management Plan - Figure 3", which is filed as part of EPA document DOC15/253402.</td></tr><tr><td>3</td><td>Discharge to waters</td><td>Discharge to waters</td><td>The discharge from Dam 3 as shown on the plan titled "Proposed Surface Water Management Plan - Figure 3", which is filed as part of EPA document DOC15/253402.</td></tr></table>	EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description	1	Discharge to waters	Discharge to waters	The discharge point from Dam 1 as shown on the plan titled "Proposed Surface Water Management Plan - Figure 3", which is filed as part of EPA document DOC15/253402.	2	Discharge to waters	Discharge to waters	The discharge point from Dam 2 as shown on as shown on the plan titled "Proposed Surface Water Management Plan - Figure 3", which is filed as part of EPA document DOC15/253402.	3	Discharge to waters	Discharge to waters	The discharge from Dam 3 as shown on the plan titled "Proposed Surface Water Management Plan - Figure 3", which is filed as part of EPA document DOC15/253402.	C	Discharge monitoring has been conducted at the three licensed discharge points throughout the audit period (Section 7.6 of 2017 Annual Review, Section 7.3.3 of 2018 Annual Review and Section 7.3.3 of 2019 Annual Review). Monthly environmental monitoring reports published on the KEQ website indicate this monitoring has continued during 2020.
EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description																		
1	Discharge to waters	Discharge to waters	The discharge point from Dam 1 as shown on the plan titled "Proposed Surface Water Management Plan - Figure 3", which is filed as part of EPA document DOC15/253402.																		
2	Discharge to waters	Discharge to waters	The discharge point from Dam 2 as shown on as shown on the plan titled "Proposed Surface Water Management Plan - Figure 3", which is filed as part of EPA document DOC15/253402.																		
3	Discharge to waters	Discharge to waters	The discharge from Dam 3 as shown on the plan titled "Proposed Surface Water Management Plan - Figure 3", which is filed as part of EPA document DOC15/253402.																		

Ref: 201030 karuah east quarry iea report

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Schedule	Condition	Condition Number	Condition Description	Status	2020 Evidence									
2	Discharges to Air and Water and Applications to Land - Location of Monitoring/Discharge Points and Areas	P1.4	<div><p>The following points referred to in the table below are identified in this licence for the purposes of weather and/or noise monitoring and/or setting limits for the emission of noise from the premises.</p><table><tr><th colspan="3">NOISE</th></tr><tr><th>EPA identification no</th><th>Type of monitoring point</th><th>Location description</th></tr><tr><td>11</td><td>Air blast overpressure &amp; ground vibration peak particle velocity monitoring</td><td>Blast Monitor located adjacent to Residence B as identified in 'Figure 1 - Appendix 2 - Noise Receiver Locations' located in EPA document DOC15/253402</td></tr></table></div>	NOISE			EPA identification no	Type of monitoring point	Location description	11	Air blast overpressure & ground vibration peak particle velocity monitoring	Blast Monitor located adjacent to Residence B as identified in 'Figure 1 - Appendix 2 - Noise Receiver Locations' located in EPA document DOC15/253402	C	Figure 2 in the KEQ Blast Management Plan indicates the blast monitoring location adjacent to Residence B.
NOISE														
EPA identification no	Type of monitoring point	Location description												
11	Air blast overpressure & ground vibration peak particle velocity monitoring	Blast Monitor located adjacent to Residence B as identified in 'Figure 1 - Appendix 2 - Noise Receiver Locations' located in EPA document DOC15/253402												
3	Limit Conditions - Pollution of Waters	L1.1	Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the <i>Protection of the Environment Operations Act 1997</i> .	NC	<b>Some discharges during the audit period exceeded the concentration limits prescribed by Condition L2.4, thereby contravening Section 120 of the POEO Act (see Condition L2.1 below).</b>									
3	Limit Conditions - Concentration Limits	L2.1	For each monitoring/discharge point or utilisation area specified in the table/s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.	NC	<b>The following discharges in 2017 exceeded the concentration limits:</b> - Uncontrolled discharge from LDP003 from 7 March to 11 March 2017 that exceeded the concentration limits for TSS, pH and oil/grease (Section 7.6 of 2017 Annual Review); - Uncontrolled discharges from LDP001 and LDP003 that exceeded the concentration limits for TSS, pH and oil/grease were exceeded (Section 7.6 of the 2017 Annual Review); and - Uncontrolled discharge from Dam 2 (LDP002) from 10 November to 11 November that exceeded the EPL concentration limit for pH (Section 7.6 of 2017 Annual Review).  <b>The following discharges in 2018 exceeded the</b>									

Schedule	Condition	Condition Number	Condition Description	Status	2020 Evidence
					<b>concentration limits:</b> - Uncontrolled discharges from LDP001 on 22 March, 14 May and 5 June that exceeded the EPL concentration limit for pH (Section 7.6 of 2018 Annual Review); - Uncontrolled discharges from LDP001 between 8 to 11 October that exceeded the EPL concentration limit for TSS (Section 7.3.3 of 2018 Annual Review); and - Uncontrolled discharge from LDP002 on 22 March that exceeded the EPL concentration limit for pH (Section 7.3.3 of 2018 Annual Review); and - Controlled discharges from LDP002 on 8 May and 16 May that exceeded the EPL concentration limit for pH (Section 7.3.3 of 2018 Annual Review).
					<b>The following discharges in 2019 exceeded the concentration limits:</b> - Controlled discharge from LDP002 on 21 May that exceeded the concentration limit for TSS (Section 7.3.3 of 2019 Annual Review); - Uncontrolled discharges from LDP001 and LDP003 between 24 to 27 June that exceeded the concentration limit for TSS (Section 7.3.3 of 2019 Annual Review); and - Uncontrolled discharge from LDP002 on 24 June that exceeded the concentration limit for TSS (Section 7.3.3 of 2019 Annual Review). KEQ self-reported the June 2019 discharge exceedances to EPA on 26/06/19 and EPA provided an associated 'Show Cause Notice' on 27/06/19. KEQ provided a response to the Show Cause/notice on 02/08/19. EPA issued a Penalty Infringement Notice for the 24 June 2019 discharge and Formal Warning regarding the other discharge events of 24 - 27 June 2019 via letter dated 15/08/19.
3	Limit Conditions - Concentration Limits	L2.2	Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.	NC	Refer to evidence for Condition L2.1.
3	Limit Conditions - Concentration Limits	L2.3	To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table's.	NT	JF (pers comm) confirmed that KEQ did not discharge any water during the audit period other than via its licensed discharge points.

Schedule	Condition	Condition Number	Condition Description	Status	2020 Evidence																								
3	Limit Conditions - Concentration Limits	L2.4	Water and/or Land Concentration Limits  Point 1, 2, 3 <table><tr><th>Pollutant</th><th>Units of Measure</th><th>50 Percentile concentration limit</th><th>90 Percentile concentration limit</th><th>3DGM concentration limit</th><th>100 percentile concentration limit</th></tr><tr><td>Oil and Grease</td><td>milligrams per litre</td><td></td><td></td><td></td><td>5 and/or none visible</td></tr><tr><td>pH</td><td>pH</td><td></td><td></td><td></td><td>6.5 - 8.5</td></tr><tr><td>Total suspended solids</td><td>milligrams per litre</td><td></td><td></td><td></td><td>40</td></tr></table>	Pollutant	Units of Measure	50 Percentile concentration limit	90 Percentile concentration limit	3DGM concentration limit	100 percentile concentration limit	Oil and Grease	milligrams per litre				5 and/or none visible	pH	pH				6.5 - 8.5	Total suspended solids	milligrams per litre				40	C	Refer to evidence for Condition L2.1.
Pollutant	Units of Measure	50 Percentile concentration limit	90 Percentile concentration limit	3DGM concentration limit	100 percentile concentration limit																								
Oil and Grease	milligrams per litre				5 and/or none visible																								
pH	pH				6.5 - 8.5																								
Total suspended solids	milligrams per litre				40																								
3	Limit Conditions - Waste	L3.1	The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence.	C	JF (pers comm) noted that KEQ does not receive or dispose of any non-approved waste at the premises.  Labelled and segregated waste bins were seen to be in place during the audit site inspection and there was a good standard of housekeeping across the site infrastructure areas.																								
3	Limit Conditions - Noise Limits	L4.1	Noise generated at the premises must not exceed the noise limits in the table below. The locations referred to in the table below are indicated in Table 3 and Figure 10 of the document entitled Environmental Assessment Report - Proposed Karuah East Quarry (ADW Johnson Pty Limited 2013) which has been filed on EPA file LIC08/1088-03.  <table><tr><th>Location</th><th>Noise Limit dB(A)</th></tr><tr><td></td><td>Day LAeq (15 minute)</td></tr><tr><td>Residence A on Lot 100 DP 785172</td><td>40</td></tr><tr><td>Residence B on Lot 3 DP 785172</td><td>37</td></tr><tr><td>Residence G on Lot 1 DP 1032636</td><td>38</td></tr><tr><td>Any other residence or sensitive receiver not subject to a private negotiated agreement</td><td>35</td></tr><tr><td>Any approved residence on Lot 11 DP 1024564</td><td>43</td></tr></table>	Location	Noise Limit dB(A)		Day LAeq (15 minute)	Residence A on Lot 100 DP 785172	40	Residence B on Lot 3 DP 785172	37	Residence G on Lot 1 DP 1032636	38	Any other residence or sensitive receiver not subject to a private negotiated agreement	35	Any approved residence on Lot 11 DP 1024564	43	NC	Monthly environmental monitoring reports for the period May 2017 to April 2020 were reviewed. Quarterly noise surveys at Locations F and G were generally reported.  <b>Quarry noise levels exceeded the noise criteria on three occasions:</b> <b>14/02/2018 at Loc G: an estimated quarry noise level of 43 LAeq,15min exceeded the 38 LAeq,15min criterion.</b> <b>17/05/2018 at Loc G: an estimated quarry noise level of 46 LAeq,15min exceeded the 38 LAeq,15min criterion.</b> <b>14/08/2018 at Loc G: an estimated quarry noise level of 47 LAeq,15min exceeded the 38 LAeq,15min criterion.</b>  Section 8.3.1 of the NMP (approved by DPIE in December 2015) requires quarterly attended noise monitoring at locations representing receptors F and G, and at a location close to the quarry to represent receptors A to E. Noise										
Location	Noise Limit dB(A)																												
	Day LAeq (15 minute)																												
Residence A on Lot 100 DP 785172	40																												
Residence B on Lot 3 DP 785172	37																												
Residence G on Lot 1 DP 1032636	38																												
Any other residence or sensitive receiver not subject to a private negotiated agreement	35																												
Any approved residence on Lot 11 DP 1024564	43																												



Schedule	Condition	Condition Number	Condition Description	Status	2020 Evidence
					consultants' reports appended to the Annual Reviews include noise measurements at the quarry weighbridge representing receptors A and B only for the period September 2018 to May 2019, however not for other noise surveys during the audit period.  <b>Monthly monitoring reports and the Annual Reviews do not report quarry noise levels at the weighbridge and calculated levels at receptors A and B for any quarters.</b>
3	Limit Conditions - Noise Limits	L4.2	For the purpose of the table above, Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sunday and Public Holidays.	C	Monthly monitoring reports and Annual Reviews indicate noise monitoring occurs during the day period as defined in this condition.
3	Limit Conditions - Noise Limits	L4.3	The noise limits set out in this licence apply under all meteorological conditions except for the following: a) Wind speed greater than 3 metres/second at 10 metres above ground level; or b) Stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level; or c) Stability category G temperature inversion conditions.	C	Monthly monitoring reports and Annual Reviews indicate noise monitoring results are generally collected during the specified weather conditions in this condition. No exceedances of the noise criteria have been reported due to weather conditions outside the specified range.
3	Limit Conditions - Noise Limits - Determining Compliance	L4.4	To determine compliance with the noise limits set out in the table above, the licensee must locate monitoring equipment: a) within 30 metres of a dwelling façade (but not closer than 3 metres) where any dwelling on the property is situated more than 30 metres from the property boundary that is closest to the premises; b) approximately on the boundary where any dwelling is situated 30 metres or less from the property boundary that is closest to the premises; c) at the most affected point at a location where there is no dwelling at the location; and d) within approximately 50 metres of the boundary of a national park or nature reserve.  Note: A non-compliance of the Noise Limits table will still occur where noise generated from the premises in excess of the appropriate limit is measured:	C	The NMP does not specify the exact noise monitoring locations, however sufficient information is provided to indicate the monitoring locations are appropriate to represent noise levels from the quarry to each residence.

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			i) at a location other than an area prescribed in part (a) and part (b); and/or ii) at a point other than the most affected point at a location.		
3	Limit Conditions - Noise Limits - Determining Compliance	L4.5	For the purposes of determining the noise generated at the premises the modification factors in Fact Sheet C of the EPA's "Noise Policy for Industry" must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.	C	Noise monitoring reports prepared by consultants and appended to Annual Reviews do not describe measures to evaluate or report low frequency or tonal noise. The reported quarry noise level in May 2018 at Location G included a +2 dBA correction for low frequency noise which indicates this modifying factor was considered at that time.  <b>Bridges Acoustics recommendation: Require consultants to specifically report assessment methods and results for tonal and low frequency modifying factors, as required by this condition, for all attended noise compliance surveys.</b>
3	Limit Conditions - Blasting	L5.1	Blasting in or on the premises must only be carried out between the hours of 9:00 am and 4:00 pm Monday to Friday. No blasting is permitted on Saturdays, Sundays or public holidays. Blasting outside of the hours specified in this condition can only take place with the written approval of the EPA.	C	No blasts outside the approved times were noted in the monthly monitoring reports or Annual Reviews.
3	Limit Conditions - Blasting	L5.2	Blasting is not permitted simultaneously with adjacent quarry(s).	C	Section 6.6 of the BMP includes a commitment to avoid blast events coinciding with events at nearby quarries.
3	Limit Conditions - Blasting	L5.3	The airblast overpressure level from blasting operations in or on the premises must not exceed: a) 115 dB (Lin Peak) for more than 5% of the total number of blasts during each reporting period; and b) 120 dB (Lin Peak) at any time, at monitoring point 11 detailed in Condition P1.4.	C	Monthly environmental monitoring reports for the period May 2017 to April 2020 were reviewed. 30 blasts were reported in the 3 year audit period with no exceedances of the 115 dBL criteria.
3	Limit Conditions - Blasting	L5.4	The ground vibration peak particle velocity from blasting operations carried out in or on the premises must not exceed: a) 5 mm/second for more than 5% of the total number of blasts during each reporting period; and b) 10 mm/second at any time, at monitoring point 11 detailed in Condition P1.4.	C	Monthly environmental monitoring reports for the period May 2017 to April 2020 were reviewed. 30 blasts were reported in the 3 year audit period with no exceedances of the 5 mm/s PPV criteria.
3	Limit Conditions - Blasting	L5.5	Error margins associated with any monitoring equipment used to measure airblast overpressure or peak particle velocity are not to	C	Monthly monitoring reports do not state error margins were considered when reporting blast monitoring results.

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			be taken into account in determining whether or not the limit has been exceeded.		
3	Limit Conditions - Blasting	L5.6	The airblast overpressure and ground vibration levels in the conditions above do not apply at noise sensitive locations that are owned by the licensee or subject to a private agreement, relating to airblast overpressure and ground vibration levels, between the licensee and land owner.	C	Monthly monitoring reports include blast monitoring results at Residence B which is not owned by the licensee or subject to a private agreement.
3	Limit Conditions - Blasting	L5.7	Offensive blast fume must not be emitted from the premises. Definition: Offensive blast fume means post-blast gases from the detonation of explosives at the premises that by reason of their nature, duration, character or quality, or the time at which they are emitted, or any other circumstances: 1. are harmful to (or likely to be harmful to) a person that is outside the premises from which it is emitted, or 2. interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted.	C	The Annual Reviews do not specify whether blast fume was emitted from the premises for any blast event.  <b>It is recommended that future Annual Reviews provide comment regarding the management of blast fume.</b>
3	Limit Conditions - Hours of Operation	L6.1	All quarrying operations, including extraction, processing and loadings / transport must be conducted between 7am to 6pm Monday to Friday and 7am to 1pm Saturdays and at no time on Sundays and public holidays.  Maintenance activities may occur 24 hours per day, 7 days per week, provided these activities are inaudible at any privately owned residence.	C	NMP Section 3.3 specifies operating hours compliant with this condition. No evidence or community complaints were available to indicate quarry operation occurs outside the specified hours.
3	Limit Conditions - Potentially Offensive Odour	L7.1	No condition of this licence identifies a potentially offensive odour for the purposes of Section 129 of the <i>Protection of the Environment Operations Act 1997</i> .  Note: Section 129 of the <i>Protection of the Environment Operations Act 1997</i> , provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.	N/A	Note only.

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4	Operating Conditions - Activities must be carried out in a competent manner	O1.1	Licensed activities must be carried out in a competent manner. This includes: a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.	C	Observations during the audit site inspection confirmed that site operations were being undertaken in a competent manner (see <b>Plate 3</b> , <b>Plate 4</b> , and <b>Plate 5</b> ).  Also viewed examples of KEQ induction and training records delivered to staff and contractors during the audit period.
4	Operating Conditions - Maintenance of Plant and Equipment	O2.1	All plant and equipment installed at the premises or used in connection with the licensed activity: a) must be maintained in a proper and efficient condition; and b) must be operated in a proper and efficient manner.	C	Viewed example of KEQ Machinery Maintenance Register, including for 345D Excavator maintenance work completed during April and May 2020. Viewed KEQ Training Register dated 27/05/20, which confirms competencies and familiarisations completed by KEQ operators for site plant and equipment. Also viewed examples of certificates confirming employee training to conduct equipment operations on site that are included in the Register.  Observations during the audit site inspection found that site equipment was being efficiently operated and maintained (see <b>Plate 3</b> , <b>Plate 4</b> , and <b>Plate 5</b> ).
4	Operating Conditions - Dust	O3.1	All areas in or on the premises must be maintained in a condition that prevents or minimises the emission of dust to the air.	C	Water carts were operating on site on the day of the audit inspection to minimise dust emissions (see <b>Plate 3</b> ). Operational areas, access roads and material stockpiles were seen to be well managed to minimise dust emissions.
4	Operating Conditions - Dust	O3.2	Any activity carried out in or on the premises must be carried out by such practical means as to prevent dust or minimise the emission of dust to the air.	C	See Condition O3.1 above.
4	Operating Conditions - Dust	O3.3	Any plant operated in or on the premises must be operated by such practical means to prevent or minimise dust or other air pollutants.	C	No significant dust emissions from plant were observed during the audit site inspection (see <b>Plate 5</b> ).
4	Operating Conditions - Dust	O3.4	All trafficable areas and vehicle manoeuvring areas in or on the premises must be maintained, at all times, in a condition that will minimise the emission of dust to the air, or emission from the premises of wind-blown or traffic generated dust.	C	See Condition O3.1 above.
4	Operating Conditions - Dust	O3.5	The licensee must ensure it has sufficient water during all stages of the quarry, and if necessary adjust the scale of quarrying operations on the premises to match its available supply.	C	Site Dam 1 - Dam 3 were found to have adequate volumes of stored water during the site inspection (see <b>Plate 8</b> , <b>Plate 11</b> and <b>Plate 12</b> ).  JF (pers comm) noted that potable water can be brought to

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					site if required to address any shortfall in operational water supplies.
4	Operating Conditions - Dust	O3.6	Trucks entering and leaving the premises that are carrying loads of dust generating materials must have their loads covered at all times, except during loading and unloading.	C	Laden trucks observed leaving site during the site inspection had their loads covered.
4	Operating Conditions - Emergency Response	O4	<p>Note:</p> <p>The licensee must maintain, and implement as necessary, a current Pollution Incident Response Management Plan (PIRMP) for the premises. The licensee must keep the incident response plan on the premises at all times. The incident response plan must document systems and procedures to deal with all types of incidents (e.g. spills, explosions or fire) that may occur at the premises or that may be associated with activities that occur at the premises and which are likely to cause harm to the environment.</p> <p>The PIRMP must be tested at least annually or following a pollution incident.</p> <p>The licensee must develop the PIRMP in accordance with the requirements in Part 5.7A of the Protection of the Environment Operations (POEO) Act 1997 and POEO Regulations.</p>	C	<p>Reviewed the KEQ PIRMP dated 31/10/16, which includes the records and procedures required under this condition.</p> <p>Viewed the 'Karuah Hard Rock Quarry &amp; Karuah East Quarry Emergency Simulation Report 17.08.18' and the 'Karuah Hard Rock Quarry &amp; Karuah East Quarry Emergency Simulation Report 15.02.19' which document annual testing of the KEQ PIRMP.</p>
4	Operating Conditions - Processes and Management	O5.1	All tanks and storage areas for drums containing material that has potential to cause environmental harm must be bunded or have an alternative spill containment system in-place. The bunding and/or spill containment systems must be properly designed, engineered, and constructed to be suitable for the material types and quantities stored therein in accordance with all appropriate standards, including Australian Standards (AS)1940 and AS1596.	C	<p>Viewed the refuelling cells located on site during the audit site inspection. The audit inspection observed evidence of good management of hydrocarbon storage and refuelling areas and confirmed fuel storages were constructed to Australian Standards (see <b>Plate 16</b>).</p> <p>No tanks or drums containing potentially hazardous materials were observed outside of bunded areas.</p>
4	Operating Conditions - Processes and Management	O5.2	<p>Bunds must:</p> <p>a) have walls and floors constructed of impervious materials;</p> <p>b) be of sufficient capacity to contain 110% of the volume of the tank (or 110% volume of the largest tank where a group of tanks are installed);</p> <p>c) have floors graded to a collection sump;</p> <p>d) not have a drain valve incorporated in the bund structure;</p>	C	See Condition O5.1 above.

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			or be constructed and operated in a manner that achieves the same environmental outcome.		
4	Operating Conditions - Processes and Management	O5.3	All refuelling must be undertaken in a dedicated refuelling area. The refuelling area must be a hardstand and suitably bunded in accordance with EPA bunding guidance.	C	See Condition O5.1 above. No evidence of refuelling outside of designated areas was observed during the audit site inspection.
4	Operating Conditions - Processes and Management	O5.4	The licensee must, before undertaking any earthmoving or vegetation removal works, implement erosion and sediment control measures to prevent pollution of waters in accordance with <i>Soils and Construction: Managing Urban Stormwater 2004</i> (Landcom, 2004).	C	Evidence of both permanent and temporary erosion and sediment controls was observed during the audit site inspection (see examples in <b>Plate 8</b> and <b>Plate 12</b> ).  JF (pers comm) confirmed that the site water management systems and main storage dams were constructed in accordance with Landcom (2004).
4	Operating Conditions - Processes and Management	O5.5	Stormwater from all areas of the premises which has the potential to mobilise sediments and other material must be controlled and diverted through the appropriate erosion and sediment control and/or pollution control measures/structures, so as not to cause, permit or allow water pollution to occur.	C	See Condition O5.1 above. All sediment laden water captured within the site is directed to Dam 1 - Dam 3 for management prior to discharge.
4	Operating Conditions - Processes and Management	O5.6	The in-pit sump must be sized at all times to prevent a discharge to waters in the event of pump failure.	NT	JF (pers comm) confirmed that an in-pit sump was not developed in the audit period.
4	Operating Conditions - Waste Management	O6.1	The licensee must not irrigate, discharge or dispose of sewage effluent, on the premises.	C	JF (pers comm) confirmed that no irrigation or disposal of sewage occurred on site.
4	Operating Conditions - Waste Management	O6.2	The licensee must operate and maintain a wastewater collection and storage tank/s to enable the pump out and offsite disposal of any sewage effluent.	C	JF (pers comm) confirmed that sewage effluent was captured for off-site disposal.
4	Operating Conditions - Waste Management	O6.3	The licensee must ensure that sewage effluent collected at the premises is pumped out and disposed of in a lawful manner.	C	JF (pers comm) confirmed that sewage effluent was pumped out and disposed of by a licenced waste contractor.
4	Operating Conditions - Other Operating Conditions - Noise and Blast Management	O7.1	All acoustic bunds necessary to achieve compliance with the noise limits specified in this licence must be constructed prior to the commencement of quarrying activities and be maintained throughout the operational life of the premises to the height and location described in the Noise Management Plan.	NC	<b>Acoustic bunding for site infrastructure identified in the EA was not constructed prior to the commencement of quarrying operations. See comments on Schedule 3, Condition 7 of PA 09_0175.</b>
4	Operating Conditions - Other Operating Conditions - Noise and Blast Management	O7.2	The licensee must implement all necessary procedural controls to all mobile plant to limit engine RPM (revolutions per minute) so as to reduce noise in order to achieve compliance with the noise limits specified in this licence.	C	NMP Section 6.1 includes operating mobile plant in a quiet, efficient manner for both construction and operational phases.

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4	Operating Conditions - Other Operating Conditions - Bitumen Pre-coat Plant	O7.3	The licensee must not have a bitumin pre-coat plant on the site. Project Approval MP 09_0175 did not assess or approve such a plant.	C	JF (pers comm) confirmed that this plant has not been constructed.
5	Monitoring and Recording Conditions - Monitoring Records	M1.1	The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.	C	See Condition M1.3 below.
5	Monitoring and Recording Conditions - Monitoring Records	M1.2	All records required to be kept by this licence must be: a) in a legible form, or in a form that can readily be reduced to a legible form; b) kept for at least 4 years after the monitoring or event to which they relate took place; and c) produced in a legible form to any authorised officer of the EPA who asks to see them.	C	Annual Reviews and monthly monitoring reports are available on the KEQ website and provide the required information.  JF (pers comm) noted that the EPA had not requested any records during the audit period.
5	Monitoring and Recording Conditions - Monitoring Records	M1.3	The following records must be kept in respect of any samples required to be collected for the purposes of this licence: a) the date(s) on which the sample was taken; b) the time(s) at which the sample was collected; c) the point at which the sample was taken; and d) the name of the person who collected the sample.	C	Viewed examples of monitoring reports provided by KEQ for the audit period. Laboratory analysis reports includes the information required under M1.3 (a - d).
5	Monitoring and Recording Conditions - Requirement to Monitor Concentration of Pollutants Discharged	M2.1	For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:	C	Monitoring of discharges is outlined in Section 8.1.3 of the WMP. The monitoring frequency is in accordance with Condition M2.1.  Viewed examples of air quality monitoring for deposited dust, TSP and PM10 during the audit period. Sampling from reports reviewed is undertaken in accordance with the approved methods.  This condition designates 'grab samples' as the water sampling method for pH, TSS and turbidity monitoring. JF (pers comm) confirmed that grab sample methods are still used for discharge water sampling.
5	Monitoring and Recording Conditions - Requirement to Monitor Concentration of Pollutants Discharged	M2.2	<b>Air Monitoring Requirements Point 4,5,6,7,8</b>	C	See Condition M2.1.

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5	Monitoring and Recording Conditions - Requirement to Monitor Concentration of Pollutants Discharged	M2.2	<b>Point 9</b>	C	See Condition M2.1.
5	Monitoring and Recording Conditions - Requirement to Monitor Concentration of Pollutants Discharged	M2.3	<b>Water and/ or Land Monitoring Requirements</b> <b>Point 1,2,3</b> Note: For the purposes of the table above 'Special Frequency 1' means:(a) within 12 hours prior to any controlled discharge; and(b) daily during a controlled discharge; or(c) daily during any uncontrolled discharge.	C	See Condition M2.1.
5	Monitoring and Recording Conditions - Testing Methods - Concentration Limits	M3.1	Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with: a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.  Note: The <i>Protection of the Environment Operations (Clean Air) Regulation 2010</i> requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".	C	See Condition M2.1.
5	Monitoring and Recording Conditions - Testing Methods - Concentration Limits	M3.2	Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.	C	See Condition M2.1.
5	Monitoring and Recording Conditions - Weather Monitoring	M4.1	Prior to the commencement of operation of the development, the Proponent must establish a permanent meteorological station complying with the Approved Methods for Sampling and Analysis and the Australian Standard AS2923 - 1987, at the facility. The meteorological station must monitor the following parameters:	C	Deemed compliant by previous IEA.



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			Note: Sampling methods as identified in the table above refer to those outlined in NSW EPA, 2001, Approved Methods for the Sampling and Analysis of Air Pollutants in NSW.		
5	Monitoring and Recording Conditions - Weather Monitoring	M4.2	The location of the site chosen for the station and details of equipment, measurement and maintenance / service procedures and schedules to be installed and maintained must be submitted to the EPA and approved in writing by the EPA before any sampling or analysis is carried out.	C	Deemed compliant by previous IEA.
5	Monitoring and Recording Conditions - Weather Monitoring	M4.3	The meteorological monitoring station must be calibrated at least once every 12 months. The EPA is to be provided with data on request in a Microsoft Office software compatible format.	C	Viewed field certificate reports for the site meteorological station completed by Envirodata that confirm maintenance and calibration during the audit period, including: - 13/07/17; - 25/07/18; and - 15/08/19.
5	Monitoring and Recording Conditions - Recording of Pollution Complaints	M5.1	The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.	C	Viewed the KEQ Complaints Registers for the audit period and summary of complaints reported in audit period Annual Reviews.  <b>It is recommended that the Complaints Register available on the KEQ website is updated on a quarterly basis.</b>
5	Monitoring and Recording Conditions - Recording of Pollution Complaints	M5.2	The record must include details of the following:a) the date and time of the complaint;b) the method by which the complaint was made;c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;d) the nature of the complaint;e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; andf) if no action was taken by the licensee, the reasons why no action was taken.	C	Viewed the KEQ Complaints Register and summary of complaints reported in audit period Annual Reviews. The register includes a summary of the required information.
5	Monitoring and Recording Conditions - Recording of Pollution Complaints	M5.3	The record of a complaint must be kept for at least 4 years after the complaint was made.	C	Records of complaints were available for at least four years.
5	Monitoring and Recording Conditions - Recording of Pollution Complaints	M5.4	The record must be produced to any authorised officer of the EPA who asks to see them.	NT	JF (pers comm) confirmed no requests from the EPA in relation to complaints.

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5	Monitoring and Recording Conditions - Telephone Complaints Line	M6.1	The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.	C	KEQ operates a complaints line, with contact details included in site signage and on the KEQ website.												
5	Monitoring and Recording Conditions - Telephone Complaints Line	M6.2	The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.	C	See Condition M6.1 above.												
5	Monitoring and Recording Conditions - Telephone Complaints Line	M6.3	The preceding two conditions do not apply until 1 month after the date of the issue of this licence.	C	Deemed compliant by previous IEA.												
5	Monitoring and Recording Conditions - Blasting	M7.1	<div>To determine compliance with Blast Limit conditions of this licence: a) Airblast overpressure and ground vibration levels must be measured and electronically recorded for monitoring point 11 for the parameters specified in Column 1 of the table below; and b) The licensee must use the units of measure, sampling method, and sample at the frequency specified opposite in the other</div> <table><tr><th>Parameter</th><th>Units of Measure</th><th>Frequency</th><th>Sampling Method</th></tr><tr><td>Airblast Overpressure</td><td>Decibels (Linear Peak)</td><td>All blasts</td><td>Australian Standard AS 2187.2-2006</td></tr><tr><td>Ground Vibration Peak Particle Velocity</td><td>millimetres/second</td><td>All blasts</td><td>Australian Standard AS 2187.2-2006</td></tr></table>	Parameter	Units of Measure	Frequency	Sampling Method	Airblast Overpressure	Decibels (Linear Peak)	All blasts	Australian Standard AS 2187.2-2006	Ground Vibration Peak Particle Velocity	millimetres/second	All blasts	Australian Standard AS 2187.2-2006	C	<div>a) BMP Figure 2 indicates the blast monitoring point is adjacent to Residence B (Monitoring Point 11)  b) BMP Sections 4 and 7 and blast monitoring results in monthly monitoring reports and Annual Reviews indicate the required units are measured and reported.</div>
Parameter	Units of Measure	Frequency	Sampling Method														
Airblast Overpressure	Decibels (Linear Peak)	All blasts	Australian Standard AS 2187.2-2006														
Ground Vibration Peak Particle Velocity	millimetres/second	All blasts	Australian Standard AS 2187.2-2006														
5	Monitoring and Recording Conditions - Noise Monitoring	M8.1	<div>attended noise monitoring must be undertaken in accordance with all noise conditions and: a) during a period of normal quarry operations; b) at each one of the locations listed in the noise limits table of this licence; c) occur quarterly in the reporting period; d) occur during each day period as defined in the NSW Noise Policy for Industry. Note: The frequency of noise monitoring will be reviewed, upon request, after two years of quarterly monitoring (approximately June 2021).</div>	NC	<div>a) Noise monitoring results reported in monthly monitoring reports and Annual Reviews indicate noise surveys occur during normal operating hours. The quarry did not operate for the period September 2018 to July 2019. Noise monitoring results during this period occurred in the absence of quarry operation, however remained representative of normal operation for that period.  <b>b) Noise monitoring results are reported for Residences F and G, however not for the other residences. Consultant reports for the period</b></div>												

Schedule	Condition	Condition Number	Condition Description	Status	2020 Evidence
					<p><b>September 2018 to May 2019 included a noise monitoring location representative of these receptors, however that time period did not include quarry operation.</b></p> <p>c) Quarterly monitoring reports were available for the audit period, as required.</p> <p>d) Monitoring reports indicate all noise surveys occurred during the day period.</p>
6	Reporting Conditions - Annual Return Documents	R1.1	<p>The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:</p> <ol style="list-style-type: none"> <li>1. a Statement of Compliance,</li> <li>2. a Monitoring and Complaints Summary,</li> <li>3. a Statement of Compliance - Licence Conditions,</li> <li>4. a Statement of Compliance - Load based Fee,</li> <li>5. a Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan,</li> <li>6. a Statement of Compliance - Requirement to Publish Pollution Monitoring Data; and</li> <li>7. a Statement of Compliance - Environmental Management Systems and Practices.</li> </ol> <p>At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.</p>	C	Viewed the EPA POEO Public Register website for EPL 20611 and confirmed lodgement of Annual Returns.
6	Reporting Conditions - Annual Return Documents	R1.2	<p>An Annual Return must be prepared in respect of each reporting period, except as provided below.</p> <p>Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.</p>	C	Viewed the EPA POEO Public Register website for EPL 20611. Annual Returns were submitted for each EPL 20611 reporting period.
6	Reporting Conditions - Annual Return Documents	R1.3	Where this licence is transferred from the licensee to a new licensee: a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and b) the new licensee must	NT	No transfer or surrender of the licence occurred during the audit period.

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			prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period. Note: An application to transfer a licence must be made in the approved form for this purpose.		
6	Reporting Conditions - Annual Return Documents	R1.4	Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on: a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.	NT	See Condition R1.3 above.
6	Reporting Conditions - Annual Return Documents	R1.5	The Annual Return for the reporting period must be supplied to the EPA via eConnect EPA or by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').	C	Viewed the EPA POEO Public Register website for EPL 20611. Annual Returns required during the audit period were submitted within the 60-day timeframe required under this condition.
6	Reporting Conditions - Annual Return Documents	R1.6	The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.	C	JF (pers comm) confirmed that copies of the Annual Returns are retained on site as required.
6	Reporting Conditions - Annual Return Documents	R1.7	Within the Annual Return, the Statements of Compliance must be certified and the Monitoring and Complaints Summary must be signed by: a) the licence holder; or b) by a person approved in writing by the EPA to sign on behalf of the licence holder.	C	Viewed the EPA POEO Public Register website for EPL 20611. Annual Returns were submitted for each EPL 20611 reporting period.
	Reporting Conditions - Notification of Environmental Harm	R2	Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.	NC	<b>Evidence was not available at the time of audit to confirm that incidents which occurred during the audit period were reported to EPA as required under this condition.</b>
6	Reporting Conditions - Notification of Environmental Harm	R2.1	Notifications must be made by telephoning the Environment Line service on 131 555.	NC	<b>See Condition R2 above</b>
6	Reporting Conditions - Notification of Environmental Harm	R2.2	The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.	NC	<b>See Condition R2 above</b>

Schedule	Condition	Condition Number	Condition Description	Status	2020 Evidence
6	Reporting Conditions - Written Report	R3.1	Where an authorised officer of the EPA suspects on reasonable grounds that: a) where this licence applies to premises, an event has occurred at the premises; or b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence, and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.	C	Viewed EPA correspondence dated 31/10/18 requiring KEQ to investigate and implement additional noise mitigation measures prior to the recommencement of quarrying activities on site.  KEQ commissioned Thearle Acoustics to complete this review and recommend additional controls to be implemented. On receipt of the Thearle Acoustics report dated February 2019, EPA put a PRP in place requiring that the additional noise mitigation controls were installed. See Condition G2.1 below.
6	Reporting Conditions - Written Report	R3.2	The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.	C	See Condition R3.1 above.
6	Reporting Conditions - Written Report	R3.3	The request may require a report which includes any or all of the following information: a) the cause, time and duration of the event; b) the type, volume and concentration of every pollutant discharged as a result of the event; c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event; d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort; e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants; f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and g) any other relevant matters.	C	See Condition R3.1 above.
6	Reporting Conditions - Written Report	R3.4	The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.	C	
6	Reporting Conditions - Other Reporting Conditions - Reporting	R4.1	The licensee must report any exceedance of the licence blasting limits to the regional office of the EPA as soon as practicable after	NT	Monitoring reports indicate no exceedances of the blast limits occurred during the audit period.

Schedule	Condition	Condition Number	Condition Description	Status	2020 Evidence						
	Blasting Limit Exceedance		the exceedance becomes known to the licensee or to one of the licensee's employees or agents.								
6	Reporting Conditions - Other Reporting Conditions - Annual Blast Monitoring Report	R4.2	The licensee must supply a Blast Monitoring Report with the EPA licence Annual Return, which must include the following information relating to each blast carried out within the premises during the respective reporting period: a) the date and time of the blast; b) the location of the blast on the premises; c) the blast monitoring results at each blast monitoring station; d) an explanation for any missing blast monitoring results.	NT	See Condition R4.1 above.						
6	Reporting Conditions - Other Reporting Conditions - Noise Monitoring Report	R4.3	A quarterly noise monitoring report must be submitted to the EPA within 30 days of completion of each round of quarterly noise monitoring. The assessment must be prepared by a suitably qualified and experienced acoustical consultant and include: a) a description of the plant in operation and activities being undertaken on the premises during each noise monitoring assessment; b) an assessment of compliance with noise limits presented in this licence; and c) an outline of any management actions taken within the monitoring period to address any exceedances of the limits contained in this licence.	NC	<b>The noise consultants reports and KEQ monthly monitoring reports include assessment of compliance with the noise limits, however they do not include: a) description of the plant in operation and activities during each noise monitoring assessment; and c) an outline of any management actions taken to address any exceedances.</b>						
7	General Conditions	G1	Copy of licence kept at the premises or plant	C	A copy of the licence was available on site during the audit inspection.						
7	General Conditions	G1.1	A copy of this licence must be kept at the premises to which the licence applies.	C	See Condition G1.						
7	General Conditions	G1.2	The licence must be produced to any authorised officer of the EPA who asks to see it.	NT	JF (pers comm) confirmed no requests had been made by the EPA.						
7	General Conditions	G1.3	The licence must be available for inspection by any employee or agent of the licensee working at the premises.	C	See Condition G1.						
7	General Conditions	G2	Other general conditions								
7	General Conditions	G2.1	Completed Programs	C	Viewed the 'Karuah East Quarry Noise Mitigation Review' (Thearle Acoustics) dated 26/02/19. which was undertaken in response to an EPA request in 2018 to confirm noise controls required to comply with the conditions of EPL 20611. It is recommended that the Noise Management Plan is revised to reflect the additional / modified noise						
			<table><tr><th>Program</th><th>Description</th><th>Completed Date</th></tr><tr><td>Pollution Reduction Study 1 - Design the Necessary Noise Mitigation Measures</td><td>Engage an acoustic engineer to investigate the site-specific noise mitigation measure/s that are necessary to meet the noise limits of this licence at all times.</td><td>01-March-2019</td></tr></table>	Program	Description	Completed Date	Pollution Reduction Study 1 - Design the Necessary Noise Mitigation Measures	Engage an acoustic engineer to investigate the site-specific noise mitigation measure/s that are necessary to meet the noise limits of this licence at all times.	01-March-2019		
Program	Description	Completed Date									
Pollution Reduction Study 1 - Design the Necessary Noise Mitigation Measures	Engage an acoustic engineer to investigate the site-specific noise mitigation measure/s that are necessary to meet the noise limits of this licence at all times.	01-March-2019									

Schedule	Condition	Condition Number	Condition Description	Status	2020 Evidence
					mitigation measures that were adopted by KEQ following completion of the Thearle Acoustics review.  Viewed EPA correspondence dated 01/04/19 confirming that the noise mitigation PRP has been completed.

***APPENDIX C***  
***Site Inspection Plates***





**Plate 1**  
**Example of survey pegs delineating site disturbance boundary**



**Plate 2**  
**Speed limit signage on site haul road**  
(note vegetated topsoil stockpile in background)





**Plate 3**  
**Water cart in operation during the site inspection**



**Plate 4**  
**Site Infrastructure Area & Screening Plant**



**Plate 5**  
**Site Extraction Area**



**Plate 6**  
**Site Meteorological Station**





**Plate 7**  
**Watercart fill point adjacent to Dam 1**



**Plate 8**  
**Dam 1 Layout (looking due East)**



**Plate 9**  
**Dam 1 Flocculant Treatment System**



**Plate 10**  
**Dam 1 Discharge Location**  
(note chain link fence to prevent access from site to adjacent KEQ biodiversity offset areas)





**Plate 11**  
**Dam 2 Layout** (looking due West)



**Plate 12**  
**Dam 3 Layout** (looking due South)





**Plate 13**

**Example of discharge location signage**

(note similar signage was in place at other approved discharge locations)



**Plate 14**

**Fencing and signage to delineate KEQ biodiversity offset areas**





**Plate 15**  
**Example of nest box installed in KEQ biodiversity offset areas**



**Plate 16**  
**Example of site fuel storage pod on site**





**Plate 17**  
**Site access gates and boundary fencing**  
(note speed limit and blast advisory signage)



**Plate 18**  
**Enclosure of the site primary crusher to minimise noise and dust impacts**



**Plate 19**  
**Site wheel wash for trucks leaving site**



**Plate 20**  
**Fauna crossing in place over the site haul road**





**Plate 21**

**Example of logs stockpiled to provide habitat in KEQ biodiversity offset areas**



**Plate 22**

***Tetratheca Juncea* management site within the KEQ biodiversity offset area**

***APPENDIX D***  
***Stakeholder Correspondence***

Joel Fleming  
Environmental Officer  
Karuah East Quarry Pty Ltd  
PO Box 23  
Karuah NSW 2324

Via Email ONLY: [joel.fleming@hunterquarries.com.au](mailto:joel.fleming@hunterquarries.com.au)

28/07/2020

Dear Mr Fleming

**Agreement of Independent Auditor  
Karuah East Quarry (MP09\_0175)**

I refer to your request (MP09\_0175-PA-5) for the Secretary's approval of suitably qualified, experienced and independent audit team to undertake the 2020 Independent Environmental Audit (IEA) for Karuah East Quarry.

In accordance with Schedule 5 Condition 9 of MP09\_0175 as modified (the approval) and the Department's *Post-approval requirements for State Significant Developments Independent Audit Guideline, October 2015* (IEA Guideline), the Secretary has endorsed the following audit team:

- Dorian Walsh (Hansen Bailey) - Lead Auditor
- Theresa Folpp (Hansen Bailey) - Assistant Auditor
- Andrew Wu (Hansen Bailey) - Surface and groundwater specialist
- Katrina Wolf (Cumberland Ecology) - Biodiversity specialist
- Mark Bridges (Bridges Acoustic) - Noise specialist

Please ensure this correspondence is appended to the Independent Audit Report.

The IEA must be prepared, undertaken and finalised in accordance with the requirements of the approval and the IEA Guideline. Failure to meet these requirements will require revision and resubmission.

The Department reserves the right to request an alternate auditor or audit team for future audits.

Notwithstanding the agreement for the above listed audit team for this Project, each respective project approval or consent requires a request for the agreement to the auditor or audit team be submitted to the Department, for consideration of the Secretary. Each request is reviewed and depending on the complexity of future projects, the suitability of a proposed auditor or audit team will be considered.

As per Schedule 5 Condition 9 of the approval, within 3 months of commencing the IEA (i.e. from the date of the first day of the site inspection), or as otherwise agreed with the Secretary, the audit

report and the response to audit recommendations (RAR) are to be submitted to the Department via the Major Project website.

If you wish to discuss the matter further, please contact Jennifer Sage, Compliance Officer on 0400 245 170 or email to [compliance@planning.nsw.gov.au](mailto:compliance@planning.nsw.gov.au)

Yours sincerely

A handwritten signature in black ink, appearing to read 'H Watters', with a stylized, cursive script.

Heidi Watters  
Team Leader Northern  
Compliance

As nominee of the Planning Secretary



## Dorian Walsh

---

**Subject:** FW: Karuah East Quarry - Independent Environmental Audit Consultation

---

**From:** Jennifer Sage [jennifer.sage@dpie.nsw.gov.au]

**Sent:** Tuesday, 25 August 2020 12:50 PM

**To:** Dorian Walsh

**Subject:** RE: Karuah East Quarry - Independent Environmental Audit Consultation

Hello Dorian

Thank you for your email on 17 August 2020 regarding the Independent Environmental Audit for Karuah East Quarry.

The Department requests that the audit include an assessment of the following aspects of the development –

1. The preparation and implementation of the following management plans –
  - **Noise Management Plan** in accordance with Schedule 3 Condition 7 of the approval.  
Hunter Quarries has previously failed to meet the noise criteria specified in the consent and the requirement to implement appropriate noise mitigation measures identified in the Noise Management Plan.
  - **Air Quality Management Plan** in accordance with Schedule 3 Condition 16 of the approval.  
The department is interested in the implementation of the AQMP, in particular implementation of mitigation measures and monitoring requirements, based on previous non-compliances reported to the Department and complaints received by the Department about dust emissions.
  - **Water Management Plan** in accordance with the Schedule 3 Condition 21  
Hunter Quarries has failed to meet the criteria for surface water discharges from the site for the past three reporting periods, and has failed to conduct the approved groundwater monitoring program (indicators for groundwater quality and level) . The audit should assess whether the various components of the WMP have been implemented (including monitoring programs) to ensure impacts to surface and groundwater are minimised.
  - **Tetratheca juncea Translocation Management Plan** in accordance with Schedule 3 Condition 27
  - **Biodiversity Offset Area Management Plan** in accordance with Schedule 3 Condition 33  
The department considers that impacts to biodiversity and threatened species are a key environmental issue for this project, and so the audit should assess whether the management measures outlined in the above two plans have been implemented.
2. Site access and disturbance area in accordance with Schedule 2 Condition 2
  - Is site access, land clearing and quarrying operations in accordance with Terms of Approval, in particular the approved site access and disturbance boundary identified in the MOD2 Environmental Assessment?
3. Reporting – Notification of incidents and non-compliances in accordance with Schedule 5 Condition 7 and 7A.
  - Has Hunter Quarries notified the Department of incidents and non-compliances?

Feel free to contact me on the details below if you have any queries.

Regards  
Jen

**Jennifer Sage**  
**Compliance Officer**

Planning and Assessment | Department of Planning, Industry and Environment

T 02 6575 3420 M 0400 245 170 | E [jennifer.sage@dpie.nsw.gov.au](mailto:jennifer.sage@dpie.nsw.gov.au)

PO Box 3145, Singleton NSW 2330

[www.dpie.nsw.gov.au](http://www.dpie.nsw.gov.au)

**Dorian Walsh**

---

**Subject:** FW: Karuah East Quarry - Independent Environmental Audit Consultation

**From:** Rebecca Akhurst [Rebecca.Akhurst@epa.nsw.gov.au]  
**Sent:** Monday, 17 August 2020 12:03 PM  
**To:** Dorian Walsh  
**Subject:** RE: Karuah East Quarry - Independent Environmental Audit Consultation

Hi Dorian,

Thank you for your email dated 17 August 2019 inviting comment from the Environment Protection Authority (EPA) in regard to Hansen Bailey's independent environmental audit of Karuah East Quarry Pty Ltd's Karuah East Quarry. The EPA encourages the undertaking of independent audits as a useful tool for industry to ensure it is meeting its environmental objectives and environment protection licences requirements.

The EPA understands that the independent environmental audit is a requirement of the quarry's development consent. The EPA does not provide specific input to independent audits and I thank you for your request.

Regards,

**Rebecca Akhurst**

**Regional Operations Officer**

**Regulatory Operations – Metropolitan North**

NSW Environment Protection Authority

+61 2 4908 6807 +61 408 611 267

[rebecca.akhurst@epa.nsw.gov.au](mailto:rebecca.akhurst@epa.nsw.gov.au) [www.epa.nsw.gov.au](http://www.epa.nsw.gov.au) [@EPA\\_NSW](https://twitter.com/EPA_NSW)

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*Please note I work Monday, Tuesday and Wednesday*



AREQ0011597

Mr Dorian Walsh  
Hansen Bailey  
6/127-129 John Street  
Singleton NSW 2330  
By email: [dwalsh@hansenbailey.com.au](mailto:dwalsh@hansenbailey.com.au)

Dear Mr Walsh

**Subject: Karuah East Quarry**

Thank you for your email dated 17 August 2020 requesting consultation on the independent audit to be undertaken of the Karuah East Quarry.

Records held by the NSW Resources Regulator (the Regulator) indicate that there are no mining leases under the *Mining Act 1992* currently associated with the quarry. As such, the Regulator does not have any requirements for the independent audit.

Yours sincerely

**Jenny Ehmsen**  
Principal Compliance Auditor

20 August 2020

## Dorian Walsh

---

**Subject:** FW: Karuah East Quarry - Independent Environmental Audit Consultation

---

**From:** Mathew Bell <[Mathew.Bell@MidCoast.nsw.gov.au](mailto:Mathew.Bell@MidCoast.nsw.gov.au)>

**Sent:** Friday, 21 August 2020 1:44 PM

**To:** Dorian Walsh <[DWalsh@hansenbailey.com.au](mailto:DWalsh@hansenbailey.com.au)>

**Subject:** RE: Karuah East Quarry - Independent Environmental Audit Consultation

Hello Dorian,

Thanks for your e-mail.

There are no specific environmental issues that I request a particular focus on for the IEA process for the Karuah East Quarry.

Generally, however, I am interested in the success or otherwise of the establishment of the permanent instrument to protect the offset lands and the success of the management of the offset lands to enhance biodiversity on this site. If some attention could be given to the success of the offsets, I would appreciate that being reported.

Regards

**Mathew Bell**

**Senior Ecologist**

## Dorian Walsh

---

**Subject:** FW: Karuah East Quarry - Independent Environmental Audit Consultation

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**From:** Michael Ulph <Michael.Ulph@ghd.com>

**Sent:** Monday, 31 August 2020 11:48 AM

**To:** Dorian Walsh <DWalsh@hansenbailey.com.au>

**Subject:** RE: Karuah East Quarry - Independent Environmental Audit Consultation

Hi Dorian

My apologies for the delay.

I am the independent chair for the KEQ CCC, so not really a Key Agency.

The main areas of interest for the community members on the CCC have been around noise.

The work that KEQ has done seems pretty good, in their efforts to reduce and contain noise from the site.

I'd say that would be the main thing of interest.

We do have a CCC meeting next Monday – so if you like I can bring this up and see if the members mention anything else?

Just let me know.

Regards  
Michael

### Michael Ulph

M.EnvMgt&Sust M.Mktg BA(Comms)

**Technical Director – Communications & Stakeholder Engagement**

### GHD

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T: 61 2 4910 7788 | M: 0458 049 847 | V: 227788 | E: [Michael.ulph@ghd.com](mailto:Michael.ulph@ghd.com)

Level 3 24 Honeysuckle Drive Newcastle NSW 2300 | <http://www.ghd.com/>

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